DON OLINE LANDFILL
CLEANCARE PLP SEARCH
DOCUMENTATION
Volume 1

M E M O R A N D U M

October 12, 2001

TO: K Seiler, Section Manager, Hazardous Waste and Toxics Reduction Program
Rebecca Lawson, Section Manager, Toxics Cleanup Program

FROM: Kerry Graber, Hazardous Waste Inspector Kerry Graber

SUBJECT: Don Oline Landfill/CleanCare PLP Search Documentation

Attached to this memo is a summary Excel table of relevant documents found in the Southwest Regional Office's files. The most pertinent documents have been copied and placed into two bound report binders under today's date in order to bring forward from the older files the information about potentially liable parties (see attached.)

A search was conducted of both archived and current files. The search included files under the name of Don Oline, Northwest Processing, CleanCare, Philip/Burlington Environment and Chempro. This information should be considered when Ecology decides to name PLP's for CleanCare and the surrounding properties.

After talking with Sherri Greenup, I am also placing historical aerial photographs and plat drawings of the area in a designated map drawer located around the corner from the file room. This drawer will be labeled "Don Oline Landfill/CleanCare Photos and Maps" and will contain a copy of this memo. I have instructed Lydia Cabeza to place your names on the back of the photos in case, down the road, there is any question as to what these photographs are.

Please send the attached summary table and bound documents to the Don Oline Landfill file with cross-references to all of the above files. Thanks.

KAG

Attachments: Summary CleanCare File Search Table
Volumes 1 and 2 Search Documents

cc: Kaia Petersen
Panjini Balaraju

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

XXXXXXXXXXXXXXXX

May 9, 1972

COPY

Mr. Carl Virgil, Manager
Hooker Chemical Company
P. O. Box 2157
Tacoma, Washington 98401

Dear Mr. Virgil:

You requested a statement from me regarding disposal of lime sludge from your plant in a private landfill site at the Port of Tacoma either between the Puyallup River and the Milwaukee Waterway, or on Taylor Way, south of the Kaiser Aluminum plant, during our telephone conversation on May 5, 1972.

The chemical analysis which you provided indicates the material is relatively inert, especially after being mixed with soil as proposed. In fact, lime sludge is a principal ingredient of "soil cement", which is used as stabilized soil sub-base under freeways, etc.

Since you have been directed by this department to cease dumping this material in Puget Sound, and by local officials to cease disposing of it at the local sanitary land fill, this proposal appears necessary.

Mr. Dan Burrows, the contractor who will maintain the landfill operation and do the hauling, has made every effort to coordinate the operation with the various city, county, and state agencies involved, or even remotely interested. He has obtained the necessary permits and complied with all known regulations, and appears to be dedicated to providing a needed service in a well-thought-out manner.

Thus, I thank you for the opportunity to comment on the proposal, but the Department of Ecology has no jurisdiction in this case. So long as the project is carried out as proposed, I believe there will be no environmental damage.

If you have any further questions, please let me know.

Sincerely yours,

Michael P. Price
District Engineer

MPP:dlb
cc: (2) Dan Burrow

MEMORANDUM

file - Hooker

CHECK
INFORMATON ____
FOR ACTION ____
PERMIT ____
OTHER ____

State of Washington
Department of Ecology

TO: lil MB. Mike Price & Files

FROM: Ron Robinson Ron R.

SUBJECT: Demolition and lime sludge disposal site – Hooker Chemical
Tacoma, Pierce County

DATE: December 21, 1972

The area that would be filled is a very steep side canyon off a larger canyon. There is no visible running water in this canyon so only rain water should flow through this area. The disposal site is in northeast Tacoma adjacent and South of Highline Road. I believe the site is just off 24th Street. There has been considerable demolition debris dumped there already. Any leachate from this site would travel about one half mile down the main canyon before entering the Hylebos Waterway. There is not a regular flowing stream as such that any leachate would affect. I did warn Mr. Grice the landowner and Don Burrows that if water pollution developed from their operation we may have to take enforcement action to have it resolved.

I also told them to contact the Pierce County Solid Waste Coordinator, George Cvitanich.

pr

cc: Pierce County Health Department
Pierce County Solid Waste Coordinator, George Cvitanich

MEMORANDUM

CHECK
INFORMATON ____
FOR ACTION ____
PERMIT ____
OTHER ____

TO: Jim Krull and Jerry Louthain

FROM: Stan Springer

SUBJECT: Landfilling at Buffelin Woodworking Co. -- Tacoma

DATE: December 2, 1974

State of Washington Department of Ecology

I inspected the above industrial facility on November 26, 1974, and found an apparently illegal landfilling project underway. Buffelin has provided areas for Glacier Sand & Gravel Co. to dump the solids cleaned from their concrete waste settling ponds (see attached map). The log pond area has been filled almost to completion, and is entirely behind a timber bulkhead which is at least partially effective in keeping the waste material out of navigable water.

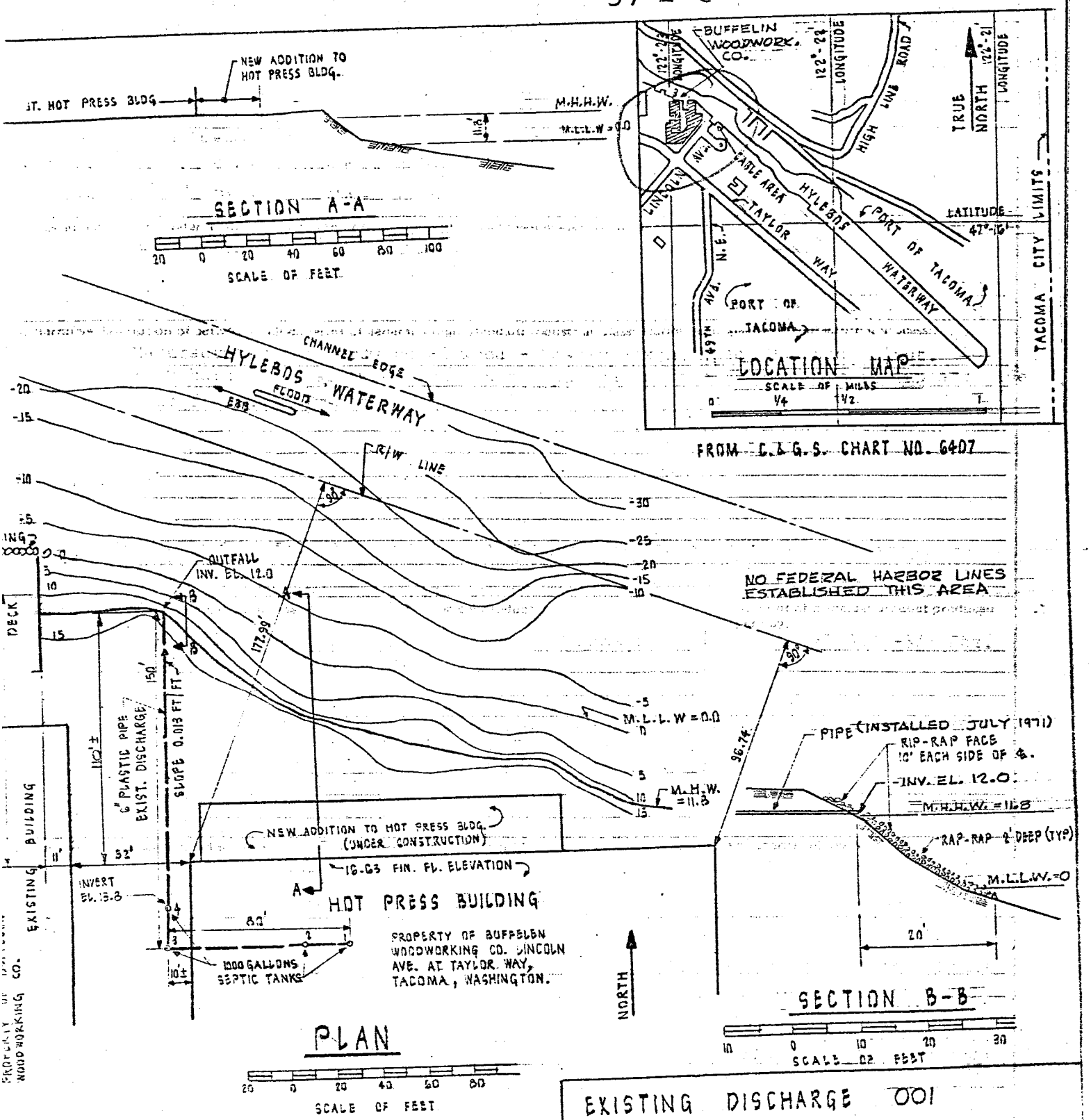
At the time of my inspection, Glacier's trucks were dumping waste from their pond directly into Hylebos Waterway adjacent to Buffelin's outfall. I asked Mr. Jack Holm of Buffelin whether they had a Corps of Engineers permit to fill in navigable waters. He replied that he did not believe so. I recommended to him that they stop filling immediately. Both of these fill areas are in the shorelines and probably without permits.

I contacted the dispatcher at Glacier Sand & Gravel, notified them of the situation, and advised them to cease dumping into the waterway. I intend to contact Mr. Bud Larson at Glacier as soon as he is available, and may recommend a docket.

I have reported this apparent violation to the Corps of Engineers for investigation.

SMS:mw

071-0YB-2-000281

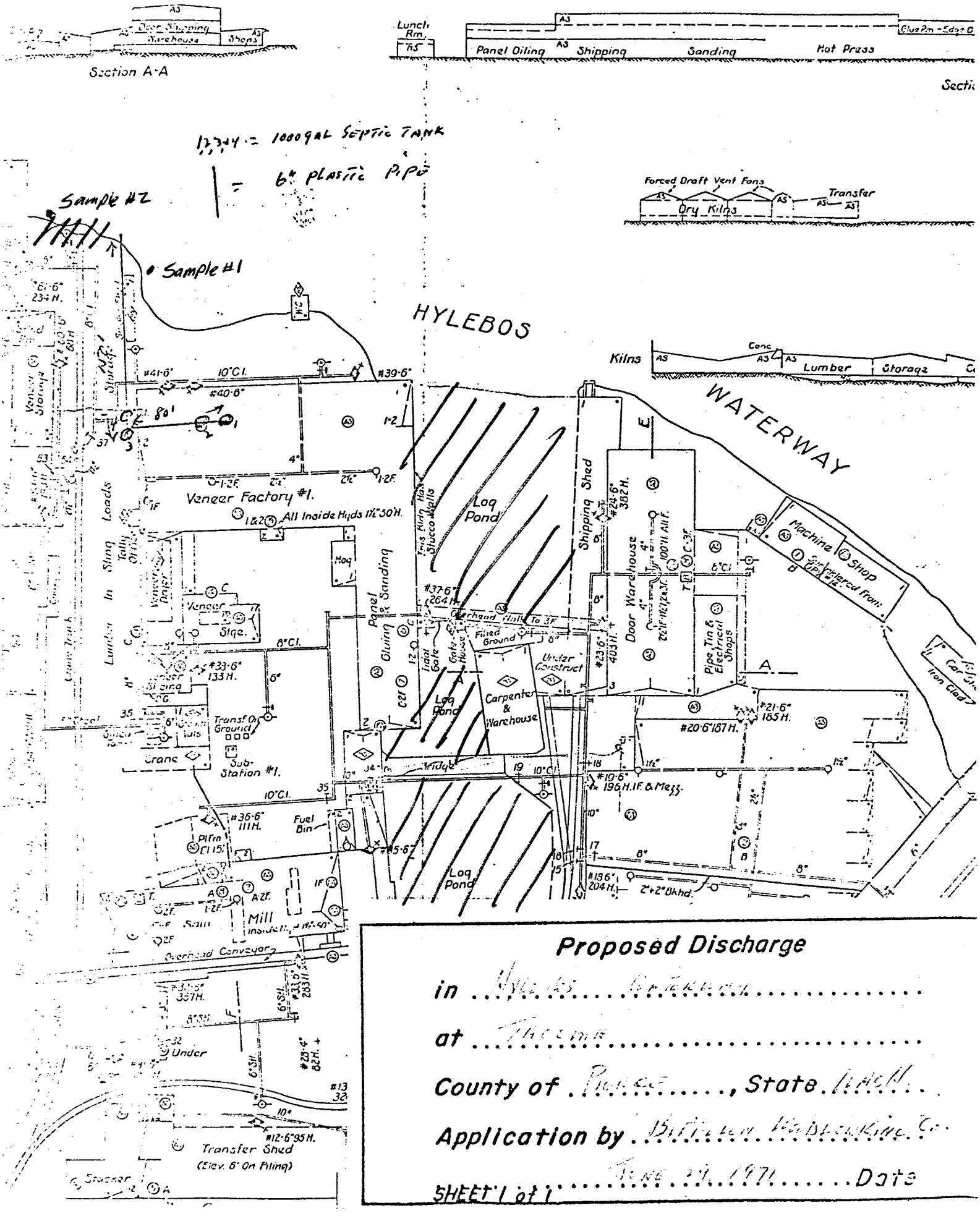


NOTE:

1. SOUNDINGS ARE IN FEET AND REFER TO M.L.L.W., U.S. CORPS OF ENGINEERS

EXISTING DISCHARGE 001
INTO HYLEBOS WATERWAY
AT TACOMA, WASHINGTON.
COUNTY OF PIERCE, STATE WASHINGTON.
APPLICATION BY BUFFELEN WOODWORKING CO.
DATE: 21 DEC. 1971
SHEET 1 OF 1

4/9


Section A-A
Lunch Rm.
Panel Oiling
Shipping
Sanding
Hot Press
Section
12,344 = 1000 gal SEPTIC TANK
= 6" plastic pipe
Forced Draft Vent Fans
Dry Kilns
Transfer
Sample #2
Sample #1
HYLEBOS
WATERWAY
Kilns
Conc
Lumber
Storage
Veneer Factory #1.
All Inside Hgts 11'-50'H.
Log Pond
Shipping Shed
Door Warehouse
Machine Shop
Veneer
Slgs.
Panel Gluing & Sanding
Carpenter & Warehouse
Under Construct
Pipe, Tin & Electrical Shops
Transf On Ground
Crane
Sub-Station #1.
Fuel Bin
Mill
Overhead Conveyor
Transfer Shed
(Elev. 6' On Piling)
Proposed Discharge
in Hylebos Waterway
at Tacoma
County of Pierce, State Wash.
Application by Pittsburgh Plate Glass Co.
June 21, 1971 Date
SHEET 1 of 1

December 2, 1974

State of Washington
Department of Ecology

Mr. Pete Thorsen
Seattle District, Corps of Engineers
4735 E. Marginal Way South
Seattle, Washington

Re: Unauthorized Filling in Hylebos Waterway, Tacoma, Washington

Dear Mr. Thorsen:

I would like to report an unauthorized filling operation which has been taking place at Buffelin Woodworking Company's plant on the Hylebos Waterway.

I inspected Buffelin's plant on November 26, 1974, and observed dump trucks owned by Glacier Sand & Gravel Company dumping waste concrete residue from Glacier's settling ponds directly into the Hylebos Waterway. In addition, Buffelin's log pond has been filled with this concrete waste (please see enclosed maps).

Mr. Jack Holm of Buffelin Woodworking told me they did not have a Corps permit for filling. The dispatcher at Glacier Sand & Gravel told me that they were dumping the waste in places provided by Buffelin. I advised both Buffelin and Glacier to cease dumping into the waterway immediately and until permits were obtained.

I feel certain that the fill area designated as #1 would require a permit, and suspect that the log pond (#2) fill may as well.

If I can assist you in investigating this matter, please contact me.

Sincerely,

Stanley M. Springer
District Engineer

SS:jr

cc: Leighton Pratt

Enclosure

Southwest Washington Regional Headquarters Olympia, Washington 98504 Telephone (206) 753-2353

DX 5-21
Jan-Mar 1992 Public Reques

August 4, 1975

State of Washington
Department of Ecology

Mr. J. C. Manlove
Reichhold Chemicals, Inc.
P. O. Box 1482
Tacoma, WA 98401

Dear Mr. Manlove:

Thank you for walking us through your Spill Prevention, Containment and Countermeasure Plan and your solid waste handling and disposal plan.

In relation to your SPCC plan, I would like to state the following comments which we discussed during our visit:

1. It appears that there are three areas vulnerable to pollutant discharge into your storm sewer system: 1)the pentachlorophenol storage area, 2)the spent activated carbon stockpile areas, and 3) the spoil area outlet. It is understood that you will investigate the storm water effluents from these areas and take appropriate corrective action if necessary.

2. Several product tanks vulnerable to spillage do not have high level alarms. It is my understanding that you will install alarms on all tanks where they might reduce spill potential.

3. The berm surrounding your oil product tank farm is in need of repair. It is understood that these repairs will be made to provide holding capacity for 110% of the volume of the largest tank within any confined area.

4. There is no containment dike surrounding the HCl storage tanks. It is understood that you will look at some means of curbing this area to divert any spills to the wastewater sump adjacent to that area.

5. The catch basin adjacent to the OBPCP process area has received some product spillage from truck loading spillage. This catch basin will be blocked off to confine spillage to the immediate area.

6. Sandbags or other means of rapidly deployable spill containment should be stockpiled near particularly vulnerable storm drains and high-potential spill areas.

We concur with the other findings and proposed changes recommended in your SPCC plan, and appreciate your efforts in developing this plan.

In relation to your solid waste handling and disposal plan, the potential problems with storm water contamination from spent activated carbon storage and from the spoil area are discussed in Item #1 above. We see no reason why the waste carbon could not be hauled to the city landfill for disposal, provided that this represents a feasible means of disposal to your company.

All other elements of your solid waste handling and disposal plan conform to our requirements. An approval letter will follow.

Sincerely,

Stanley M. Springer
District Engineer

SMS:mw

DEPARTMENT OF ECOLOGY

INSPECTION REPORT

To Dean Wood

Inspector Jim Oberlander

Date of Visit 6-17-77

Permit No. /

Name of Entity General Metals

Permit Expires

City Tacoma County

New Industry

Person Contacted None

Type of Facility

Receiving Water

Type of Treatment System

Operation Satis Fair Unsatis ✓

Does not comply with permit conditions

Describe Solid Waste (car interior materials) dump on to shore line & pushed into high tide area along the Hylebos Waterway near intersection of Highline Rd. & Marine View Drive.

This is a violation of RCW 90.48 Water Pollution Law. A fine of up to $5,000 could be levid & required to remove.

letter should go to GM about problems with there waste contractor | with cc to contractor | Use approved sites!

June 27, 1977

State of Washington
Department of Ecology

General Metals, Inc.
1902 Marine View Drive
Tacoma, WA 98422

Attention: Mr. Martin Brashem:

Dear Mr. Brashem:

This letter is in reference to our conversation at your facility on June 17, 1977, and in particular to the matter of disposal of the car interior wastes.

After leaving your office, Jim Oberlander discovered car interior materials dumped on the shoreline and pushed into high tide area along the Hylebos Waterway near the intersection of Highline Road and Marine View Drive.

This illegal dumping is in violation of the Solid Waste Act (RCW 70.95) which is administered by the Tacoma-Pierce County Health Department. This dumping has also violated the State Water Pollution Control Act (RCW 90.48) which is administered by this agency and such violations can result in hefty fines to the guilty party or entity for violations of this Act.

It is strongly recommended that you confer with your disposal contractor, whom I believe is Don Oline, regarding this matter.

Please contact Doug Pierce of the Health Department for locations of permitted disposal sites.

If you have any questions concerning this matter, please contact me at 753-2356.

Sincerely,

Dean Wood
Environmental Quality Inspector

DW:kjs

cc: Doug Pierce

702 MARINE VIEW DRIVE • TACOMA, WASHINGTON • 98422
(206) 572-4000
CABLE ADDRESS: GENMETAC TACOMA
Telex: 327435

General Metals of Tacoma, Inc.

July 26, 1977

State of Washington
Department of Ecology
Southwest Washington Regional Headquarters
Olympia, WA 98504

Attn: Dean Wood, Environmental Quality Inspector

Dear Mr. Wood:

Thank you for your letter of June 27, 1977 regarding disposal of our waste material from our shredding plant.

As you know, our disposal contractor is Brad Oline Trucking Co., 2511-53rd Ave. N.W. Puyallup, WA 98371. We feel that we have been very careful in the selection of our disposal contractor, and our experience with Mr. Oline has been good. We are satisfied from our discussions and communications with him that the waste removed from our plant each evening is taken to a legally authorized dumping site. We are unaware, and we understand that he is unaware, of any General Metals materials being dumped on the shoreline as outlined in your letter of June 27, 1977. Notwithstanding the fact that we do not believe this to be our material, we will continue to police the situation and work closely with our disposal contractor. Mr. Oline and I are both acutely aware of the laws you have referred to in your letter of June 27, 1977.

If you have any additional information, we would appreciate your bringing it to our attention. Brad Oline Trucking Company is an independent contractor and we have retained the company because of its reputation and past performance. Once they pick up the material from our yard, we essentially lose control of its subsequent disposition. Although we are satisfied that Mr. Oline has performed in accordance with our contract and has dumped the material on legally authorized sites, we certainly would appreciate any input from you, if this is in fact not the case.

Please contact me if you have any questions or comments, or if I can be of further assistance.

Very truly yours,

GENERAL METALS OF TACOMA, INC.

Martin H. Brashem

MHB/ds
cc: Brad Oline Trucking Co.
Doug Pierce, Tacoma-Pierce County Health Dept.

Box 313

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

August 16, 1977

Mr. Tom Cook
State of Washington
Department of Ecology
St. Martins College Campus
Olympia, Washington 98503

Dear Mr. Cook:

The sludge analysis I related to you during our telephone conversation today is attached. Please review it and let me know if you will approve the dumping of this material in the City of Tacoma Refuse Facility.

We have about 1500 tons of sludge which is dry enough to transport. Hopefully, we will be able to dispose of it before the rainy season arrives and handling becomes a problem.

Sincerely,

C. W. Virgil, Jr.
Works Manager

CWV:ls

Attachment

HOOKER CHEMICALS AND PLASTICS CORP.
TACOMA, WASHINGTON

August 16, 1977

Sludge Analysis

Moisture 51.9%

Following on Dry Basis

Acid Insolubles (mostly asbestos)	4.5%
Ca as $CaCO_3$	59.4%
Sr as $Sr CO_3$	1.5%
pb as pb CO_3	0.6%
Mg as Mg $(OH)_2$	19.8%
Fe as Fe $(OH)_3$	1.0%
Al as Al $(OH)_3$	0.1%
Alkalinity to phenolphthalein as NaOH	1.2%
Sodium Chloride	10.8%
*Zn	150 ppm
Mn	80 ppm
Ni	76 ppm
Co	75 ppm
Ag	41 ppm
Cu	31 ppm
Cr	10 ppm
Ba	4 ppm
Oil	1383 ppm

*Metals are present as the carbonate or hydroxide

INHOUSE MEMO

TO: Rhonda Pritchard
FROM: John Conroy
DATE: Sept 6, 1977
SUBJECT: Study from Hooker Chem.

IN INHOUSE FILE

Western Environmental Trade Assoc
314 Park Place Bldg
1200 6th Ave
Seattle WA 98101
623-5235
Judy Henry

Box 393

September 15, 1977

State of Washington
Department of Ecology

C. W. Virgil, Jr., Works Manager
Hooker Electrachemical
605 Alexander Avenue
Tacoma, Washington 98401

Dear Mr. Virgil:

The sludge analyzed form your plant was categorized by our Hazard Waste Section as "dangerous wastes".

We believe the best recommendations for handling the waste, primarily because of the quantity involved would be, if possible, to channel it into:

1. The waste exchange program - WETA sponsored - for possible use and recovery.of components.

2. Possible volume reduction and material concentration in house to recover or recycle values (and/or) make it a more likely candidate for "waste exchange".

3. Disposal at an acceptable landfill site - preferrably not mixed with "regular garbage" to minimize the acidic effects produced in landfill decomposition - - although there is a possibility the buffering capability might be useful in stabilizing "leachate" production. This is an area which needs considerably more evaluation - perhaps it would merit some "test runs: and investigation.

The first and second recommendations are the ones most desirable according to our department. We strongly urge you to carefully consider these.

The third recommendation will also have to be acceptable by the Pierce County Health Department and the owners of the landfill site.

It should be made clear that these recommendations are not a blanket go ahead for similar batches or lots which will have to be considered on a case by case basis.

If you have any questions, feel free to call me at (206) 753-4089.

Sincerely,

Rhonda R. Pritchard
District Engineer

RP:km
cc: Doug Pierce, Pierce Co. Health Dept. Dean Wood - DOE

DEPARTMENT OF ECOLOGY

INSPECTION REPORT

To Dean Wood

Inspector Rich Greiling
Jim Oberlander

Date of Visit 12-1-77 1:30 pm

Permit No. ~~_____~~

Name of Entity _____

Permit Expires ~~_____~~

City Tacoma County Pierce

New Industry ~~_____~~

Person Contacted None

Type of Facility _____

Receiving Water Hylebos Waterway - on Marine View Dr. about 3 blocks west of General Metals.

Type of Treatment System _____

Operation Satis _____ Fair _____ Unsatis X

Does not comply with permit conditions

Describe Car interior waste dumped into water. Est. 50 cu yds of fill. Talked to company using area to rebuild & auction heavy equipment. They said property owned by Don Oline. We stopped at General Metals to discuss matter with Mr. Brashem, he was out of town.

We've talked to Gen. M & letter cc to Oline on proper disposal methods in past. I suggested docket & order to remove.

cc

ECY 040-2-106

DEPARTMENT OF ECOLOGY

INSPECTION REPORT

To File Inspector DW

Date of Visit 12-7-77 Permit No. _____

Name of Entity _____ Permit Expires _____

City Tacoma County Pierce New Industry _____

Person Contacted _____

Type of Facility _____

Receiving Water Hylebos Waterway

Type of Treatment System _____

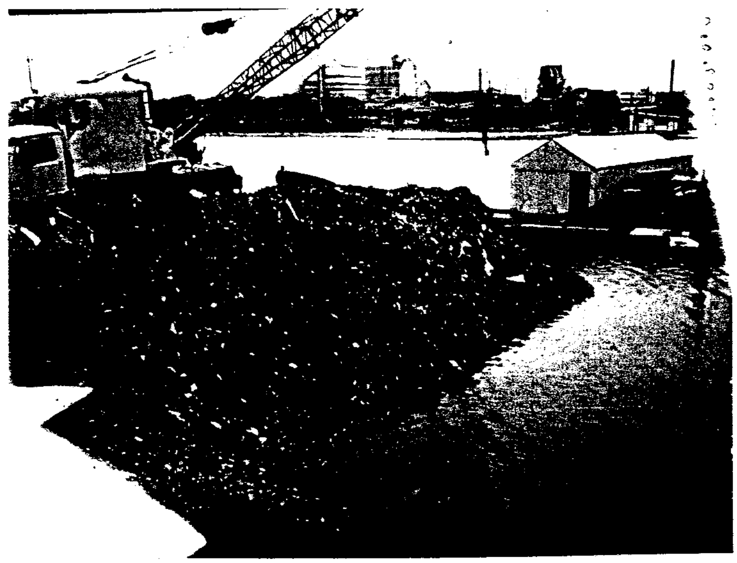
Operation Satis _____ Fair _____ Unsatis X

Does not comply with permit conditions

Describe _____

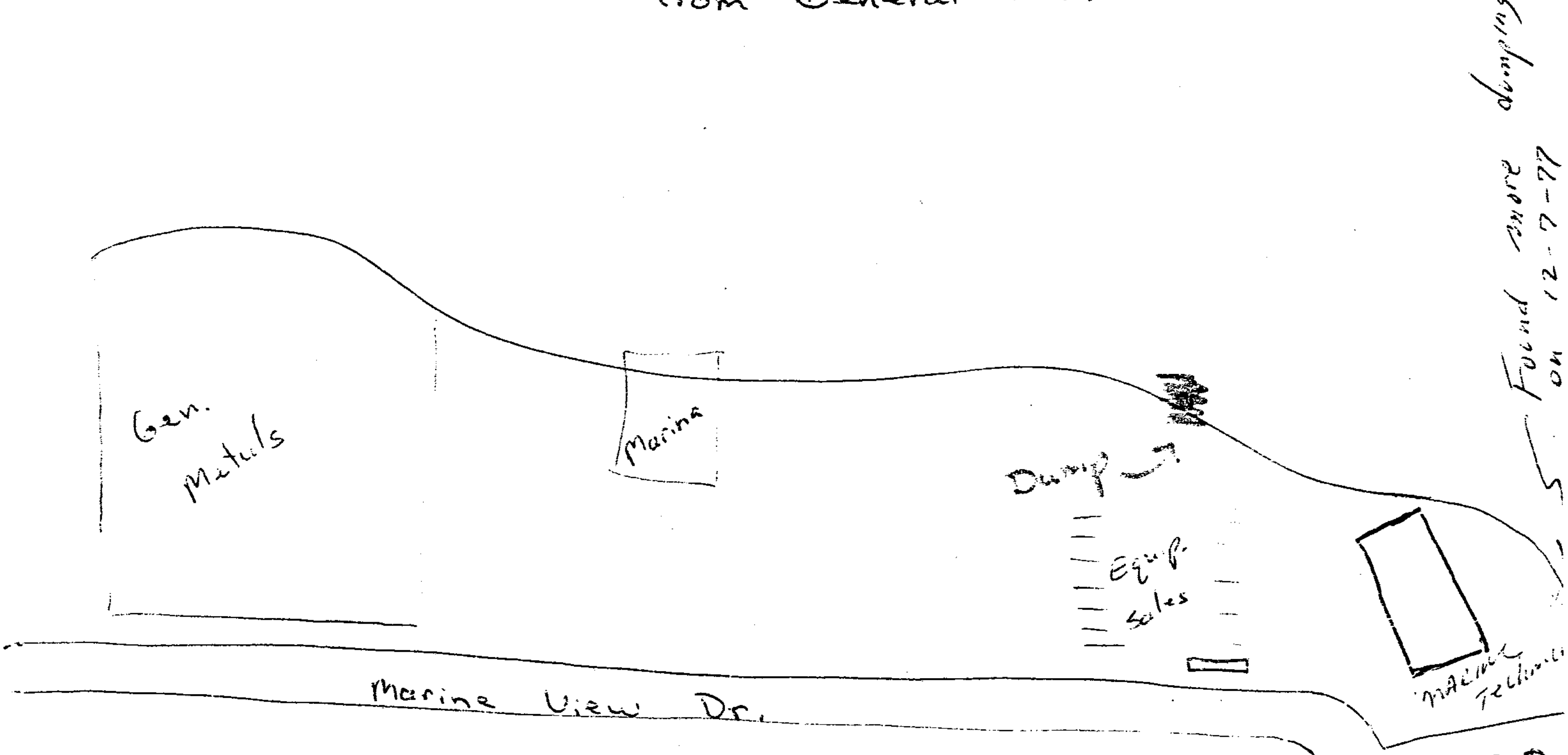
Visited site with Doug Pierce of the Health Dept — viewed the site that Jim O. took the picture — also noted more dumping in the waterway northerly of the building with the sign "Marine Technical" on it — material definately waste from General Metals — Doug Pierce will take action towards removal under the State Solid Waste Act — Gave info to Primrose of Corp of Engineers on 12-16-77

CC _____



Hylebos Waterway

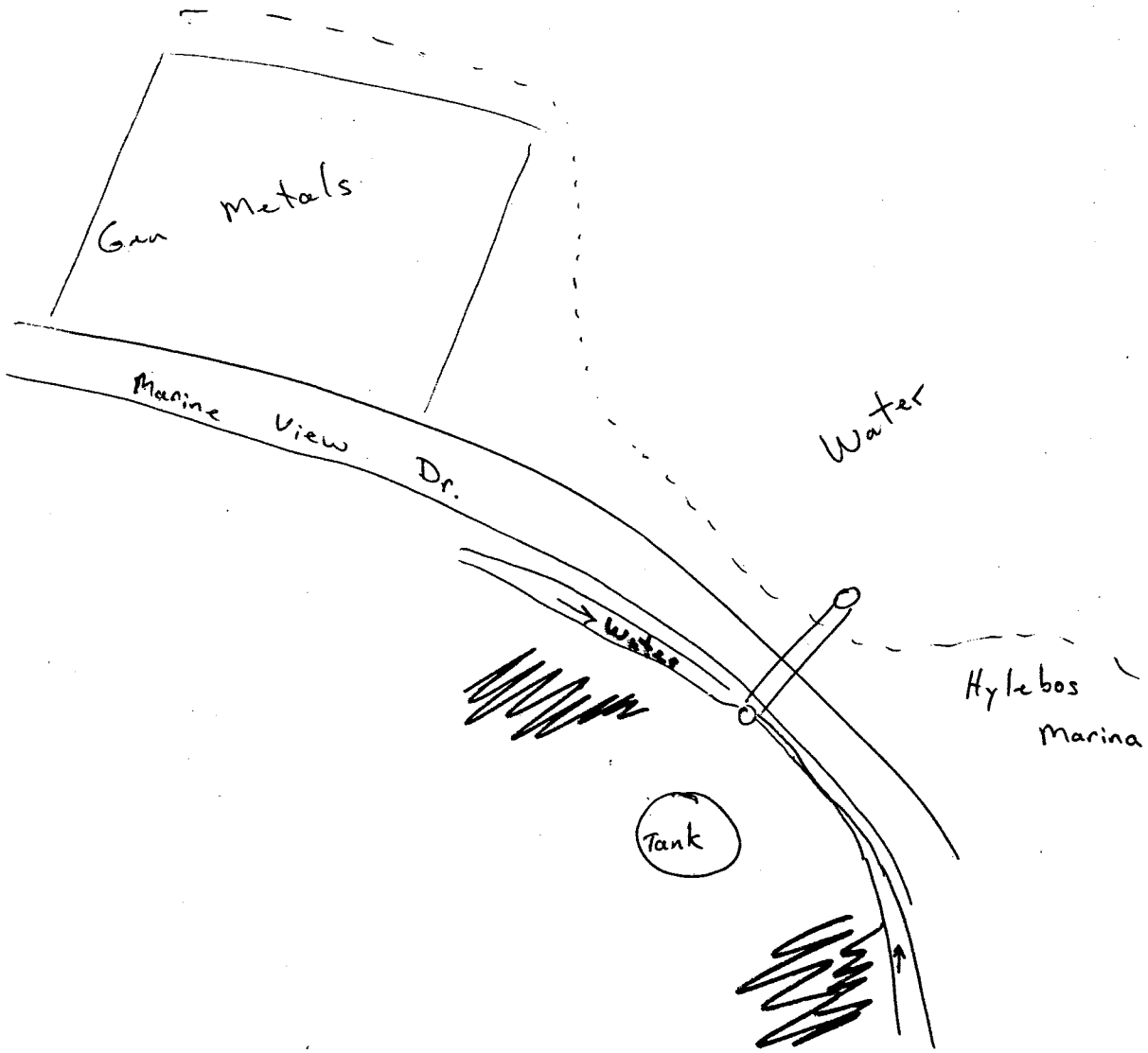
Waste material from General Metals



12-1-77 J.C.

Fill material from General Metals Co.

8/30/77 9.0.



Waste Filling

INHOUSE MEMO

TO: Lloyd Taylor

FROM: Frank monahan

DATE: December 22, 1977

SUBJECT: Enforcement Action Schedules for Pennwalt & Hooker Chemical Companies

IN INHOUSE FILE

Tacoma-Pierce County Health Department

3629 South D Street
~~Building 930 South Tacoma Annex~~
Tacoma, Washington ~~98408~~ Telephone 593-~~4100~~ 4760
98408
Walter R. Herron, M.D.
~~Harlan R. Nyquist, M.D., M.P.H.~~
Director of Health

January 16, 1978

Mr. Martin Brashem
General Metals, Inc.
1902 Marine View Drive
Tacoma, Washington 98422

RE: Solid Waste Disposal

Dear Mr. Brashem:

It has come to the attention of this department that waste material originating from General Metals, Inc. has been deposited without Solid Waste Disposal Permits at four locations on Marine View Drive. On August 30, 1977, this office was notified by the Department of Ecology of two disposal sites adjacent to storage tanks on the North side of Marine View Drive. We have received information regarding and subsequently investigated two disposal sites adjacent and into the Hylebos Waterway near Marine Technical on December 1, 1977.

We would refer you to RCW 70.95.240, "it shall be unlawful for any person to dump or deposit or permit the dumping or depositing of solid waste onto or under the surface of the ground or into the waters of this State except at a Solid Waste Disposal Site for which there is a valid permit".

Pursuant to the above regulation, you are notified that:

1. The material deposited along the Hylebos Waterway must be removed to an approved site within thirty (30) days of the receipt of this letter and,

2. The material adjacent to the storage tanks is to be covered with one foot of clean fill material within thirty (30) days of the receipt of this letter.

Your letter of July 26, 1977, indicates that, "...the waste removed from our plant each evening is taken to a legally authorized dumping site". This office has received no information that General Metals waste materials have been deposited in permitted sites.

(continued next page)

Should you have any questions regarding the above requirements, please feel free to contact Doug Pierce of this office at 593-4770 between 8:00--9:30 A.M. and 4:00--4:30 P.M., Monday through Friday,

Yours very truly,

R. C. Pankey, Supervisor
Environmental Health Division

RCP:DP:np

cc: ✓Dean Wood, Department of Ecology
Olympia, Washington

cc: Robert R. Hamilton, City Attorney
City of Tacoma

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY

7272 Cleanwater Lane, Olympia, Washington 98504 206/753-2353

May 2, 1978

Robert H. Johnson
2516 53rd Ave. N. W.
Puyallup, WA 98371

Gentleman:

This letter is in reference to the solid waste disposal site near the intersection of Yuma and Freeman Streets. The material deposited at this site is waste matter from General Metals in Tacoma.

We have received complaints from downstream property owners that your disposal site has polluted waters that flow through your property and on to others who have rights to use these waters.

Consideration and approval of your solid waste disposal permit contains certain conditions for environmental concerns, including the waters in question.

Doug Pierce of the Tacoma - Pierce County Health Department visited the site and confirmed that the conditions of your permit have not been adherred to, resulting in pollution of state waters.

Enclosed is a copy of a portion of the State Water Pollution Control Laws. Please refer especially to RCW 90.48.080 and 90.48.140.

From the foregoing, it is anticipated that you will take corrective measures immediately. If this is not done satisfactorily within 15 days of the date of this letter, penalty fines will be initiated as outlined in the enclosure.

Sincerely,

Dean Wood
Environmental Quality Inspector

DW/cc

Enclosure

cc: Doug Pierce

INHOUSE MEMO

TO: Ats Kiuchi
FROM: Jim Krull
DATE: January 25, 1979
SUBJECT: Contact with the New York Times Regarding Hooker Chemical, Tacoma

IN INHOUSE FILE

INHOUSE MEMO TO: Frank Monahan
FROM: Bert Bowen
DATE: April 12, 1979
SUBJECT: Hooker Chemical Corporation (NA 78031) --

IN INHOUSE FILE Affidavit of Publication

INHOUSE MEMO

TO: Frank Monahan
FROM: Jim Knudson
DATE: 5/3/79
SUBJECT: Meeting with Lyle Fellers, Hooker Chem.

IN INHOUSE FILE

State of Washington
Department of Ecology

Box 401, Pierce County

INSPECTION REPORT

To File Inspector Frank M. Jim O.

Date of Visit 6-25-79 Permit No. _____

Name of Entity Hooker Chemical Co. Permit Expires _____

City Tacoma County _____ New Industry _____

Person Contacted Mr. Virgil, Lyle Feller w Jack E. Sceva EPA

Type of Facility _____

Receiving Water _____

Type of Treatment System _____

Operation: ☐ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe Met to review HW disposal from plants old Solvent Plant. Field inspected dump site. Meeting Notes Attached.

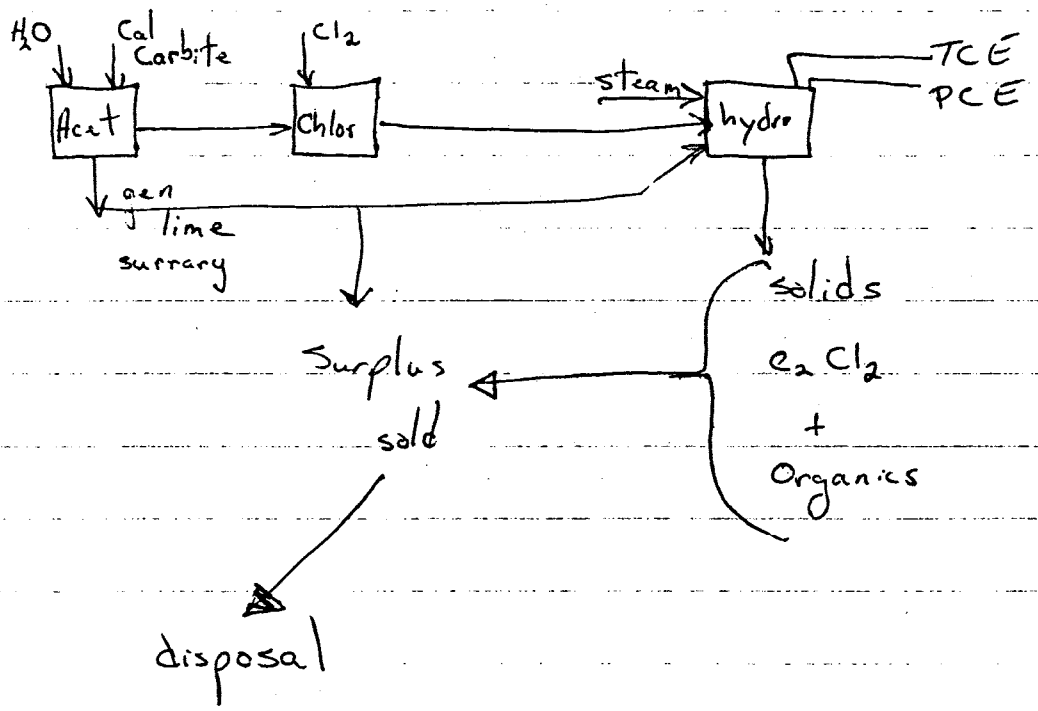
cc

ECY 040-2-116

Hooker 6-25-79 DOE / EPA / Hooker

17 - 1973 Solvents Plant w sludge

Cl_2 Caustic out fall



	1947 - 50	to Hyde bos
	50 - 52	holding pond
	52	bardge to deep water
		bardge liquid overflowed
		dumped ≈ once week
		≈ 600' of water
site II	1972	stopped barge dumped
	Jan 72	to plant pond + brine sludge
site I	72	to City of Tacoma Landfill

City hauled + dumped w regular garbage
2-3 years local tide flat site

Apr. Nov. 1972

site II Petarcik Site ~~2900~~ 2100 old 99 Hwy
5-7 ac. w bark waste
hauled by Dan Burrows (now in Calif.)

discussed with Krull + Springer
after Nov. 1972

ite IV Don Oline Property - Alexander - next to chem pro lime waste into here from 70% Domtar majority amount from Gen. Metals not known.

Site III Draw accross from General Metals.
used short time early 1973 as solvent plant was still working

Site VI 1973 dredge from in front of dock to site IV + VI east of Petarcik Site 2900 block
J.O. Dauphin 2 ac. w 4' of dirt with some asbestos
now owned by Charles Woodke
materials sampled for dredge project

No documentation on what in Chlorinated in waste & concentration ≈ .6%
dd test methods.

other similar plant ? not at Hooker

'75 - 1977 No hauling out of pond
1977 ponds dry (1) Tacoma City Land Fill
1978 (2) " "
hauled by Woodworth Co.
approved by Cty. Health Dept.

Brine + $CaCl_2$ now via filter press & to City Land fill in dumpster
Asbestos special covered container - wet state
letter to Tom Cook on Material
some still on plant bank to be covered or removed.

Thun Field (Hidden Valley) dumped & contracted by AIRO Services. cheaper for AIRO to tank to Thun than City.
since last qt. of '78

150,000 gal. TCE, Chlorform + mix Holding
ship to Niagra Plant + incenerate
eff. from Chlorine Purifier
under some pressure
? disposal of old cars
E.H.W. - ?
cars sitting since 1973
before discharged to waterway

Graphic Annode System for Cl_2 Production
last plant with this system all
changing to Metal Annode.

OFF site - Fill onto Eletcher Shoreline wasted
cell blocks, asbestos

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 312

July 19, 1979

Mr. Earl Tower
Department of Ecology
Solid Waste Management Division
Olympia, WA 98504

Dear Mr. Tower:

I have enclosed our field inspection report from the Hooker Chemical inspection.

As we discussed, you will provide us with any suggestions by ~~July 23rd.~~* In particular, the State may want to request the information noted in Item 1.

Please call me if you have any questions.

Sincerely,

John J. Barich, III
Project Manager
Abandoned Hazardous Waste Site Project

Enclosure

* Earl, I'll give you a call

COPY

HOOKER CHEMICAL, TACOMA

1. Letter from Doug Hansen to Carl Virgil requesting Hooker to provide us within 30 days:

   -- A definitive summary of corporate plans for disposing of wastes in 13 railroad tank cars, including ultimate disposition of the tank cars, themselves.

   -- A commitment for the expeditious ultimate disposition of 70-80 drums of trichloroethylene waste.

   -- A summary of the disposition of spent graphite anodes (for subsequent investigation of possible chlorinated organic problems).

   ACTION: Rogelio C. Fuentes, by 7/27/79

2. Verify with Region 2 that Hooker, New York, is installing waste incineration facilities which will be permitted by State authorities.

   ACTION: John J. Barich, by 7/27/79

3. Develop a means of alerting current and future property owners of sites containing asbestos wastes.

   ACTION: Neil E. Thompson, by 8/17/79

4. Alert Headquarters to the potential impediments that DOT regulations may place on the shipment of hazardous wastes (especially where each component of the waste is approved for shipment).

   ACTION: Rogelio C. Fuentes, by 8/2/79

5. Forward copies of the Field Investigation Report to Hooker Chemical.

   ACTION: Rogelio C. Fuentes, by 7/27/79

ENCLOSURE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: JUL 3 1979

SUBJECT: Inspection - Hooker Plant and Waste Disposal Operations, Tacoma, Washington

FROM: Region 10 S&A Inspection Team

TO: Gary L. O'Neal, Director
Surveillance & Analysis Division

Paul Boys and Jack Sceva of EPA Region 10 Surveillance and Analysis Division attended a briefing and inspection at the Hooker Chemical and Plastics Corp. plant at Tacoma, Washington, on June 25, 1979. The purpose was to determine whether the waste disposal operations at this plant have created an imminent and substantial endangerment to health or to the environment. The Washington State Department of Ecology participated in the briefing and inspection and was represented by Frank Monahan and Jim Oberlander. The Hooker Corp. was represented by Carl Virgil, the plant manager; Harry Bryson, the production superintendent; and Lyle Feller, assistant production superintendent.

The briefing, which was very cordial and open, was presented chiefly by Mr. Feller. He described the various waste streams generated in the plant and the past and current waste disposal operations. The briefing was followed by a plant tour and off-site inspections of four former disposal sites. In summary, we did not find evidence that past or current waste disposal operations have created an imminent and substantial endangerment to health or the environment but we did discover some potential problems that merit mention later in this report.

The Tacoma Plant, which went into production in 1929, produces chlorine, caustic, calcium chloride, hydrochloric acid and ammonia. In addition, a solvents plant was in operation from 1947 to 1973 that produced trichloroethylene and perchloroethylene. The chlorine-caustic plant utilizes electrolytic cells employing graphite anodes and asbestos diaphragms. A description of the waste volumes and waste disposal operations at these two facilities are as follows:

CHLORINE-CAUSTIC PLANT
(1929 - To Date)

This plant produces three main waste streams that will tracked separately in this summary. These waste streams are the (1) chlorinated organics, (2) brine sludge and (3) asbestos. In addition, the plant sells about 200 tons per year of graphite from old anodes and about 900 tons per year of concrete from old cells. The chlorinated organics are the waste from the chlorine purifying unit and consist of about 50 to 75 gallons per day of waste containing primarily chloroform, carbon tetrachloride and hexachloroethane. The brine sludge is produced at the approximate rate of 3 tons per day (dry basis) and is composed chiefly of calcium carbonate, magnesium hydroxide, sodium chloride, and about

1.5 percent strontium and .2 percent lead. The asbestos is used to form the diaphragm in the cells and asbestos waste is produced in the cathode washing operation. It was estimated that about 2 cubic yards per day of asbestos waste was being generated in 1971. A summary of the disposal practices for these three waste streams for the period 1929 to date is as follows:

CHLORINATED ORGANICS

Period of Time	Disposal Practice
1929 - 1969 or 70	Discharged to Hylebos Waterway by #2 outfall.
1969 or 70 to date	Low boiling organics saturated with chlorine gas have been stored on-site in railroad tank cars. Approximately 13 tank cars containing these accumulated wastes are parked on-site. Some of the higher boiling organics continue to be discharged to Hylebos Waterway with the plant effluent.

BRINE SLUDGE

1929 to 1965-1970	Discharged to Hylebos Waterway by outfall #2.
1965-1970 to 1972	Discharged to the lime barge. Liquid decanted to Hylebos Waterway and the solids periodically hauled to a deep water disposal site in Commencement Bay.
1972-1977	Discharged to either of two on-site pits located in the SW corner of the plant property. Since 1972 or 1973 the asbestos that bypassed the cathode washing strainer was combined with the brine sludge. Sludge was disposed of briefly at the Tacoma Municipal Landfill in early part of 1972 followed by disposal off-site at sites II, III, and IV.
Jan. 1977 to date	Brine sludge filtered and filtrate returned to the brine system and sludge truck hauled to Tacoma Municipal Landfill in "dumpsters". This sludge contains asbestos.

ASBESTOS

Period of Time	Disposal Practice
1929 - 1971 ±	Asbestos trapped by the strainer in the cathode washroom was placed along the bank bordering Hylebos Waterway. Most of this washed into the Waterway.
1971 ± to date	Asbestos trapped by the strainer has been placed in covered containers and truck hauled along with the asbestos bags to the Tacoma Municipal Landfill. In November and December 1974, dredge spoil from dredging in the dock area was found unacceptable for marine disposal and was hauled off site to disposal Site VI. This dredge spoil contained up to .28% asbestos on a wet bases. Since 1972 the brine sludge going to the Tacoma Municipal Landfill has also contained some asbestos.

SOLVENTS PLANT
(1947 - May 1973)

This plant produced about 500 tons per year of "Generator and Stripper Lime" waste. This waste consisted of calcium chloride, excess lime, inert inorganic solids and some high boiling chlorinated organic residue. The disposition of this particular waste was as follows:

Period of Time	Disposal Practice
1947 - 1950 ±	All waste discharged to Hylebos Waterway by #1 outfall.
1950 ± - 1952	All waste directed to pond located in area now occupied by salt pad.
	Liquid decanted to Hylebos Waterway | Solids trucked to unknown sites on tideflats or adjacent area.
1952 - 1972	All waste directed to the lime barge that was moored adjacent to solvents plant.
	Liquid decanted overboard from barge to Hylebos Waterway. Some solids in decant stream. | Solids barged to a deep water disposal site in Commencement Bay.

Period of Time	Disposal Practice
1972 - April 30, 1972	All wastes directed to either of two on-site pits located in the SW corner of the plant property.
	Liquid decanted to Hylebos Waterway. | Solids trucked to Tacoma Municipal Landfill.
May 1, 1972 - June ?, 1972	All wastes directed to above pits.
	Liquid decanted to Hylebos Waterway. | Solids trucked off-site to disposal area II.
June ?, 1972 - May 1973	All wastes directed to above pits.
	Liquid decanted to Hylebos Waterway. | Solids trucked off-site to disposal areas III and IV.
May 1973	Plant operation terminated.

A description of the off-site disposal areas will be presented later in this report. The following are some on-site conditions that merit discussion.

Tankcar Storage of Hazardous Waste - We observed some 13 railroad tankcars on site that are used to store the extremely hazardous waste from the chlorine purifying unit. These wastes have been accumulating in these cars for many years. The cars are not suitable for use in shipment and the waste would have to be processed at the plant to strip out the free chlorine prior to reloading into cars suitable for shipment. Mr. Virgil reported that their company is attempting to obtain an incineration permit from the State of New York. If this is obtained the waste will be shipped to New York for disposal.

The shipment of the railroad car contents may create other problems related to the cleaning and disposal of the old railroad cars. The company expressed a need for advise on this matter.

Storage of Trichloroethylene - As a service to its major customers, Hooker has pressure tested various chlorine piping systems with trichloroethylene. After using, this material is stored as a waste. Some 70 to 80 badly deteriorating drums are stored on site that contains this waste. The drums are in such poor condition that it is doubtful that they could withstand movement and shipment to a disposal site.

Asbestos Along Hylebos Waterway - An inspection of the bank along Hylebos Waterway was made to determine whether any asbestos from the early disposal operations remained. No asbestos or sludge that may contain asbestos was observed.

Spent Anodes - Some chlorinated organics are undoubtedly associated with the 200 tons per year of spent graphite anodes. A check as to the actual use of these anodes by their purchaser might be in order.

Following the plant inspection we all proceeded to four off-site waste disposal sites. We did not visit the Tacoma Municipal Landfill as it may have many more problems than those created by the Hooker waste disposal operations and is not considered a part of the Hooker imminent hazard question. Hooker representatives also stated that some liquid waste from some of the on-site sumps and trenches has gone to the Pierce County Landfill (Hidden Valley Sanitary Landfill) located near Thun Field south of Puyallup. Like the Tacoma Municipal Landfill, the waste disposal operations at the Pierce County Landfill are not being addressed in this investigation.

Site II - Site II is known as the Petarcik Site and is located along the north side of U.S. Highway 99 about 1 1/2 miles west of Fife. This site, which was used for a very short time in 1972, is on the floodplain of the Puyallup River in SW 1/4 SE 1/4, Section 2, T.20N. R3E. It is a marshy area with a small stream flowing next to the site. No use is being made of the site at this time. Numerous piles of sandy waste material has been dumped at this site. Most of these piles contain clam and mussel shells which indicates that they are probably dredge spoil from some waterway dredging project. No waste was observed that appeared to be sludge from the Hooker operation. There are no houses in the immediate area and no condition that appears to be a threat to either health or the environment.

Site III - This site was one of the two Donald Oline sites available to the Burrows Construction Company for the disposal of Hooker sludge pond waste. This site, which was located at the mouth of a small canyon that drains part of the North Tacoma upland, is in the NE 1/4 NW 1/4, Section 36, T.21N.R.3E. It was reported that this site, which is now owned by General Metals, has been used by General Metals for waste disposal. At the time of our visit, we found the site fenced and

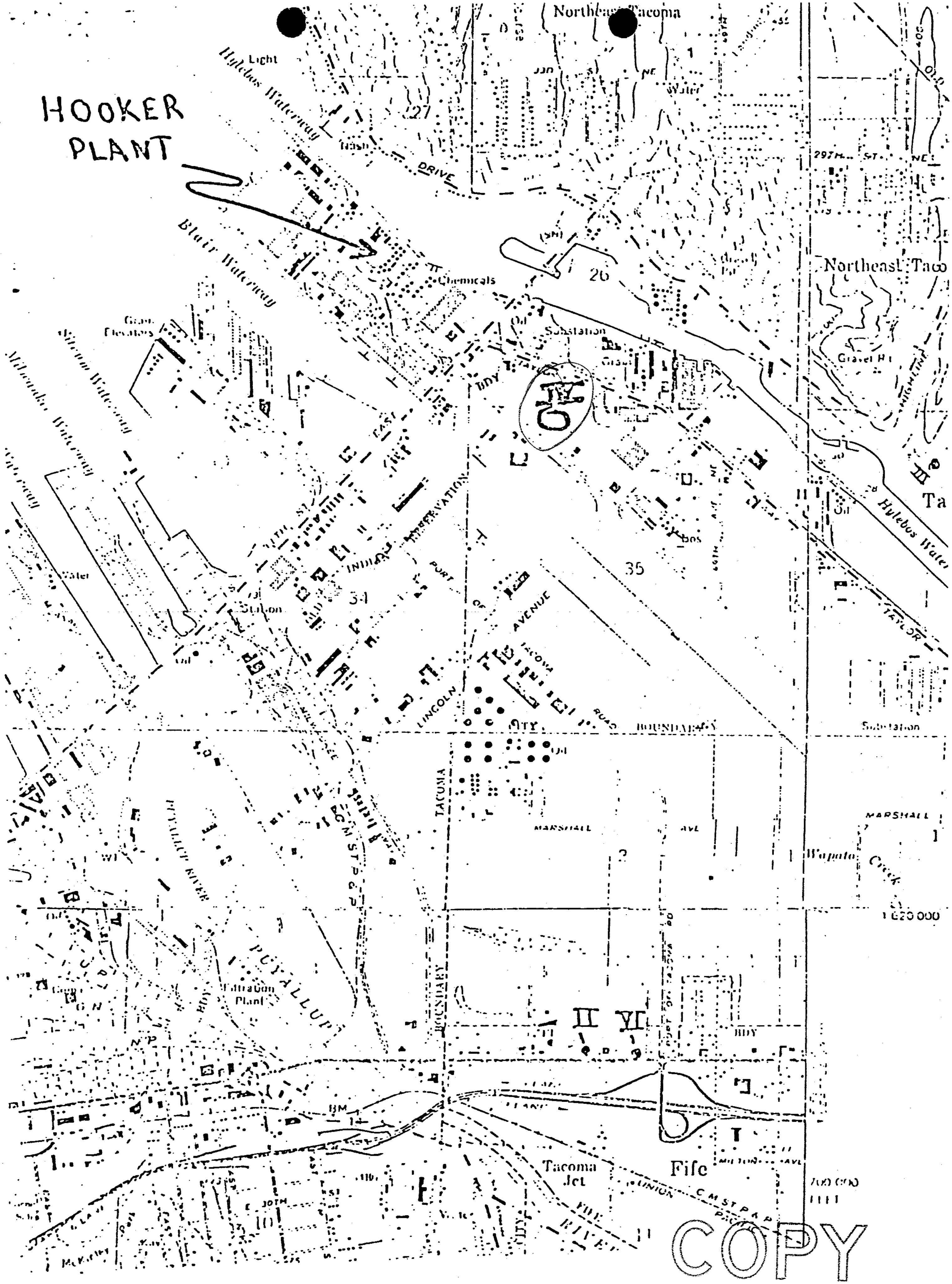
graded with a gravel surface, and used for equipment storage. A small clear water stream flows down the canyon adjacent to the fill area. There are no houses in the area. The vegetation appears healthy and there is no indication that this site is creating a threat to people or the environment.

Site IV - This is the other Donald Oline site used by the Burrows Construction Company for disposal of Hooker lime pond sludge. This site which is on the Puyallup River floodplain between the Hylebos and Blair Waterways about 1/2 mile southeast from the Hooker Plant. This site, which appears to be from 10 to 15 acres in area, is located in the SE 1/4 SW 1/4, Section 26 and the NE 1/4 NW 1/4, Section 35, T.21N., R.3E. This site was reported to have also been used for disposal of waste from Domtar Lime Company. At the time of our examination, the entire fill area has been used for the disposal of software from auto wrecking operations. Hoses, foam padding, upholstery, etc., have been partially shredded and spread and leveled on the site.

There are no houses in the area and no apparent imminent threat to either health or the environment. The main concern with this site would relate to any future excavation in the area that would bring asbestos bearing waste to the surface and in contact with man's environment.

Site VI - This site was obtained by Foss Launch and Tug Company for disposal of dredge spoil from the 1974 dredging adjacent to the Hooker Dock. This site which is about 800 feet east of Site II in the SW 1/4 SE 1/4, Section 2, T.20N., R.3E. Subsequent to the dredge spoil disposal the site has been capped with sand and gravel, fenced and leveled. It is now being used for equipment storage. There are several houses adjacent to this site. There was no apparent threat to either health or the environment at this site. Like Site IV the main concern with this site would relate to any future excavation in the area that would bring the asbestos bearing dredge spoil to the surface and in contact with man's environment.

In conclusion, there are some waste disposal problems at the Hooker Plant, particularly the hazardous waste in storage in the railroad tankcars. There were no problems, however, that the inspection team would conclude as being imminent and substantial endangerment to health or the environment.


HOOKER
PLANT
Northeast Tacoma
Hylebos Waterway
Blair Waterway
Chemicals
Substation
Grain Elevators
Station
Filtration Plant
27
26
34
35
DRIVE
Northeast Taco
Gravel Pit
Hylebos Water
TAYLOR
INDIAN RESERVATION
PORT OF
AVENUE
LINCOLN
BOUNDARY
Substation
MARSHALL
MARSHALL
Wapato Creek
1 620 000
PUYALLUP RIVER
PUYALLUP
TACOMA
BOUNDARY
Tacoma Jct
Fife
UNION
C M St P & P
700 000
COPY

State of Washington
Department of Ecology

Dauphin

INSPECTION REPORT

To File Inspector Jim O. Frank M.

Date of Visit 6-25-79 Permit No. _____

Name of Entity Hooker Chemical Co. Permit Expires _____

City Tacoma County _____ New Industry _____

Person Contacted Mr. Virgil, Lyle Feller w Jack E. Sceva EPA

Type of Facility _____

Receiving Water _____

Type of Treatment System _____

Operation: ☐ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe Met to review HW disposal from plants old Solvent Plant. Field inspected dump sites. Meeting Notes Attached.

cc

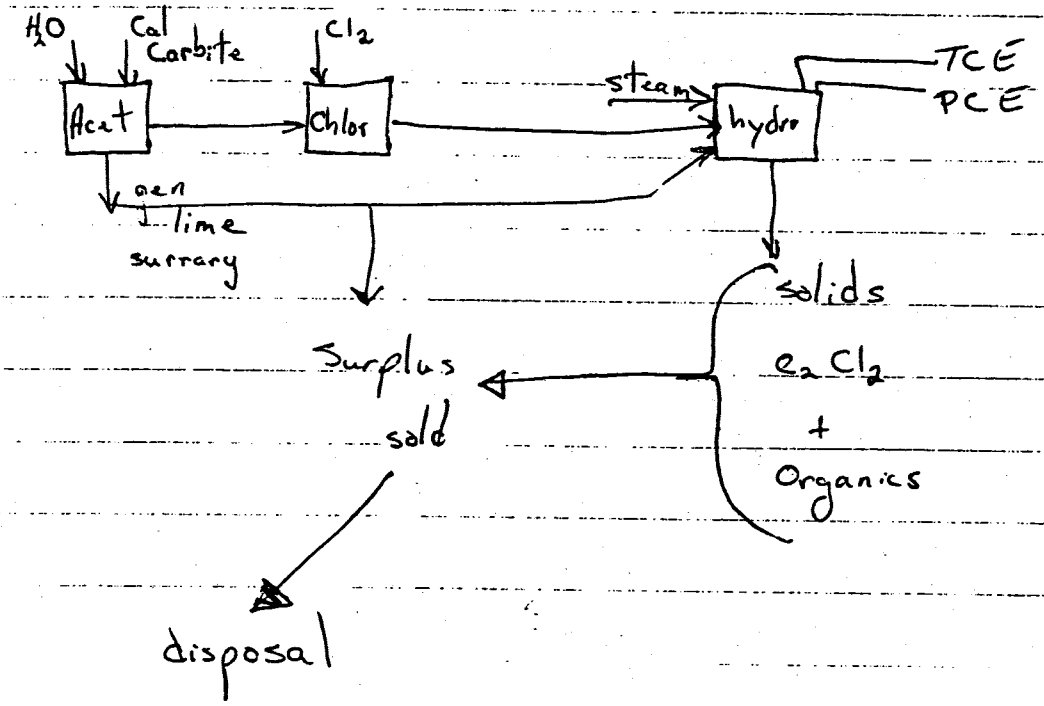
ECY 040-2-116

COPY

ooker 6-25-79 DOE / EPA / Hooker

7 - 1973 Solvents Plant w sludge

Cl_2 Caustic out fall



1947 - 50 to Hyde bos

50 - 52 holding pond

52 bardge to deep water

bardge liquid overflowed

dumped ≈ once week

≈ 600' of water

site V 1972 stopped barge dumped

Jan 72 to plant pond + brine sludge

<to T 72 to City of Tacoma Landfill

city hauled + dumped w regular garbage
2-3 years local tide flat site
Apr. Nov. 1972

site II Petarcik Site ~~2900~~ 2100 old 99 Hwy
5-7 ac. w bark waste
hauled by Dan Burrows (now in Calif.)
discussed with Krull + Springer
after Nov. 1972

te IV Don Oline Property - Alexander - next to
chem pro lime waste into
here from 70% Dometar majority amount
from Gen. Metals not known

site III Draw accross from General Metals.
used short time early 1973 as
solvent plant was still working

ite VI 1973 dredge from in front of dock
to site IV +
VI east of Petarcik Site 2900 blk
J.O. Dauphin 2 ac. w 4' of dirt
with come asbestos
now owned by Charles Woodke
materials samoled for dredge project

COPY

No documentation on what in chlorinated in waste + concentration ≈ .6%
dd test methods.

other similar plant ? not at Hooker

975 - 1977 No hauling out of pond
1977 ponds dry (1) Tacoma city Land Fill
1978 (3) " "
hauled by Woodworth Co.
approved by cty. Health Dept.

Brine + $CaCl_2$ now via filter press + to City Landfill in dumpster
Asbestos special covered container - wet state
letter to Tom Cook on Material
some still on plant bank to be covered or removed.

Thun Field (Hidden Valley) dumped + contracted by AIRO Services. cheaper for AIRO to tank to Thun than city.
since last qt. of '78

COPY

150,000 gal. TCE, chlorform + mix Holding
ship to Niagra Plant + incenerate
eff. from Chlorine Purifier
under some pressure
? disposal of old cars
E.H.W. - ?
cars sitting since 1973
before discharged to waterway

Graphic Annode System for Cl_2 Production
last plant with this system all
changing to Metal Annode.

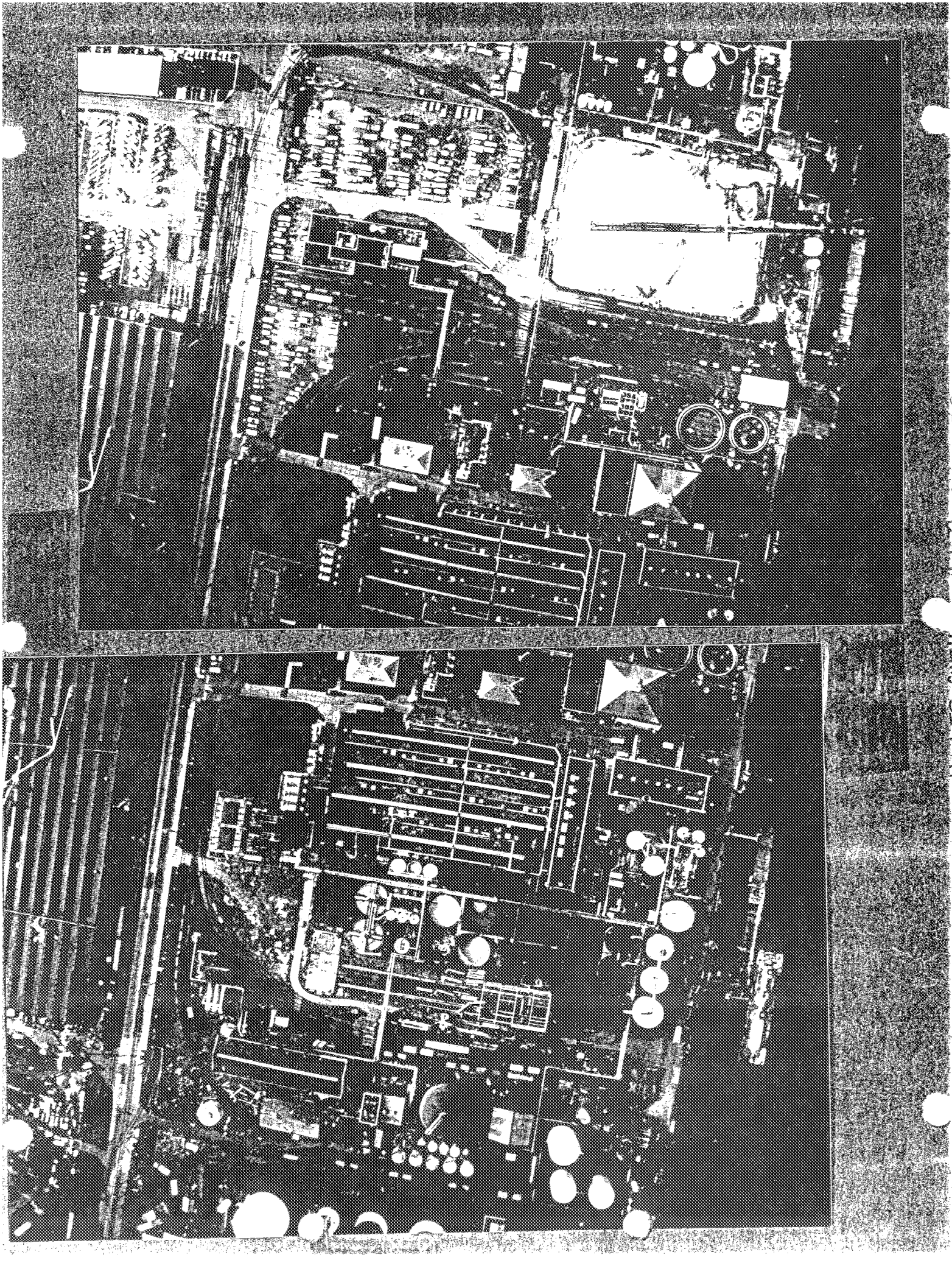
OFF Site - Fill onto Eletcher Shoreline wasted
cell blocks, asbestos

COPY

INHOUSE MEMO

TO: Jim O.
FROM: Frank Monahan
DATE: 7-30-79
SUBJECT: Hooker Chemical Inspection

IN INHOUSE FILE



hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

December 14, 1979

Mr. James Krull, District Supervisor
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

This memo is a follow up to our conversation today, during which I told you of the groundwater monitoring we are conducting at our facility.

As I indicated, we have information showing that chlorinated organics are present under some areas of our facility in the parts per million range. Further, some of our test wells are showing alkalinity sufficiently high to indicate that we may have leakage from an underground pipeline or similiar source. This information is summarized in a December 10 report prepared by our consultant, Walker Wells, Inc.

During the next few weeks we will be working with our consultant to further analyze the groundwater situation and to develop an action plan. We will be prepared to discuss this information with you at your office on Wednesday, January 23 at 10:00 am.

Sincerely,

C. W. Virgil, Jr.
Works Manager

CWV/bh

MAP NUMBER OCC/DW Map # 1

SUBJECT OF MAP Exhibit for Section I-11
Schematic of Water Flows

FOR: FACILITY NAME Occidental Chemical

COUNTY Pierce County

DATE January 10, 1980

FILED in back of Dangerous Waste file

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

February 8, 1980

Bill Yake
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Bill:

Following our phone conversation I have enclosed our report which gives the test results for samples obtained during the class two inspection on 9/25 and 9/26/79. As you recall, we split both composite samples; your sample which was taken by an ISCO sampler and our sample which was obtained with a Pro-Tec, Model 125. The reason I mention this is that the sampling frequencies and volumes taken were quite different for each sampler and this might account for some of the differences we found in amount of suspended solids, iron and nickel in samples taken at No. 2 outfall. Other than that everything checked out fairly close. Let me know if you have any questions.

Sincerely,

D J Beardsley
Works Chemist

djb/jr

cc: CWV
LDF

hooker

INTER-OFFICE MEMORANDUM

To: D J Beardsley
Works Chemist

Copies to: CWV
LDF
File

File Ref.: TLT-7903

Date: February 8, 1980

From: R J Johnston

Div./Dep't: Laboratory

Location: Tacoma

Subject: DOE Class Two Inspection

The following is an overview of the Class Two inspection by DOE on September 25 and 26, 1979:

Flow

City water	3,600,000 gpd
Sea water	12,200,000 gpd
#2 Outfall	15,500,000 gpd
NH3 plant	390,000 gpd

Temperature

#2 Outfall DOE grab sample	75.2°F

pH

#2 Outfall DOE grab sample	7.5
#2 Outfall L&N meter	7.5

Chlorine

#2 Outfall DOE grab sample	0.5 ppm
#2 Outfall (Hooker grab)	0.4 ppm

Suspended Solids (composite)

Seawater our sample	6.6 mg/L; 673 #/D
Seawater DOE sample	8.2 mg/L; 836 #/D
#2 Outfall our sample	4.9 mg/L; 632 #/D
#2 Outfall DOE sample	10.6 mg/L; 1367 #/D

Ammonia as Nitrogen (composite)

#2 Outfall our sample	0.06 mg/L; 7.7 #/D
#2 Outfall DOE sample	0.02 mg/L; 2.6 #/D
NH3 our sample	0.48 mg/L; 1.4 #/D
NH3 DOE sample	0.40 mg/L; 1.2 #/D

Metals - See attached list

Chlorinated Organics - None detected by I.R. method (CS2 extraction)

rjj/jr

DOE Class Two Inspection

SPECIAL TESTS FOR METALS

HOOKER COMPOSITE

WATER INTAKE

Metal	City Water Mg/L	City Water #/Day	Seawater Mg/L	Seawater #/Day
Copper	.03	0.90	.003	0.31
Nickel	ND	<.09	.007	0.71
Zinc	.01	0.3	.02	2.04
Iron	.14	4.20	.16	16.32
Lead	ND	<.03	ND	<.21

EFFLUENT STREAMS

Metal	001 Mg/L	001 #/Day	002 Mg/L	002 #/Day	NH3 Mg/L	NH3 #/Day
Copper	C		.003	.39	.027	0.08
Nickel	L		.03	3.87	.02	0.06
Zinc	O		.02	2.58	.02	0.06
Iron	S		.14	18.06	.16	0.48
Lead	E D		.003	.39	.003	0.01

Tests were made on 24 hour composite samples taken from Pro-Tec sampler

DOE COMPOSITE

WATER INTAKE

Metal	City Water Mg/L	City Water #/Day	Seawater Mg/L	Seawater #/Day
Copper	DOE USED		.004	0.41
Nickel			.05	5.10
Zinc	OUR SAMPLE		.02	0.06
Iron			.18	18.36

EFFLUENT STREAMS

Metal	002 Mg/L	002 #/Day	NH3 Mg/L	NH3 #/Day
Copper	.005	0.65	.027	0.08
Nickel	.33	42.57	.02	0.06
Zinc	.02	2.58	.02	0.06
Iron	.22	28.38	.16	0.48
Lead	.003	0.39	.003	0.01

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 10
1200 Sixth AVenue
Seattle, Washington

IN THE MATTER OF:	)	
	)	Docket No. X80-03-06-308
Hooker Chemicals & Plastics Corp.,	)	
	)	
Respondent.	)	FORMAL REQUEST FOR INFORMATION
	)	
PROCEEDINGS UNDER SECTION 308(a) CLEAN WATER ACT OF 1977 [33 USCA §1318(a)]	)	

TO: The above named Respondent and C. T. Corporation System, Registered Agent for Service.

FORMAL REQUEST is hereby made, pursuant to CWA Section 308(a) [33 USCA §1318(a)(1)], (hereinafter referred to as the "Act") for the information indicated in the following inquiries to be supplied by a response in writing over signature of counsel or respondent herein, a copy of which response should be served on the EPA Enforcement Division - Mail Stop 514, 1200 Sixth Avenue, Seattle, Washington 98101, Attn: Mr. Michael Garcia, within 45 days from the day of receipt of this request.

If you are unable to answer any of the inquiries, please state why the inquiry cannot be answered, and what efforts have been made to obtain the information necessary

to answer the inquiry. If you refuse to answer any of the inquiries, please so state, and state further the factual and legal basis for such refusal.

FINDINGS OF FACT

1. Information provided to EPA and contained in the December 10, 1979, Walker Wells, Inc. report titled "Groundwater Investigation, Tacoma, Washington, Plant Site, Phase I" which was prepared at the request of Hooker Chemicals and Plastics Corp., indicates that substantial groundwater pollution has occurred and is occurring at the Hooker plant site 605 Alexander Avenue in Tacoma.
2. This information shows evidence that chlorinated organics were present in water samples taken during the Phase 1 study from test well sites 1, 4, and 7, which are located in the vicinity of the site of the old solvents plant. Further, samples from well number 4, located at the solvents plant site, contained the highest concentration of chlorinated organics.
3. The Walker Wells, Inc., Phase 1 Report provides information which indicates the possibility that the chlorinated organics, as well as other pollutants, are migrating from Hooker property and entering Hylebos Waterway.
4. Identification of the specific chlorinated organics found at well sites 1, 4, and 7, was not made in the Phase 1 Report. However, it was noted in the report that pollutants associated with the solvents plant included chlorinated organics, such as trichloroethylene, pentachloroethane, hexachloroethane,

chloroform and carbon tetrachloride, all of which are listed as priority pollutants pursuant to Section 307(a)(1) of the Federal Water Pollution Control Act as amended by the Clean Water Act of 1977.

5. On January 23, 1980, representatives of Hooker, the Washington State Department of Ecology, the Environmental Protection Agency, and Walker Wells, Inc., met to discuss the results of the Phase 1 study. At that meeting the representatives from Walker Wells, Inc., and Hooker indicated that detailed chemical analysis would not be done until Phase 3, which was unscheduled and would not be considered until Phase 2 was completed in approximately six months. Mr. Carl Virgil, representing Hooker, at that time declined a verbal request by the EPA representative to allow EPA personnel to sample and analyze water from the test wells.

Therefore, in order to ascertain the hazards associated with these pollutants in a timely manner and to assist in determining whether these pollutants are entering the waters of the United States, you are hereby required to respond fully to the following inquiries:

1. Does Hooker possess information as to the specific chlorinated organics present at test well sites 1, 4, and 7 and their respective concentrations?
2. If so, provide a true copy of the information.
3. If not, sample the groundwater present in wells 4a and 4b, and analyze those samples, using the

proposed EPA analytical methods referenced in the December 3, 1979, Federal Register, pages 69464-69575, and the December 18, 1979, Federal Register, pages 75028-75052, for the presence and concentration of the following priority pollutants and submit to EPA a true written copy of such analysis:

(1) Benzene
(2) Benzidine
(3) Carbon tetrachloride
(4) Chlorinated benzenes
(5) Chlorinated ethanes
(6) Chlorinated ethers
(7) Chlorinated phenols
(8) Chloroform
(9) Dichloroethylene
(10) Dichloropropane and dichloropropene
(11) Haloethers
(12) Halomethanes
(13) Hexachlorocyclohexane
(15) Hexachlorocyclopentadiene
(16) Phenol
(17) Tetrachloroethylene
(18) Toluene
(19) Trichloroethylene

4. Does the Company possess any information other than the December 10, 1979, Walker Wells, Inc., Phase 1 Report, which describes or evaluates the movement of groundwater and/or pollutants in the groundwater through the Company's Tacoma facility?

5. If so, submit a true written copy thereof.

6. Does the Company possess any information other than the December 10, 1979, Walker Wells, Inc., Phase 1 Report, which describes or evaluates the discharge of groundwater and/or pollutants in the groundwater into Hylebos Waterway, Blair Waterway or Commencement Bay?

7. If so, submit a true written copy thereof.

Pursuant to 40 CFR §2.203 (41 Fed. Reg. 36902 at page 36907) you are hereby notified as follows: (1) You may assert claims that part of all of the information furnished in response hereto is entitled to confidential treatment under 40 CFR §§ 2.201 -2.203; (2) EPA will disclose the information covered by such a claim only as provided in 40 CFR §§ 2.201 - 2.309; (3) Claims of confidential treatment must be made as specified in 40 CFR §2.203(b); (4) If no such claims accompany the information when received by EPA, then the information may, without further notice, be made available to the public; (5) EPA's regulations covering this subject appear in Title 40 Code of Federal Regulations Sections 2.201 through 2.309, and Volume 41 Federal Register pages 36902 through 36924 dated September 1, 1976; (6) The burden of making and substantiating claims to confidential treatment for information must be borne continually by claimants; and (7) Some statutory exceptions (e.g. 33 USC §1318 and 42 USC §1857 c-9) may operate to deny confidential treatment for certain data or information.

Section 309 of the Act [33 USC §1319] provides for civil and criminal penalties for failure to submit

GPO-990-087

information required under Section 308, and criminal penalties for knowingly making a false statement in any submission pursuant to Section 308.

If you are unable to respond fully to all parts of this request within 45 days , answer the remainder nevertheless, and state, for any unanswered portion, the date upon which the response will be forthcoming. Michael Garcia is the attorney assigned to this case and he can be contacted at (206) 442-1275, if you have any questions.

DATED this 18th day of March, 1980

Clark L. Goulding (for)
Lloyd A. Reed, Director
Enforcement Division

GPO-890-087

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

MAR 20 10 24 AM '80

REPLY TO ATTN OF: Mail Stop 513
CERTIFIED MAIL - RETURN RECEIPT REQUESTED

MAR 18 1980

C.T. Corporation System
Registered Agent for Service for
Hooker Chemical and Plastics Corp.
1218 Third Avenue
Seattle, Washington 98101

Dear Sir:

EPA Region 10 has received information that chlorinated organics are present in the ground water and soil beneath the Hooker Chemical and Plastics Corporation plant site in Tacoma, Washington. Further, the information suggests that the contamination resulted from Hooker operations and may be entering Hylebos Waterway. In order to ascertain the hazards associated with this contamination and to begin assessing the potential of entrance into Hylebos Waterway, the enclosed inquiries have been prepared.

These inquiries have been issued pursuant to Section 308 of the Clean Water Act of 1977 [33 U.S.C. §1318(a)]. Please note that a response is required within 45 days.

Thank you for your cooperation.

Sincerely,

Clarke L Gaulding (for)
Lloyd A. Reed, Director
Enforcement Division

RECEIVED
APR 1 1980
DEPARTMENT OF
SOUTHWEST REGION

cc: C.W. Virgil
Hooker Chemical Corp.
P.O. Box 2157
Tacoma, WA 98401

Bruce Cameron, Assist. Director
Wash. State Dept. of Ecology

Jim Oberlander
WA State Dept. of Ecology

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: Mail Stop 513

MAY 27 1980

Tom Cook, Chief
Hazardous Waste Section
Washington State Department of Ecology
Olympia, Washington 98504

Dear Mr. Cook:

During the May 13 review meeting of the Uncontrolled Hazardous Waste Site activities in Washington, concern was expressed in regard to the lack of coordination between EPA and DOE on matters pertaining to the Hooker facility in Tacoma. Because Hooker will continue to be of concern to both EPA and DOE while the groundwater contamination problem is being investigated, we should make every effort to avoid a lack of coodination in the future.

With this in mind, I would like to suggest that the people from DOE and EPA who are involved with the Hooker matter, meet sometime in the near future to clear up any confusion or problems which may now exist and help avoid any future communication problems. Points which should be discussed include:

1. How to avoid in the future the communication problems which apparently have plagued us recently on Hooker.

2. What are the current EPA and DOE activities related to Hooker and what is anticipated as being needed in the future.

Please let me know as soon as possible if and when a meeting can be arranged and I will contact the primary people involved in EPA to make the final arrangements. If you have any questions, I may be reached at (206) 442-1352.

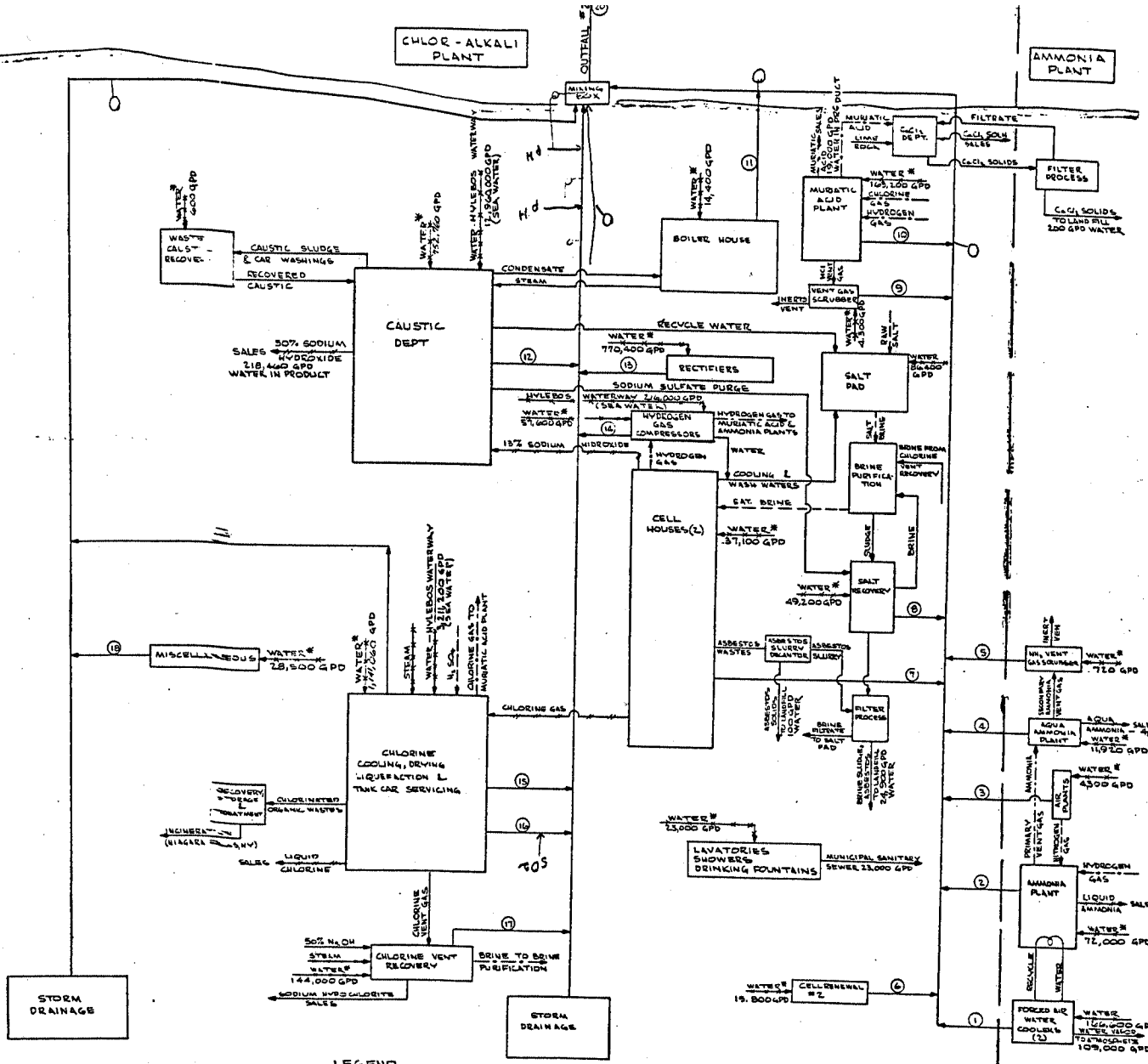
Sincerely,

Dennis Stefani

Dennis Stefani
Toxics Engineer

cc: Jim Oberlander, DOE SW Reg. Office
Earl Tower, DOE, Olympia
John Barich, EPA

Box 39
Map
Yellow tabs
7/14/80
date on back



Hooker Chemical
Exhibit for Section IIA
Schematic of Water flows

VALKER WELLS, INC.

GROUNDWATER CONDITIONS IN THE VICINITY OF THE TACOMA, WASHINGTON PLANT

PHASE II

A report prepared for

HOOKER CHEMICALS & PLASTICS CORP.

TACOMA, WASHINGTON

Report filed in back of Dangerous Waste file OCC/DW #2

August 28, 1980

WALKER WELLS, INC.
501 South Sixth Street, P.O. Box 2730
Champaign, Illinois 61820

OCC HWIKCLH
'68-'69 393

DEPARTMENT OF ECOLOGY

INSPECTION REPORT

To Dist. III File

Inspector Jim O. Greg C.

Date of Visit 9-8-80

Permit No

Name of Entity Hooker Chemical

Permit Expires

City Tacoma County

New Industry

Person Contacted Jayne Lyle Feller Doug Pierce

Type of Facility

Receiving Water

Type of Treatment System

Operation: Satis X Fair Unsatis

Does not comply with permit conditions

Describe: Jayne is out of Hookers new Environmental HQ group. We reviewed present sites used for disposal by Hooker Thunfield & City of Tacoma Landfills per her outline. Any change in Hookers waste disposal sites must be reviewed by their HQ.

We also toured plant Noted foam & solids around plant outfall boil. New Construction 80% complete. New Product storage Tanks - double walled - rather than dike.

→ We are to send Jayne copy of Thunfield's well monitoring data.

cc:

HOOKER CHEMICAL COMPANY

Tacoma, Washington

December 1980

Disposal history and locations of possible "solid" hazardous waste from this facility as gathered from DOE/EPA inspections and discussions with company representatives. Tacoma Tideflats disposal areas marked on the attached map. Letter is attached giving the chemical nature of the material disposed of.

SITE: City of Tacoma Landfill

Material - Description	Quantity	Dates	Comments	EHW
Asbestos from the cells. This is wetted and bagged and disposed of immediately upon arrival at the land fill.	160 lbs/day or 30 tons/year (These numbers are high. Some asbestos high in lead are drummed for shipment to Oregon)	Ongoing. 71-76 went in an uncovered container. 76 to present in a covered container.	Well-run landfill with leachate into sewer to STP #1	NO
Brine Sludge - ($CaCl_2$) Calcium Carbonate, Magnesium hydroxide (OH) and Sodium Chloride (NaCl) 1.5% Strontium and .2% lead. Lead is a total lead number. Concentration would be less than 5 ppm on EP toxicity test. Also contains some asbestos.	3 tons/day	1972 and ongoing.		NO
"Generator and Stripper Lime" wastes ($CaCl_2$) inert solids (dirt), some high boiling chlorinated organic residue. This material was thickened in two on-site sludge pits.	10,200 tons/year	January 1972 to April 30, 1972 (4 months)		NO by State Law

SITE: Old City of Tacoma Landfill (Tideflats) - (Marked "T." on map)

Material - Description	Quantity	Dates	Comments	EHW
Dross from the Aluminum Chloride Crucible.		1948 - 1952	No homes - no run-off, but a high groundwater table.	NO

SITE: Thun Field Landfill - Pierce County

Material - Description	Quantity	Dates	Comments	EHW
Mixed liquid waste - hauled by AIRO Services (Salt Pad mud). Brine purification waste primarily salts and dirt. Sump cleaning from cell house.	Undetermined.	Ongoing.	Tested by Hooker and DOE.	NO

SITE: Site I and Related - on plant

Material - Description	Quantity	Dates	Comments	EHW
"Generator and Stripper Lime". Solids (calcium chloride, excess lime, inert inorganic solids and high chlorinated organic residue)	500 tons/year	1950 - 1952	To pond located in area of present salt pad and then solids disposed of in Commencement Bay deed water site. Liquids went to Hylebos Waterway.	NO by State Law
Ponds NW corner.	Hooker will develop some estimates off of production numbers.	1972 - April 1972	Liquids to Hylebos waterway. Solids to Tacoma City landfill.	
Same as above.		May 1, 1972 to June 1972	Liquids decanted to waterway - Solids to Site II	
Same as above.		June 1972 to May 1973	Liquids decanted to waterway - Solids to Sites III and IV.	
Brine Sludge into (2) Ponds NW corner plus some asbestos.		1972 - 1977	Cleaned out solid material to Tacoma City Landfill 72 and followed by disposal at sites II, III and IV.	

SITE: Site II along Old Highway 99 "Petarcik"

Material - Description	Quantity	Dates	Comments	EHW
Brine Sludge with some asbestos.		1972 - 1977	Area received considerable other material - log yard cleanup and dredge spoils. No homes.	NO
Stripper Lime Sludges.		May 1, 1972 to June 1972		NO

SITE: Site III - General Metals (Don Oline)

Material - Description	Quantity	Dates	Comments	EHW
Brine Sludge with some asbestos.		1972 - 1977	Fenced - no homes - considerable other waste, mostly shredded car interiors.	NO
Stripper Lime Sludges		June 1972 to May 1973		NO

SITE: Site IV (Don Oline property)

Material - Description	Quantity	Dates	Comments	EHW
Lime pond sludge containing material from solvent plant pond.		June 1972 to May 1973	Site has received considerable waste from Domtar Lime and shredded car interiors from General Metals. Toxics, if present, could be from Hooker or from other industries in the area. No homes.	NO
Dredge Spoils - dredging adjacent to the Hooker Dock (could have some toxics associated with it if they were present in the sediments).	5,000 cubic yards	1974		NO
Brine Sludge - Some asbestos.		Approximately 1972 - 1973		NO

SITE: Site V (Commencement Bay)

Material - Description	Quantity	Dates	Comments	EHW
"Generator and Stripper Lime". Solids (calcium chloride, excess lime, inert inorganic solids and high chlorinated organic residue)	500 tons/year	1952 - 1972	Into water approximately 600 feet deep. (Liquids had been decanted at Solvents Plant Moorage - Hylebos Waterway.)	NO by State Law
Dredge Spoils.		Pre - 1974		
Brine Sludge.		Circa 1971		

SITE: Site VI (along Old Highway 99) (Dauphin Site)

Material - Description	Quantity	Dates	Comments	EHW
Dredge Spoils from dredging adjacent to Hooker Dock containing asbestos mixed in. Approximately .26% on a wet basis.	Undetermined.	November and December 1974	Site capped with sand and gravel - fenced as equipment storage yard. A few homes - on public water.	NO

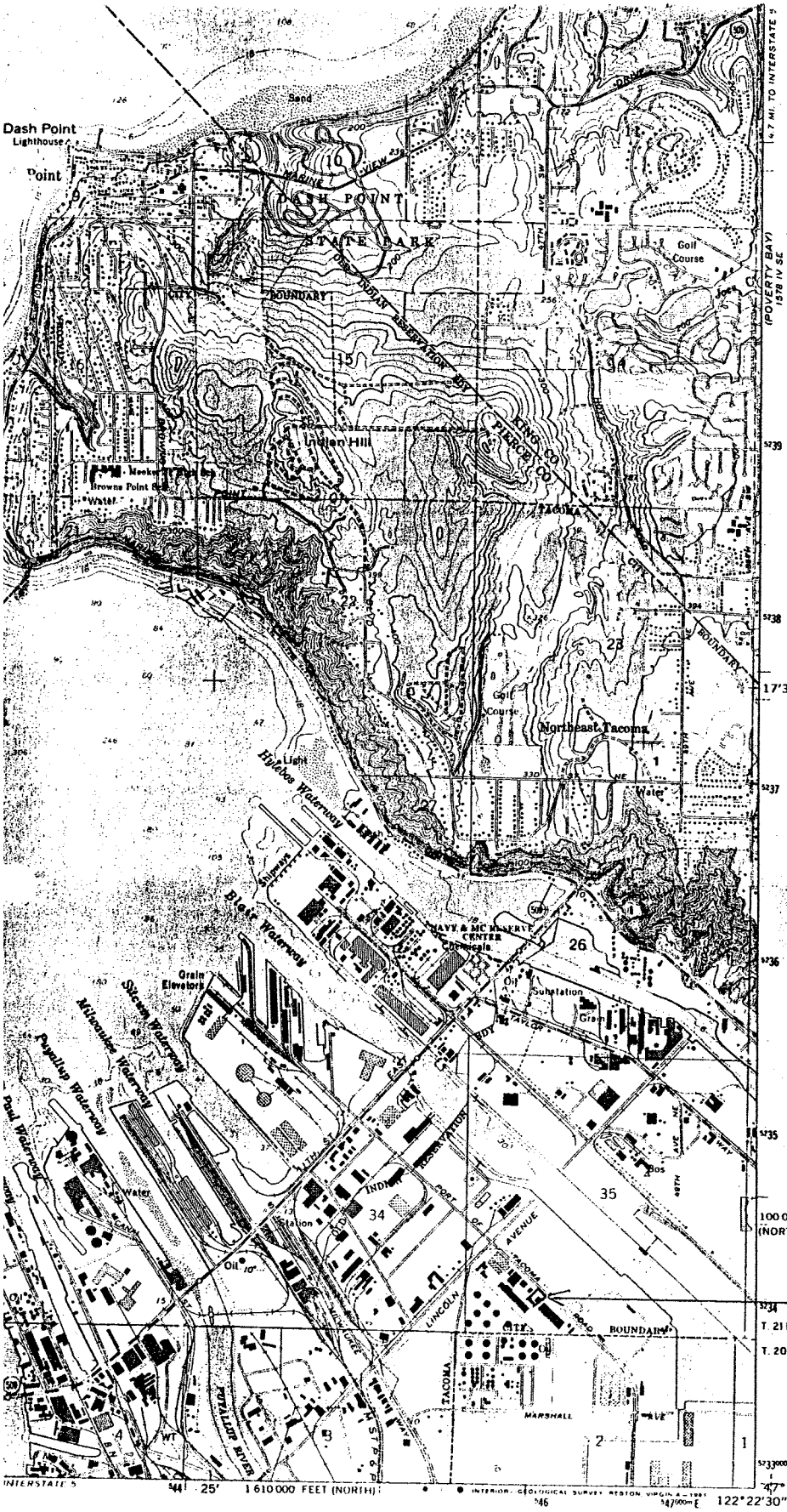
SITE: Site VII (Hylebos Waterway)

Material - Description	Quantity	Dates	Comments	EHW
Solvents Plant ("Generator and Stripper Lime". (Calcium chloride, excess lime and omse low and high boiling chlorinated organic residue)	500 tons/year	1947 - 1950+	Via outfall #1	No by State Law
Same material as above, but only liquids decanted from pond at present salt pad site.		1950± - 1952	Liquid to waterway. Solids trucked to sites on tideflats or adjacent area.	No by State Law
Same as first, but solids into barge moored at solvents plant. Liquid and some solids overboard plus Brine Sludge.		1952 - 1972	Liquid to waterway.	No by State Law
Brine Sludge		1929 - 1965 - 1970	Via outfall #2	NO
High and low boiling chlorinated organics from Cl_2 process.		1929 - 1969 or 1970	Via outfall #2 Not EHW because only 1.5 lbs./day were being discharged.	NO
Same as above.	15 RR cars on-site. (30 and 50 ton cars)	1969 to present.	Higher boiling organics to waterway - low boiling organics into RR cars on-site for storage.	YES
Asbestos.		1929 - 1971±	Placed along banks - most washed away.	NO

SITE: General Disposal Given or Sold to Many Individuals

Material - Description	Quantity	Dates	Comments	EHW
Concrete (from Cl_2 Cells)	900 tons/year		Since August 1980, cells were sand-blasted with residues stored and may go to Arlington.	NO unde RCRA bu might b under State Laws.
Graphite anodes.	200 tons/year			

392A
Box ~~401~~



LILYBLAD PETROLEUM

1 MILE
5000 6000 7000 FEET
1 KILOMETER

CONTOURS
M OF 1929
MEAN LOWER LOW WATER
MS IS VARIABLE
VE OF MEAN HIGH WATER
TELY 8 FEET

CURACY STANDARDS
80225 OR RESTON VIRGINIA 22092
S IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Heavy duty ——— Light duty

Medium duty — — — Unimproved dirt

State Route

WASHINGTON
QUADRANGLE LOCATION

Revisions shown in purple and woodland compiled from aerial photographs taken 1976 and other sources. This information not field checked. Map edited 1978

TACOMA NORTH, WASH.
N4715—W12222.5/7.5

1961

AVAILABLE AT
METSKER MAP CO.
911 PACIFIC AVE. METSKER BLDG.
P.O. BOX 400
TACOMA, WA. 98401

WQ Enforcement

Occidental Corp.
Pierce Co.
Corres

STATE OF WASHINGTON
John Spellman
Governor

DEPARTMENT OF ECOLOGY
Mail Stop PY-11
Olympia, Washington 98501
206, 753-2800

JAN 25 1981

CERTIFIED MAIL

Hooker Chemicals and
Plastic Corporation
P.O. Box 2157
Tacoma, WA 98401

Gentlemen:

Enclosed is Order, Docket No. DE 81-153. All correspondence relating to this docket should be directed to the enforcement officer. If you have any questions concerning the content of the docket, please call James D. Krull, Olympia, telephone 753-0145.

A form entitled "Acknowledgment of Service" is also enclosed. Please sign the original of this form and return it to this office.

This order is issued under the provisions of RCW 90.48.120. Any person feeling aggrieved by this order may obtain review thereof by application, within thirty days of receipt of this order, to the Environmental Hearings Office, Mail Stop PY-11, 405 Golf Club Road, Building No. 2, Lacey, WA 98504, with a copy to the Director, Department of Ecology, Olympia, Washington 98504, pursuant to the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

Very truly yours,

Gail Keyes

Gail Keyes
Assistant Enforcement Officer

GK:jm

Enclosures

cc: Clark Gaulding, EPA
Doug Pierce, Pierce County Health Department

RECEIVED
JAN 27 1981
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE COMPLIANCE BY HOOKER CHEMICALS AND PLASTIC CORPORATION with Chapter 90.48 RCW and the Rules and Regulations of the Department of Ecology	)	ORDER Docket No. DE 81-153

To: Hooker Chemicals and
Plastic Corporation
P.O. Box 2157
Tacoma, WA 98401

Chapter 173-201 WAC, entitled "Water Quality Standards," establishes water quality standards for all waters of this state including Hylebos waterway, which is designated as Class "B" waters. Also, the aforementioned regulation establishes that all activities which discharge wastes into waters of the state or otherwise affect the quality of said waters shall provide all known available and reasonable methods of treatment and control to maintain established water quality standards.

Hooker Chemicals and Plastic Corporation owns and operates a chemical plant on the Hylebos waterway in the Tacoma industrial area. The corporation produced industrial solvents at the site from 1948 until 1973 and continues to produce chlorine and caustic soda. The corporation, on its own, has had a highly qualified consultant conduct an extensive investigation on the impacts of past and present plant operations on the ground water under the plant and on potential impact on the Hylebos waterway. The reports from this investigation have been made available to the regulatory agencies and information on the investigation was shared through several meetings. The results of the corporation's investigation show that contaminants have reached the ground water under the plant, that the ground water is contiguous with the Hylebos waterway, that contaminants reach the Hylebos waterway, and that the impact on the Hylebos waterway is not significant. This situation constitutes a potential for water pollution.

In view of the foregoing and in accordance with the provisions of RCW 90.48.120(2):

IT IS ORDERED THAT Hooker Chemicals and Plastic Corporation shall, upon receipt of this Order, take appropriate action in accordance with the following instructions:

1. Remove all soils in the unsaturated zone contaminated with chlorinated organics at a level greater than 150 parts per million except that soils in Area 1 (Hart-Crowser submission, October 31, 1980) need not be excavated. The surface area of excavation is to be as defined in the December 20, 1980, Hart-Crowser letter with the addition of the red area in Area 3 defined in the October 31, 1980, Hart-Crowser submission.

   Care shall be taken not to excavate into the water table when removing contaminated soils.

2. Dispose of excavated soils in a manner approved by the Department of Ecology.

3. Use uncontaminated material approved by the Department of Ecology when replacing excavated soils.

4. Cover with a relatively impermeable material all areas of the plant where mean concentrations of chlorinated organics in the unsaturated zone exceed 15 parts per million. These areas are the red and yellow areas as defined in the Hart-Crowser submission of October 31, 1980, except that no sealing is required in Area 1.

5. Conduct a continuing ground water monitoring program to periodically determine the concentrations of Dichloromethane (CH_2Cl_2), Chloroform ($CHCl_3$), Trichloroethylene (C_2HCl_3), and Perchloroethylene (C_2Cl_4) in the ground water.

6. Submit for review and approval, plans including a schedule for accomplishing Item Nos. 1 through 5 above to the Department of Ecology by March 20, 1981.

7. Conduct a continuing monitoring program in the surface water of the Hylebos waterway adjacent to Hooker property to periodically determine concentrations of Dichloromethane, Chloroform, Trichloroethylene, and Perchloroethylene. A proposal will be submitted for review and approval to the Department of Ecology by April 20, 1981.

No further actions will be taken by the Department of Ecology on the Hooker Chemicals and Plastics Corp. relating to the ground water investigation as described by reports and submissions received to date unless:

1. Such actions relate to compliance with this order; or

2. Such actions are based upon statutes, regulations or permits which become effective subsequent to the date of this order; or

3. On information obtained by the Department of Ecology subsequent to the date of this order that impact conclusions based on the reports received to date.

This limitation on future actions by this department is not meant to preclude actions by other persons.

DATED at Olympia, Washington JAN 25 1981

B A Cameron

Bruce A. Cameron
Assistant Director
Department of Ecology
State of Washington

Pierce County
Inc. General Metals

State of Washington
Department of Ecology

INSPECTION REPORT

E. Egbers

To Dist III Files

Inspector D. ANDERSON

Date of Visit Feb. 4, 1981

Permit Number

Name of Entity General METALS - Ferrous Div.

Permit Expires

City TACOMA County PIERCE

New Industry

Person Contacted MARTIN BRASHEM VP. - Rob Hall - Supt. YARD

Type of Facility FERROUS DIV.

Receiving Water HYLEBOS WATERWAY

Type of Treatment System YARD STORMWATER TO oil/WATER SEPARATOR

Operation: ☑ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe CAR INTERIORS shredded And Hauled by Contract to Koski (SP) Dumpsite. Apparently EPA AND the metals recycle industry got together and conducted a study to determine whether shredded interiors was to classified as HW or not. EPA published the data, apparently no problem, but I did not see the data of the study. May not comply with present regs.

Oil/water separators were being maintained (although we have not had any rain for a while).

Liberty ship presently being scrapped out - will be the last.

Listing of present modes of operation: Shredder, Shearer, Machine shop, Ship dismantling, Bricker (not operating) incinerator, Car body storage.

NOTE: Asbestos insulation removed from ships is presently being bagged in double plastic bags and hauled to landfill (Thun or Koski)

CC

ECY 040-2-116

General Metals
Peirce County

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

February 6, 1981

Mr. Frank Monahan
District Engineer
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Monahan:

As per your recent request, we have reviewed our records and talked to plant personnel in an effort to characterize certain wastes disposed of off-site by the Tacoma Plant since 1950. As you know, detailed records and accurate analyses were not required at the time, and are for the most part unavailable. However, based on the rather sparse data available, we have estimated typical compositions of the five primary waste streams involved.

These are estimates of the average of "typical" concentrations, of certain key constituents, based on infrequent spot checks using sampling and analytical methods accurate at the time, but no longer considered percise.

A. Dredge Spoils

On several occasions the Hylebos Waterway was dredged at the area surrounding the dock face. Dredges were disposed of in Commencement Bay except for the most recent occasion in 1974. On this occasion the spoils showed the presence of volatile solids and COD and thus were disposed of at the "Oline" and "Dauphin" sites. The "Oline" site, in addition, received numerous other industrial wastes including several from Hooker. We do not know if others used the "Dauphin" site.

A typical characterization of this material would be: A thick slurry of perhaps 25% solids, the balance being seawater. The solids were analyzed at about 8% volatile material, 18% COD, and 1.4% salt. Chlorinated organics were 50 ppm, oil and grease about 0.5%, and asbestos 0.2%. Heavy metals in ppm were Pb 150, Cd < 10, Hg < 1, Cr 20, and Cu 50.

B. Barge Wastes

Until 1972, solvents plant spent lime and, in later years, brine sludge solids were also disposed of in Commencement Bay. Again this material was a slurry containing approximately a 20% solids consisting primarily of calcium salts (hydroxide, chloride, and

carbonate). These solids contained fractional percentages of chlorinated organics (0.3%) and asbestos (0.05%). Trace levels of lead and copper were detected in the solids at approximately 50 and 10 parts per million, respectively. Cadmium and mercury were not detected.

C. On-site Sludge Ponds 1972 to 1973

From 1972 to 1973, the solvents plant waste along with brine sludge were settled in ponds on-site prior to land disposal. Three land disposal sites were used all of which received wastes from other non-Hooker services. These sites were the "Petarcik", "Oline", and "General Metals" sites.

The sludges processed in this period were, again, slurries containing approximately 25% solids. Primarily inorganic salts of calcium (hydroxide and chloride). These solids contained fractional percentages of asbestos (0.1%) and chlorinated organics (0.4%). Trace levels of lead and copper were detected in the solids at approximately 50 and 10 parts per million, respectively. Cadmium and mercury were not detected.

D. On-site Sludge Ponds 1973 to 1978

In 1973, the solvents plant was shutdown. Thus, the sludges in this pond no longer contained solvent plant lime wastes. As a result, the composition of the solids in the sludge slurrie was somewhat different. The approximately 30% solids contained primarily sodium chloride, calcium salts and magnesium hydroxide at 10, 13 and 6%, respectively. Approximately 3% asbestos was present along with fractional percentages of Fe 0.6, Pb 0.45, and chlorinated organics 0.1%. Although Hg was undetected, about 75 parts per million of Co, and 10 parts per million of Cr, 30 parts per million Cu, and 10 parts per million Cd were indicated.

E. Solvents Plant Sludge Pond

During the period 1950 to 1952, the solvents plant wastes were landfilled on-site (Area 3). The slurry was estimated to contain 25% solids primarily the chloride and hydroxide of calcium. This material is estimated to have averaged about 0.5% chlorinated solids. In heavy metals 25 ppm Pb and 6 ppm Cu are indicated, while Cd was not detected.

Very truly yours,

Lyle Feller/bh

Lyle Feller
Technical Assistant - Production

LF/bh

General Metals
WQ Box 385

State of Washington
Department of Ecology

INSPECTION REPORT

To District 3

Inspector Will Abercrombie WA
Jim Oberlander GO

Date of Visit 3-17-81

Permit Number

Name of Entity (General Metals) Hooker Dump Site #3

Permit Expires

City Tacoma County Pierce

New Industry

Person Contacted Marty Breshaw, President, and Tom London, Manager

Type of Facility Abandoned Hooker dump site - now equipment storage area for general metals

Receiving Water Ground and small creek

Type of Treatment System None

Operation: ☒ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe General Metals bought this site from Don Oline. Since Hooker used the site, General Metals has expanded the area using pit run, some ASARCO slag, ground car interiors, and dredge spoils from Hylebos waterway. Any Hooker waste is covered with 4 feet + of other material. A spring situated near the center of the fill area (see attached map) drains to a ditch line that parallels Marine View Drive. This ditch line may be worth sampling during wet weather. Took 35 mm photos.

CC

ECY 040-2-116

State of Washington
Department of Ecology

INSPECTION REPORT

To District 3

Inspector Will Abercrombie WA
Jim Oberlander JC

Date of Visit 3-17-81 and 3-30-81

Permit Number

Name of Entity Oline - Hooker Dump Site #IV

Permit Expires

City Tacoma County Pierce

New Industry

Person Contacted None

Type of Facility Don Oline property - illegal dump site??!

Receiving Water ground and Hylebos

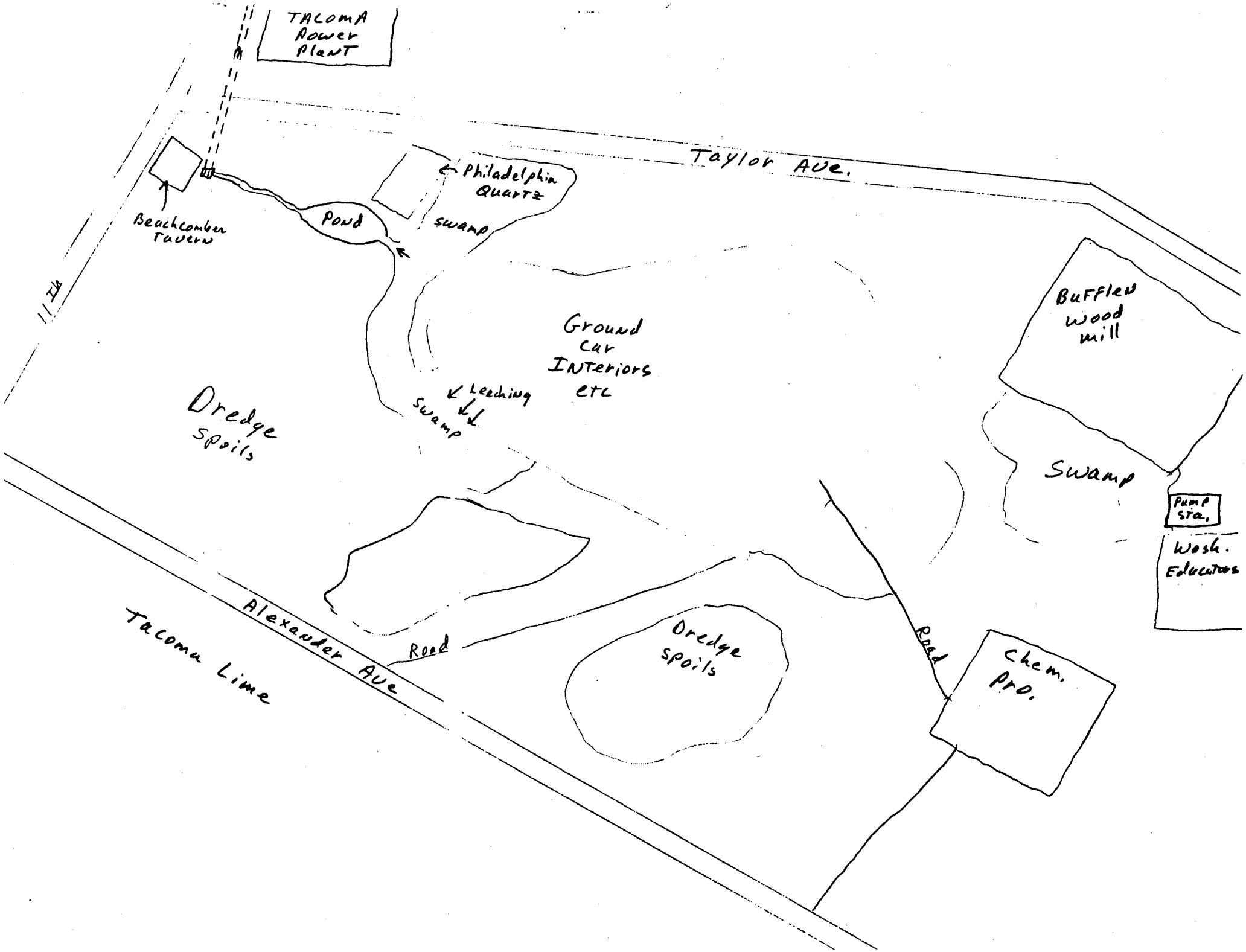
Type of Treatment System None

Operation: ☐ Satisfactory ☐ Fair ☒ Unsatisfactory

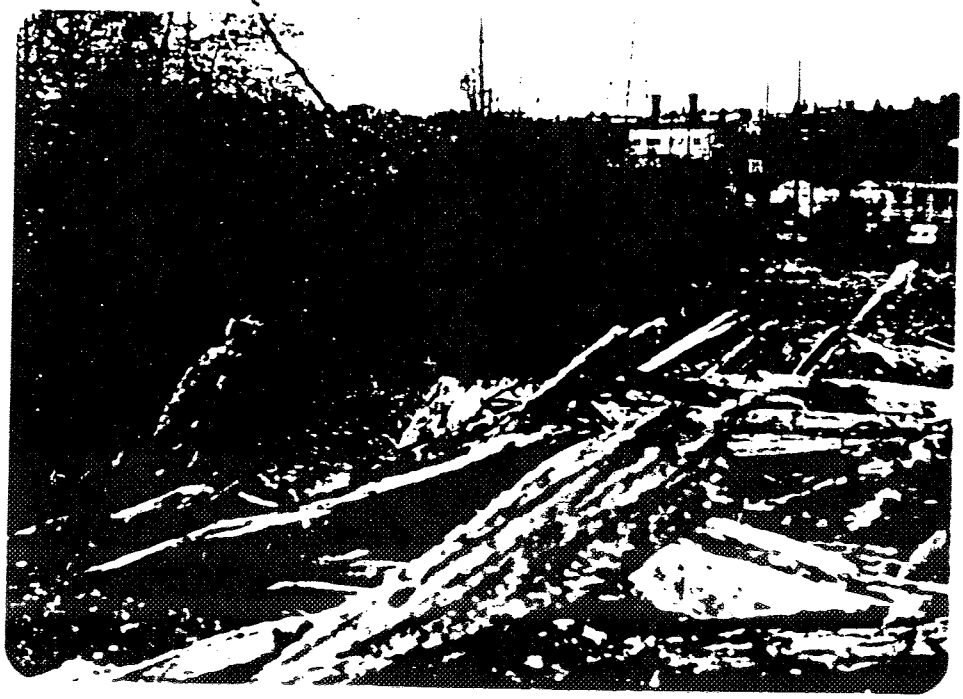
☐ Does not comply with permit conditions

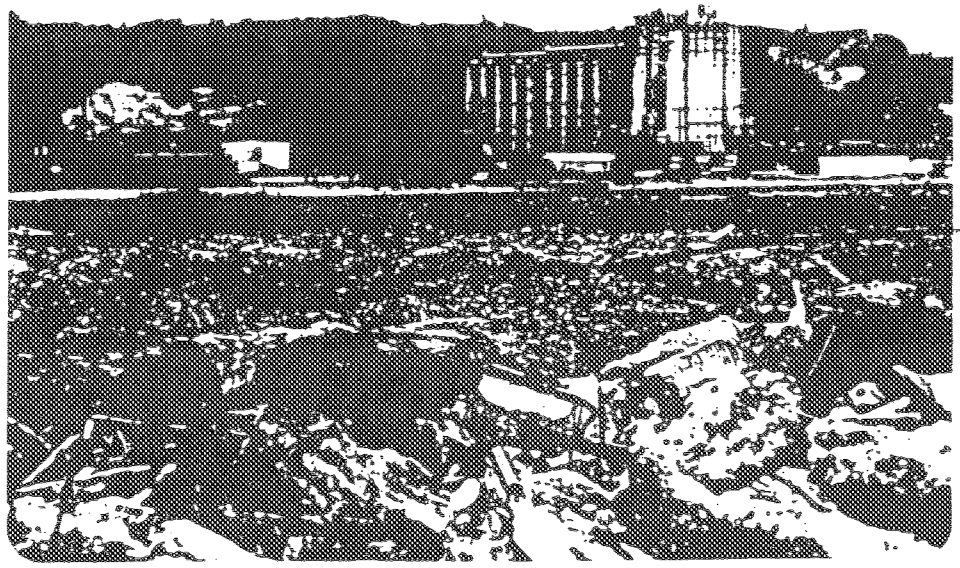
Describe The site is an old swamp. Deposition of waste has raised the center of the area above the water table. As a result, water now drains in two directions. To the southeast water drains toward the Bufflen Wood Mill where it is pumped. To the northwest the water drains into a small pond, enters a culvert located behind the Beachcomber Tavern, and is carried toward the northweast where it enters the Hylebos at the old Tacoma Power Plant #2 (see attached map). We found a large area of ground car interiors and a large area of dredge spoils. Other recently dumped material found includes asphalt, concrete, and lime. Found some leachate from the care interior waste area into the swamp to the west. Observed tadpoles in the swamp and quite a lot of wildlife (e.g. blue heron, pheasant, other birds). Returned to site on 3-30-81 and took pictures. Dyed water entering culvert behind the ~~Beachcomber~~ Bob's Pier Tavern. Alerted the Tacoma Power Plant superintendent to be on the lookout for the dye and to let us know if it shows up in the waterway.

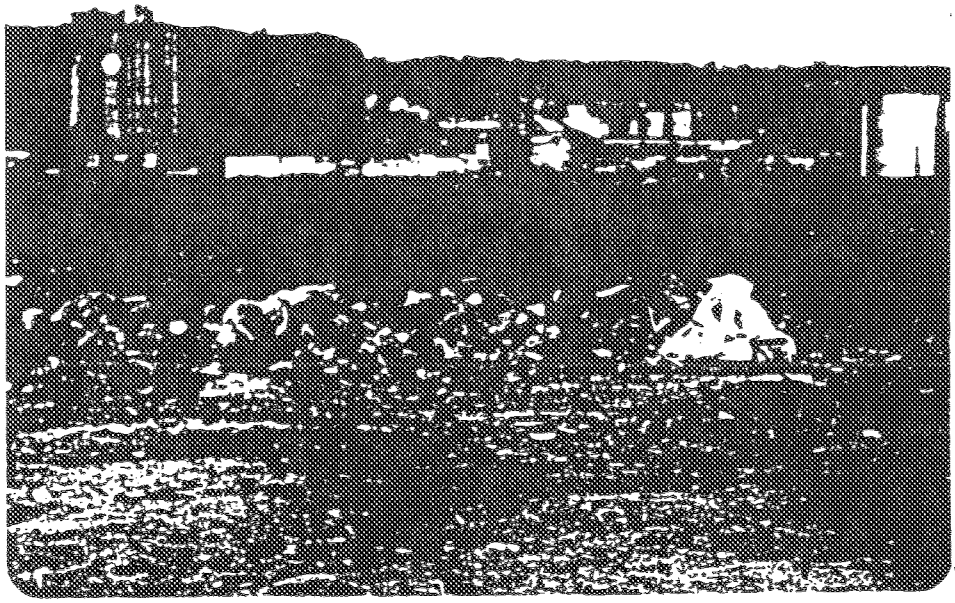
CC

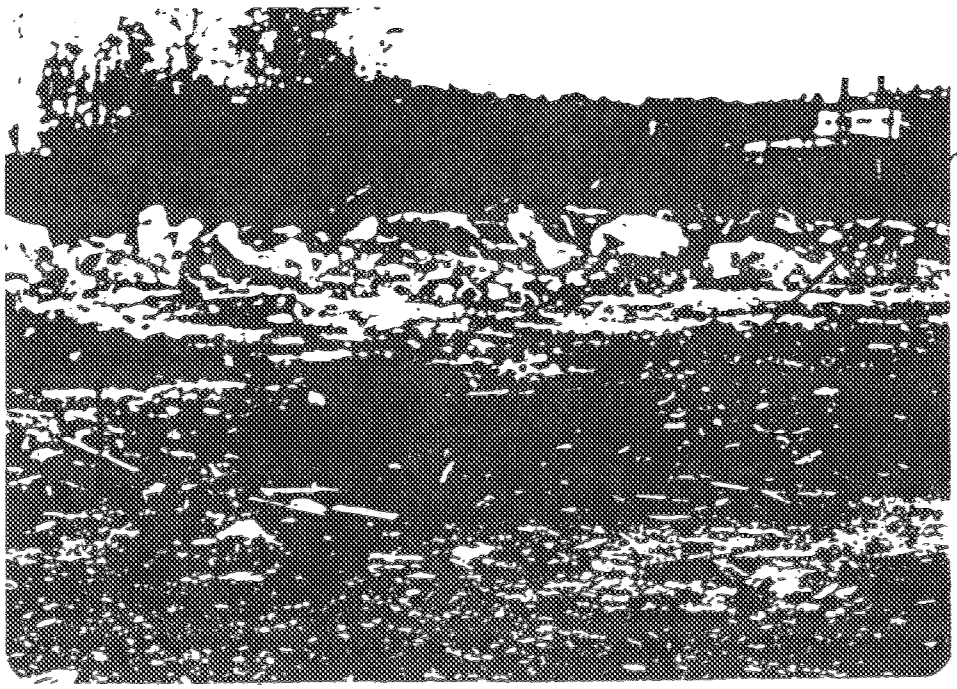

TACOMA Power Plant
Taylor Ave.
Philadelphia Quartz
Beachcomber Tavern
Pond
swamp
Ground car INTeriors etc
Leaching Swamp
Dredge spoils
Buffler wood mill
Swamp
Pump Sta.
Wash. Educators
Alexander Ave
Tacoma Lime
Road
Dredge spoils
Road
Chem. Pro.

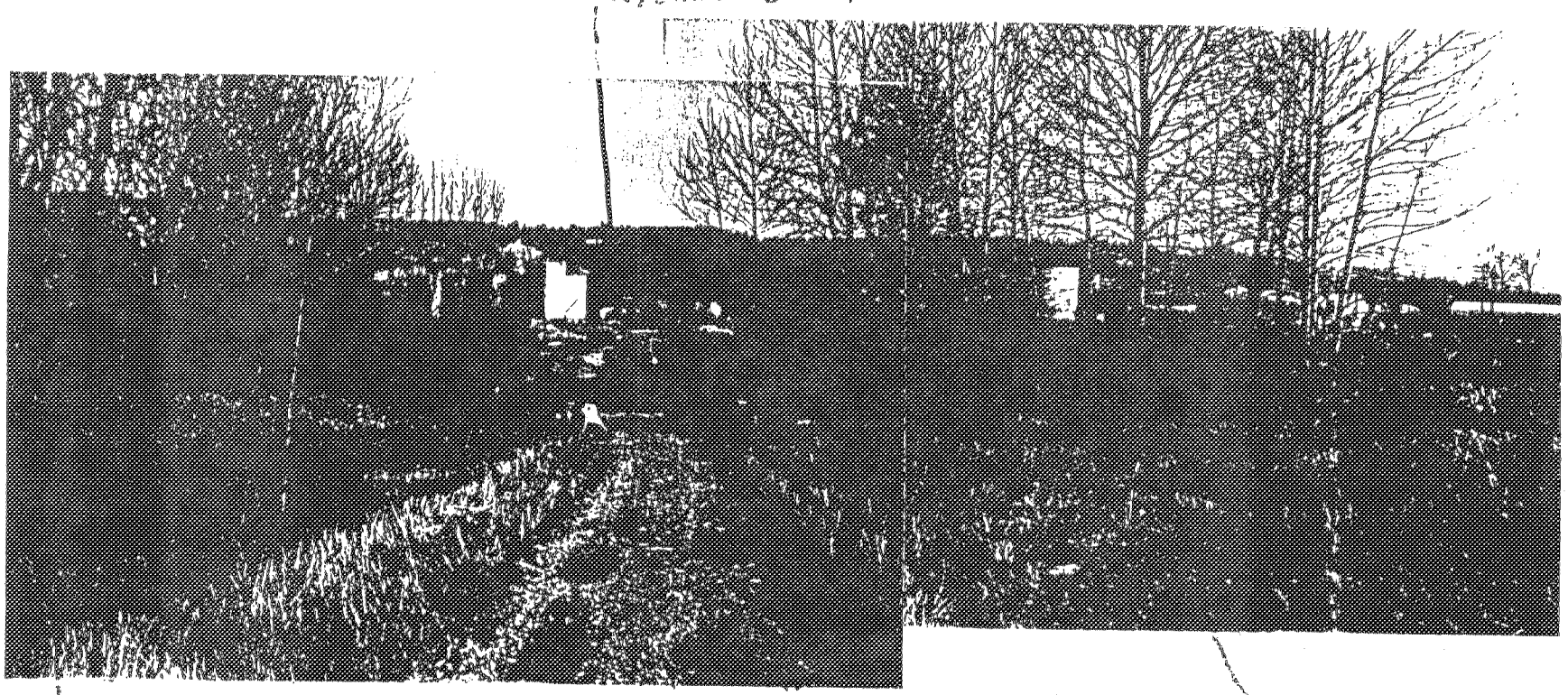
Leachate entering swamp

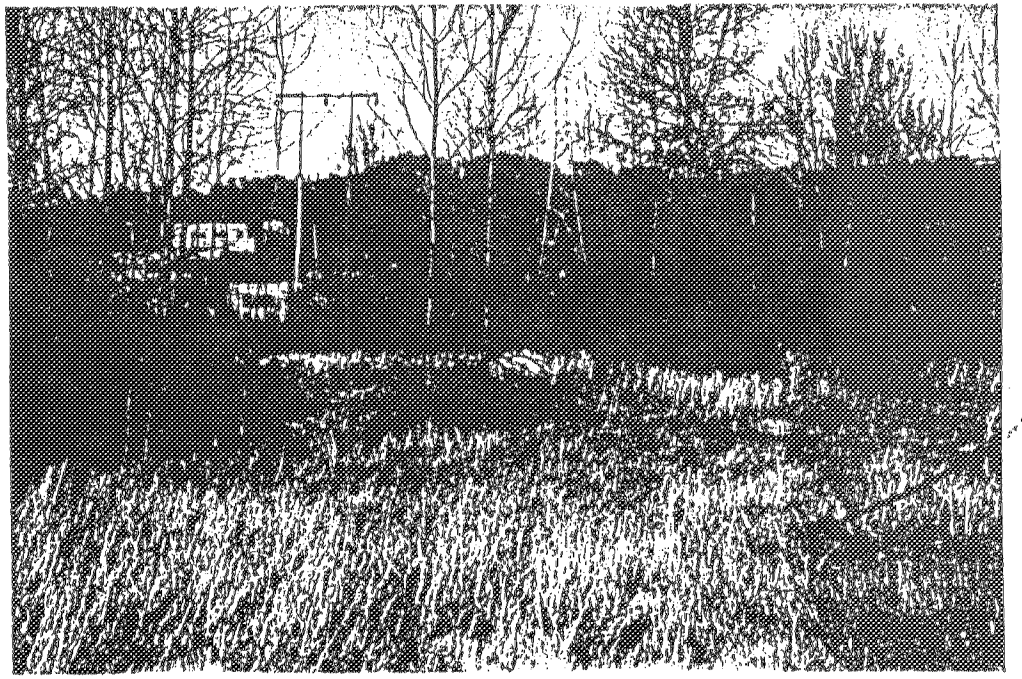












J-864-04

HART CROWSER & associates inc.
GEOTECHNICAL ENGINEERING

May 11, 1981

Hooker Chemical & Plastics Corp.
Electro Chemical Division
605 Alexander Avenue
Tacoma, Washington 98401

Attn: Mr. Lyle Feller

Re: Final Boundaries for High Chlorinated Organic Concentrations Area 2 and Area 3
Hooker Chemical And Plastics Corp. Plant
Tacoma, Washington

Gentlemen:

This letter presents the final boundaries for the Areas 2 and 3 chlorinated organic concentrations greater than 150 parts per million (ppm) by weight. The work was authorized by Mr. Lyle Feller, Technical Assistant-Production, for the Hooker Chemical & Plastics Corp., Tacoma, Washington Plant.

We understand that Mr. James Krull, District Supervisor for the Washington State Department of Ecology and Mr. Feller verbally agreed that the procedure used to outline the Final Boundaries (discussion below) would satisfy Paragraph 2 in the letter dated April 1, 1980, supplemental to the Department of Ecology Order, Docket No. DE 81-153.

Procedure

In order to minimize unnecessary delays in the removal of contaminated soil, it was agreed that soil from closely-spaced borings would be analyzed to determine the exact boundaries for removal before the operation had commenced. Hand-augers, a truck-mounted mini-drill and a B-61 Mobil Drill auger were used to obtain samples at 2, 4, and 6 foot depths. (Samples from 3 and 5 foot depths were analyzed where 2, 4 and 6 foot samples could not be obtained). Initially borings were placed at 10 to 25 feet spacings, following which more borings were placed in areas where refined boundaries were needed. In addition soil from the 0-2 foot zone, planned for replacement as uncontaminated fill, was tested on a 25' x 16' grid pattern at 1½ to 2 foot depths. The test locations are shown in Figure 1.

Samples were analyzed by the Hooker in-house laboratory using the techniques outlined in Hart-Crowser report J-864-02. The results for each test boring (T-designation), surface sample (S-designation) and grab sample from the stockpiled replacement soil (0-2 feet, GS-designation) are listed in Table 1.

Results

As seen in Figure 1, the high-concentration boundaries outlined in the Hart-Crowser letter dated December 20, 1980 have been shifted slightly.

Area 2-1A has been moved and enlarged. During the sampling, it was discovered that soil over parts of the concrete loading pad had masked its true position and size. The outline in Figure 1 shows the position of the concrete boundary. As discussed in the December 20, 1980 letter and agreed upon in the plan submitted to the Department of Ecology, the soil from 0-7 feet will remain in place.

Area 2-1B has been enlarged in response to: the relocated boundary of Area 2-1A, Paragraph 1 of the April 1, 1981 letter from the DOE, and sampling on 10-foot intervals which extended the boundary 4 to 10 feet to the south and west. Soil from 0 to 7 feet will be removed.

Area 2-1C has been enlarged to include much of Area 2-1 surrounding the old boundary. During clean-up and grading of the old Solvents Plant site, contaminated soils piled from test hole drilling and test pit excavation were spread-out over an area now contained by the new Area 2-1C. The 0 to 2 foot depth must now be removed because some soil had concentrations over 150 ppm. A small portion of the outer boundary has been extended westward 6 to 8 feet. Sampling at 13 foot intervals outside the old boundary, indicated some concentration levels above the 150 ppm level. Soils in Area 2-1C will be removed from 0 to 7 feet.

Area 2-1 has been changed. The southern boundary for Area 2-1 (south) has been extended 4 to 5 feet in response to the relocation of Area 2-1A. The western boundary for Area 2-1 (central) has been extended 3 to 5 feet, as a result of closely spaced sampling locations.

The eastern boundary, of Area 2-1 near the two 40,000 gallon tanks has been moved and two new Areas have been designated.

Area 2-1E has been defined where three sample locations showed the result of near surface contamination. Because of shallow soil contamination, the 0 to 3 foot zone should be removed.

Area 2-1D has been defined to include two small zones of greater than 150 ppm concentrations near the 40,000 gallon storage tanks. Sample results have indicated that 0 to 7 feet should be removed.

As discussed in previous Hart-Crowser reports 864-02, and 03, we believe that the soil under the tank foundations are unlikely to have significant total amounts of chlorinated organics because flow in the unsaturated zone is primarily downward. Thus, these foundations define the perimeter of Areas 2-1, 2-1D and 2-1E in the vicinity of the tanks.

Area 2-2 has been shifted slightly. Sampling at points on the perimeter of this area revealed concentrations in excess of 150 ppm. The new boundaries based on closely spaced soil borings are more precise than those previously located in part by conversations with long-term Hooker employees.

Area 2-3 has been expanded slightly to the east to encompass two sample locations with concentrations greater than 150 ppm. These samples indicated that the eastern part of the previously defined Area 2-3 should be removed from 0 to 7 feet (Area 2-3A) while the western portion, Area 2-3B has contamination from the 5 to 7 foot zone and should be removed accordingly.

Area 3 has been in enlarged to include soil zones with 150 (or greater) ppm concentration encountered during closely spaced borings. We believe that some of these high concentrations may be a result of soil disturbance created during previous backhoe test excavations. In addition, some of the high concentrations probably reflect more precise location of the area affected by tank leakage. (Previous location was in part based on conversation with long-term Hooker employees).

The depth for soil removal in Area 3 has also been changed. During our previous exploratory work it was difficult to penetrate below a cemented sand zone, located at a depth of approximately 5 feet. Samples obtained with a jack hammer at other locations, below the cemented zone revealed low chlorinated organic concentrations. Thus it was agreed that soil below 5 feet in Area 3 could remain. However, during sampling to determine the perimeter location, it was discovered that the cemented layer was thin in some places. The lack of a coherent cemented zone has allowed movement of organics below 5 feet in some locations. Thus we recommend that soil from 0 to 7 feet be removed.

We believe that these new boundaries more accurately reflect the soil regions with chlorinated organic concentrations 150 ppm or more. The surface sealing of the Solvents Plant area after soil removal has been completed should reduce the likelihood that the small amounts of organics remaining in the unremoved soil will migrate under the influence of precipitation.

The area and volume of the affected Areas have been calculated, planimetrically from a 1":10' scale map. These values are listed in Table 2 to the nearest square foot and 0.1 cubic yard.

We appreciate the opportunity for providing you with these hydrogeologic and engineering services. If you have any questions or comments please call at your convenience.

Sincerely,

HART-CROWSER & ASSOCIATES, INC.

MARK G. UTTING
Project Hydrogeologist

JOHN C. CROWSER, P.E.
Sr. Vice President

MGU/JCC:lk

Enclosures: Table 1 and 2
Figure 1

J-864-04

TABLE 1

AREA 2

TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)	TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)
T-1	2	66	T-9	2	75
	4	29		4	40
	6	30		6	23
T-1A	2	55	T-10	2	45
	4	22		4	98
	6	24		6	8
T-2	2	121	T-10A	2	192
	4	37		4	250
	6	24		6	157
T-3	2	42	T-10B	2	128
	4	413		4	87
	6	1120		6	122
T-3A	2	70	T-11	2	151
	4	293		4	775
	6	3235		6	149
T-3B	2	106	T-11A	2	180
	4	32		4	150
	6	183		6	144
T-4	2	104	T-11B	2	71
	4	62		4	93
	6	684		6	60
T-4A	2	1286	T-12	2	89
	4	32		4	10
	6	33		6	249
T-4B	2	52	T-13	2	87
				4	96
T-5	2	152		6	22
	4	125			
	6	59	T-13A	2	176
				4	180
T-6	2	46		6	195
	4	47			
	6	84	T-13B	2	9
				4	9
T-7	2	19		6	8
	4	14			
	6	18	T-14	2	12
				4	39
T-8	2	11		6	461
	4	34			
	6	24			

J-864-04

TABLE 1 (cont.)

AREA 2

TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)	TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)
T-14A	2	24	T-18A	2	20
	4	0		4	25
	6	69		6	175
T-14B	2	1	T-18B	2	8
	4	0			
	6	0	T-18C	2	31
				4	29
T-15	2	95		6	1
	4	155			
	6	23	T-19	2	81
				4	83
T-15A	2	30		6	46
	4	29			
	6	15	T-20	2	1442
				4	358
T-15B	2	0		6	809
			T-20A	2	34
				4	35
T-16	2	820		6	21
	4	921			
	6	580	T-21	2.5	52
				4	59
T-16A	2	25		6	225
	4	225			
	6	19	T-21A	2	31
				4	32
T-16B	2	16		6	29
	4	123			
	6	97	T-22	2	162
				4	117
T-17	2	132		6	93
	4	198			
	6	192	T-22A	2	75
				4	26
T-17A	2	123		6	29
	4	187			
	6	203	T-22B	2	8
T-17B	2	19			
	4	19			
	6	31	T-24	2	61
				4	117
T-18	2	154		6	109
	4	81			
	6	85	T-25	2	71
				4	2051
				6	195

J-864-04

TABLE 1 (cont.)

AREA 2

TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)
T-25A	2	303
	4	19
	6	13
T-25B	2	52
T-26	2	62
	4	64
	6	66
T-26A	2	130
	4	138
	6	17
T-26B	2	403
	4	386
	6	539
T-26C	2	0
	4	0
	6	0
T-27	2	232
	4	1693
	6	1061
T-27A	2	138
	4	130
	6	36
T-28	3	15811
T-28A	2	334
	4	153
	6	269
T-28B	2	0
	4	0
	6	0
T-29A	2	12
	4	5
	6	18
T-30	2	98
	4	16
	6	13
T-31	2	36
	4	32
	6	43
T-40	2	9
	4	4
	6	4
T-41	2	4
	4	4
	6	4

J-864-04

TABLE 1 (cont.)

AREA 3

TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)	TEST HOLE NO.	DEPTH INTERVAL	PPM (cl organics)
T-32	2	18	T-37	2	250
	4	16		4	68
				6	2855
T-33	2	26			
	4	69	T-38	2	270
	6	104		4	12
				5	105
T-34	2	188			
	4	197	T-38A	2	74
T-34A	2	106	T-39	2	64
	4	193		4	28
	6	69		5	4
T-34B	2	11			
	4	2			
	5	4			
T-35					
	4	423			
	5	222			
T-35A	2	35			
	4	141			
	6	347			
T-35B	2	4			
	4	3			
T-36	2	6400			
	4	3700			
	5	1965			
T-36A					
	3	4			
	6	40			
T-36B	2	4471			
	4	2260			
	5	1481			
T-36C	2	365			
	4	386			
	6	206			
T-36D	2	54			
	4	14			
	5	8			

J-864-04

TABLE 1 (cont.)

AREA 2

SURFACE SAMPLE NO.	DEPTH INTERVAL	PPM (cl organics)	Grab Sample No.	PPM (cl organics)
S-1	1.5	92	GS-1	47
S-2	1.5	232	GS-2	2
S-3	1.5	121	GS-3	0
S-4	1.5	568		
S-5	2.0	19		
S-6	2.0	90		
S-7	0.5	35		
S-8	1.5	24		
S-9	1.5	62		
S-10	1.0	382		
S-11	No Sample	(concrete)		
S-12	2.0	34		
S-13	1.5	23		
S-14	1.5	73		
S-15	2.0	197		
S-16	2.0	67		
S-17	2.0	49		
S-18				
S-19	1.5	117		
S-20	2.0	82		
S-21	2.0	136		
S-22	2.0	907		
S-23	2.0	41		
S-24	No Sample			
S-25	2.0	34		

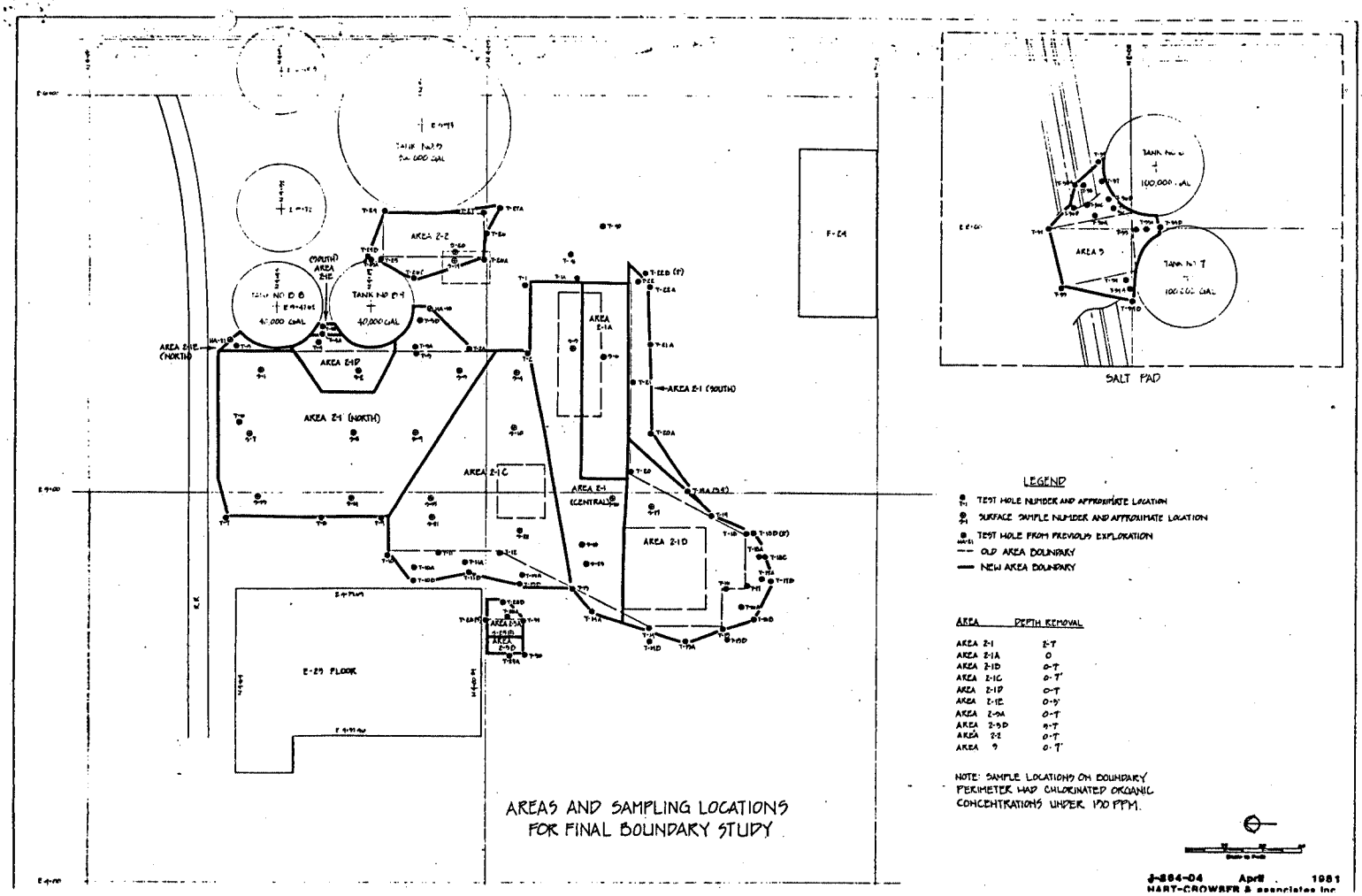
J-864-04

TABLE 2

AREAS AND VOLUMES OF AFFECTED AREAS

SITE	AREA (ft^2)	REMOVAL DEPTH (feet)	VOLUME (yds^3)
2-1 (north)	2295	2-7	425.0
2-1 (central)	1104	2-7	204.4
2-1 (south)	281	2-7	52.0
2-1A	580	0	0
2-1B	1245	0-7	322.8
2-1C	1820	0-7	471.9
2-1D	274	0-7	71.0
2-1E (north)	35	0-3	3.9
2-1E (south)	20	0-3	2.2
2-2	411	0-7	106.6
2-3A	73	0-7	18.9
2-3B	33	5-7	2.4
3	581	0-7	150.6
TOTAL*	8172		1831.7

* Excludes Area 2-1A which is not to be removed.



AREAS AND SAMPLING LOCATIONS
FOR FINAL BOUNDARY STUDY

SALT PAD

LEGEND

- TEST HOLE NUMBER AND APPROXIMATE LOCATION
- SURFACE SAMPLE NUMBER AND APPROXIMATE LOCATION
- TEST HOLE FROM PREVIOUS EXPLORATION
- OLD AREA BOUNDARY
- NEW AREA BOUNDARY

AREA	DEPTH REMOVAL
AREA Z-1	2-7
AREA Z-1A	0
AREA Z-1D	0-7'
AREA Z-1C	0-7'
AREA Z-1F	0-7
AREA Z-1E	0-5'
AREA Z-9A	0-7'
AREA Z-9D	0-7
AREA Z-2	0-7'
AREA 9	0-7'

NOTE: SAMPLE LOCATIONS ON BOUNDARY PERIMETER HAD CHLORINATED ORGANIC CONCENTRATIONS UNDER 130 PPM.

J-884-04 April 1981
HART-CROWSER & associates Inc

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

May 13, 1981

Mr. James Krull, District Supervisor
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

The attached information presents the progress during the first two weeks of contaminated soil removal and replacement at the Tacoma Plant site. Included are memorandum by James Bichsel which covered the daily field reports presented to us by representatives of Hart-Crowser for each weeks activity and maps showing each weeks progress on soil removal and replacement. The individual daily reports from Hart-Crowser are not included but are on file in my office and available for your review.

Also included is a report issued to us by Hart-Crowser on May 11 defining the final boundaries of the excavation. As the report indicates these final boundaries are based on the analysis of closely spaced borings located around the initially proposed excavation boundaries.

Sincerely,

Lyle Feller

Lyle Feller
Technical Assistant-Production

LF/sr

Enclosure

cc Enforcement Officer
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504

hooker

INTER-OFFICE MEMORANDUM

To: L P Hallahan - W/reports

File Ref.: 81003

Copies to: CWV W/reports
RWH W/reports
RLHall W/reports
CLW W/reports
JWB W/reports
SAH W/reports
LDF W/4 reports
Gr Book

Date: May 6, 1981

From: J W Bichsel

Div./Dep't: Engineering West

Subject: TACOMA REMEDIAL GROUNDWATER PROGRAM

Location: Tacoma, Washington

Attached are the first week's daily field reports on the excavation project for the Tacoma Remedial Groundwater Program. The reports start on April 27, 1981, the first day's field work, and are written by our Geotechnical Engineering Consultants, Hart Crowser & Associates, Inc.

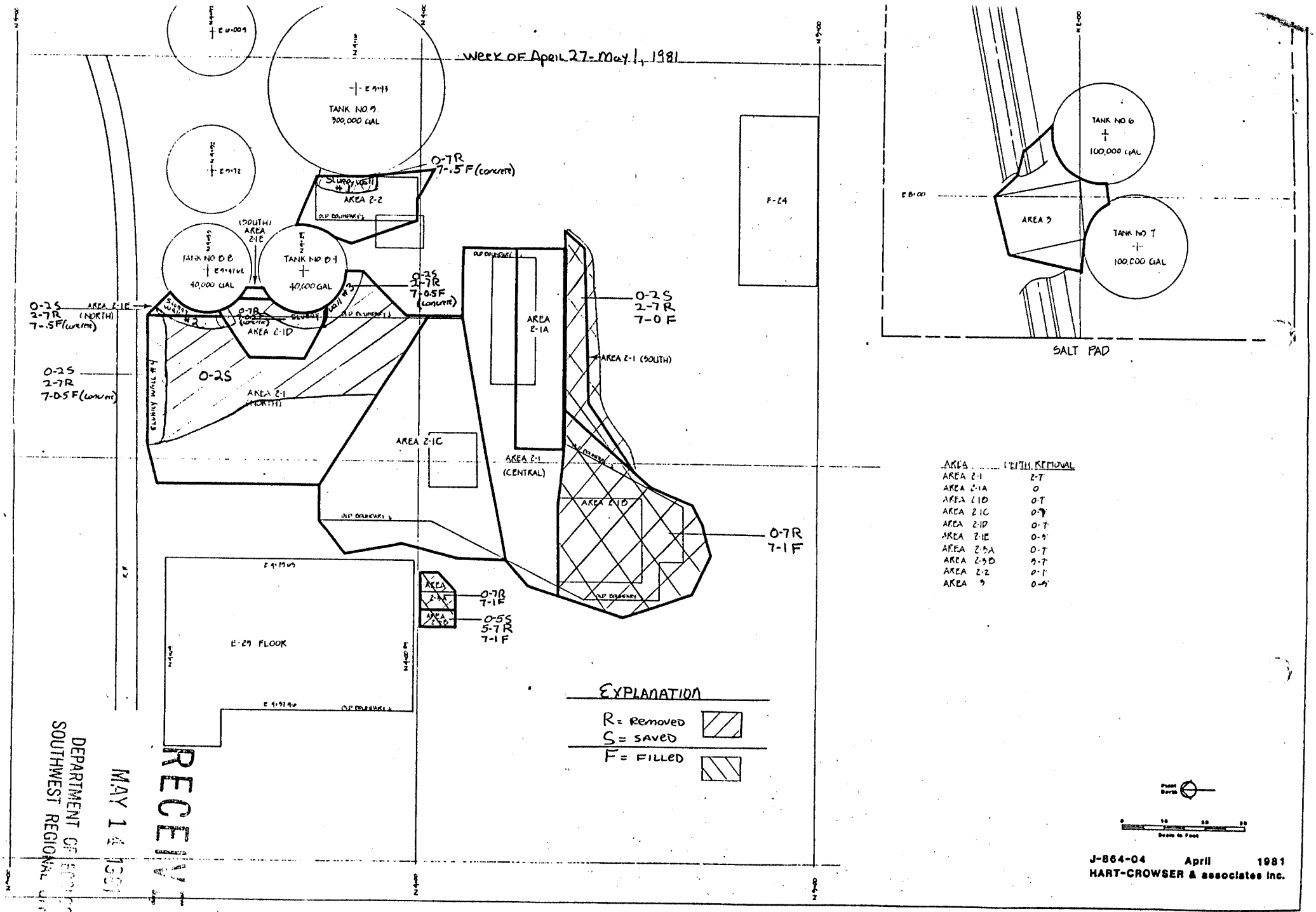
During the first week thirty-six truckloads of soil were hauled away. This is approximately 20% of the estimated total.

J C Bloom for

J W Bichsel
Senior Project Engineer

JWB/rf

Attachments



AREA	DEPTH REMOVAL
AREA 2-1	2-7
AREA 2-1A	0
AREA 2-1D	0-7
AREA 2-1C	0-7
AREA 2-1D	0-7
AREA 2-1E	0-7
AREA 2-3A	0-7
AREA 2-3D	0-7
AREA 2-2	0-7
AREA 3	0-5

hooker

INTER-OFFICE MEMORANDUM

To: L. P. Hallahan W/1 set of reports

File Ref.: 81003

Copies to: CWV W/1 set of reports
RWH W/1 set of reports
RLHall W/1 set of reports
CLW W/1 set of reports
SAH W/1 set of reports
DCB W/1 set of reports
JWB W/1 set of reports
LDF W/4 sets of reports
Gr Bk

Date: May 12, 1981

From: J W Bichsel

Div./Dep't: Engineering West

Location: Tacoma, Washington

Subject: TACOMA REMEDIAL GROUNDWATER PROGRAM

Attached are the second week's daily field reports on the excavation project for the Tacoma Remedial Groundwater Program. The reports cover the six day period, May 4, 1981 through May 9, 1981, and are written by our Geotechnical Engineering Consultants, Hart Crowser & Associates, Inc.

During the second week sixty-eight truckloads of soil were hauled away for a two-week total of one hundred and four or approximately 70% of the estimated total.

Also enclosed are two maps of the whole excavation areas, one showing the first week's work and the other showing the second week's work.

DCBloom for

J. W. Bichsel
Senior Project Engineer

JWB/rf

Attachments

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

May 19, 1981

Mr. James Krull, District Supervisor
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

The attached information presents the progress during the third week of contaminated soil removal and replacement at the Tacoma Plant site. Included are a memorandum by James Bichsel which covered the daily field reports presented to us by a representative of Hart-Crowser for the weeks activity and a map showing the weeks progress on soil removal and replacement. The individual daily reports from Hart-Crowser are not included but are on file in my office and available for your review.

Sincerely,

Lyle Feller

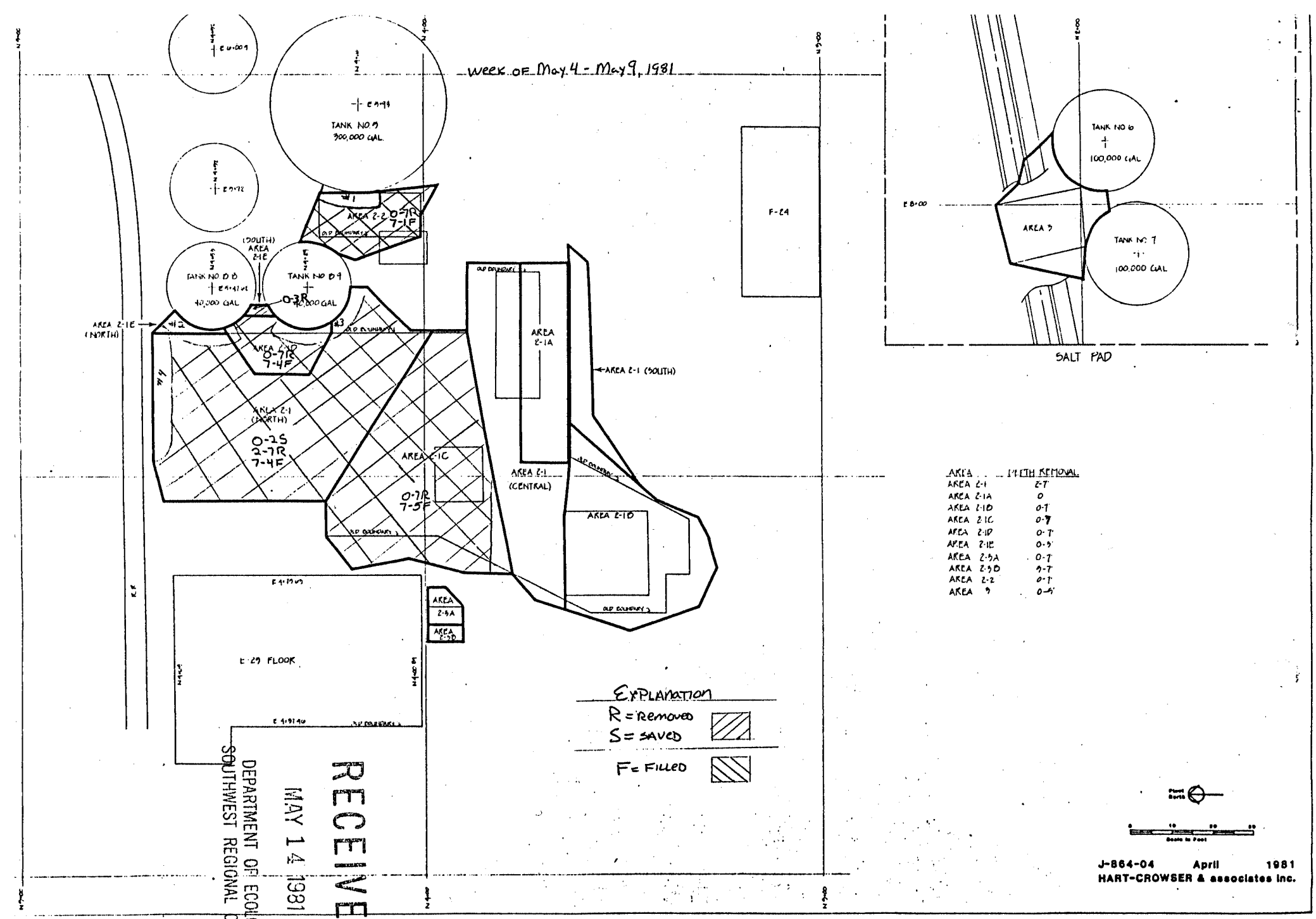
Lyle Feller
Technical Assistant-Production

LF/sr

Enclosure

cc Enforcement Officer
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504

week of May 4 - May 9, 1981



AREA	DEPTH REMOVAL
AREA 2-1	2-7'
AREA 2-1A	0
AREA 2-1B	0-7'
AREA 2-1C	0-7'
AREA 2-1D	0-7'
AREA 2-1E	0-3'
AREA 2-3A	0-7'
AREA 2-3B	0-7'
AREA 2-2	0-7'
AREA 9	0-4'

EXPLANATION

R = Removed

S = Saved

F = Filled

Plant North

0 10 20 30

Scale in Feet

J-864-04 April 1981

HART-CROWSER & associates inc.

hooker

INTER-OFFICE MEMORANDUM

To: L P Hallahan
Manager, Engineering West

File Ref.: 81003

Date: May 18, 1981

From: J W Bichsel

Div./Dep't: Engineering West

Location: Tacoma

Copies to:

CWV	SAH
RWH	DCB
RLH/carbo	JWB
CLW	LDF

Subject: Tacoma Remedial Groundwater Program

Attached are the third weeks daily field reports on the excavation project for the Tacoma Remedial Groundwater Program. The reports cover the four day period May 11, 1981 through May 14, 1981, and are written by our Geotechnical Engineering Consultants, Hart Crowser & Associates Inc. There was no work on Friday May 12, 1981.

Also enclosed is a map of the whole excavation area, showing the third weeks' work.

During the third week twenty-eight truckloads of soil were hauled away for a three-week total of one hundred thirty-two, or approximately 94% of the estimated total.

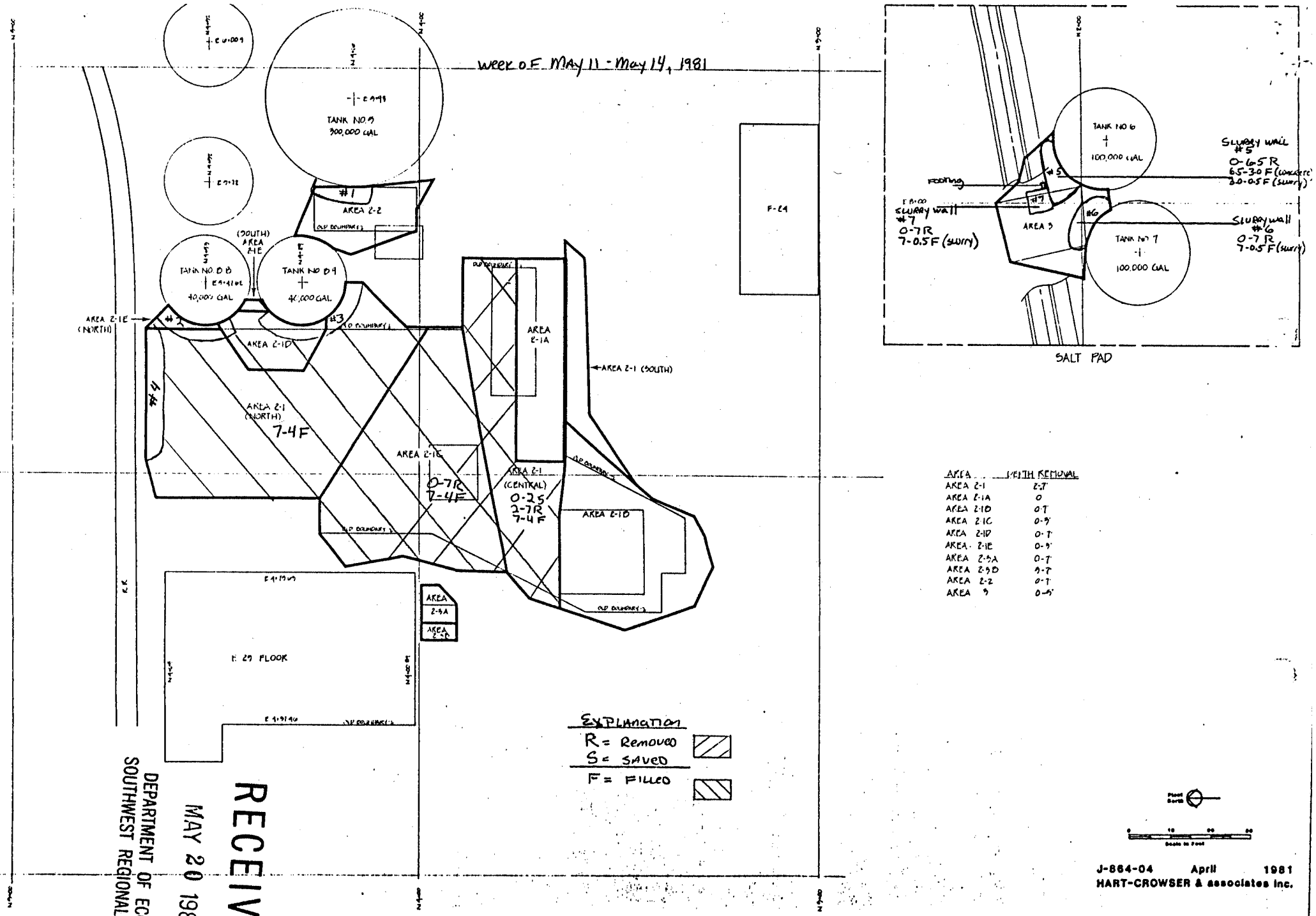
The excavation, hauling away, and disposal of the contaminated soil is scheduled for completion during week of May 18, 1981. Back filling with clean soil will continue during week of May 18, 1981, but might not be complete until week of May 25, 1981.

JWB

J W Bichsel
Sr. Project Engineer

JWB/sr

Attachments



AREA	WITH REMOVAL
AREA 2-1	2-7
AREA 2-1A	0
AREA 2-1D	0-7
AREA 2-1C	0-5
AREA 2-1D	0-7
AREA 2-1E	0-5
AREA 2-5A	0-7
AREA 2-5D	5-7
AREA 2-2	0-7
AREA 5	0-5

J-864-04 April 1981
HART-CROWSER & associates inc.

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

June 1, 1981

Mr. James Krull, District Supervisor
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

The attached information presents the progress during the fourth and last week of contaminated soil removal and replacement of the Tacoma Plant site. Included are the memorandum of James Bichsel which covered the daily field reports presented to us by a representative of Hart-Crowser for the weeks activity and a map showing the weeks progress on soil removal and replacement. The individual daily reports from Hart-Crowser are not included but are on file in my office and available for your review.

J. Oberlander of your office visited the site on May 26, 1981 to observe the completed project. At that time he indicated the job had been completed to his satisfaction.

Mr. Bichsel's memorandum highlites the continuing phases required to complete the requirement of covering the area with asphaltic concrete.

A copy of the summary report to be issued to Hooker by Hart-Crowser will be forwarded to you when received.

Sincerely,

Lyle Feller

Lyle Feller
Technical Assistant-Production

LDF/sr

cc Enforcement Officer
Department of Ecology
Mail Stop PV-11
Olympia, WA. 98504

Attachments

hooker

INTER-OFFICE MEMORANDUM

To: L P Hallahan, Manager
Engineering West

File Ref.: 81003

Copies to: CWV W/1 set of reports RWH W/1 set of reports
CLW W/1 set of reports
SAH W/1 set of reports DCB W/1 set of reports
RLH/Carbo, W/1 set of reports Gr Bk
JWB W/1 set of reports LDF W/4 sets of reports

Date: May 26, 1981

From: J W Bichsel

Div./Dep't: Engineering West

Subject: TACOMA REMEDIAL GROUNDWATER PROGRAM

Location: Tacoma, Washington

Attached are the fourth week's daily field reports on the excavation project for the Tacoma Remedial Groundwater Program. The reports cover the four day period, May 18, 1981 through May 21, 1981, and are written by our Geotechnical Engineering Consultants, Hart Crowser & Associates, Inc.

Also enclosed is a map of the whole excavation area showing the fourth week's work.

During the fourth week, the nine final truckloads of soil were hauled away for a grand total of one hundred and forty-one (141) trucks, and all backfilling and soil compacting was completed.

Phase I of the project, consisting of excavation, transportation and disposal of contaminated soil, plus backfilling with fresh uncontaminated soil, was completed at mid-afternoon on Thursday, May 21, 1981. A summary report will be sent to us by Hart Crowser & Associates in about one week.

Phase II of the project will be to reinstall underground services, replace necessary equipment foundations, and cover the area with asphaltic concrete. Engineering and drafting are proceeding briskly. This phase will be completed before September 1, 1981.

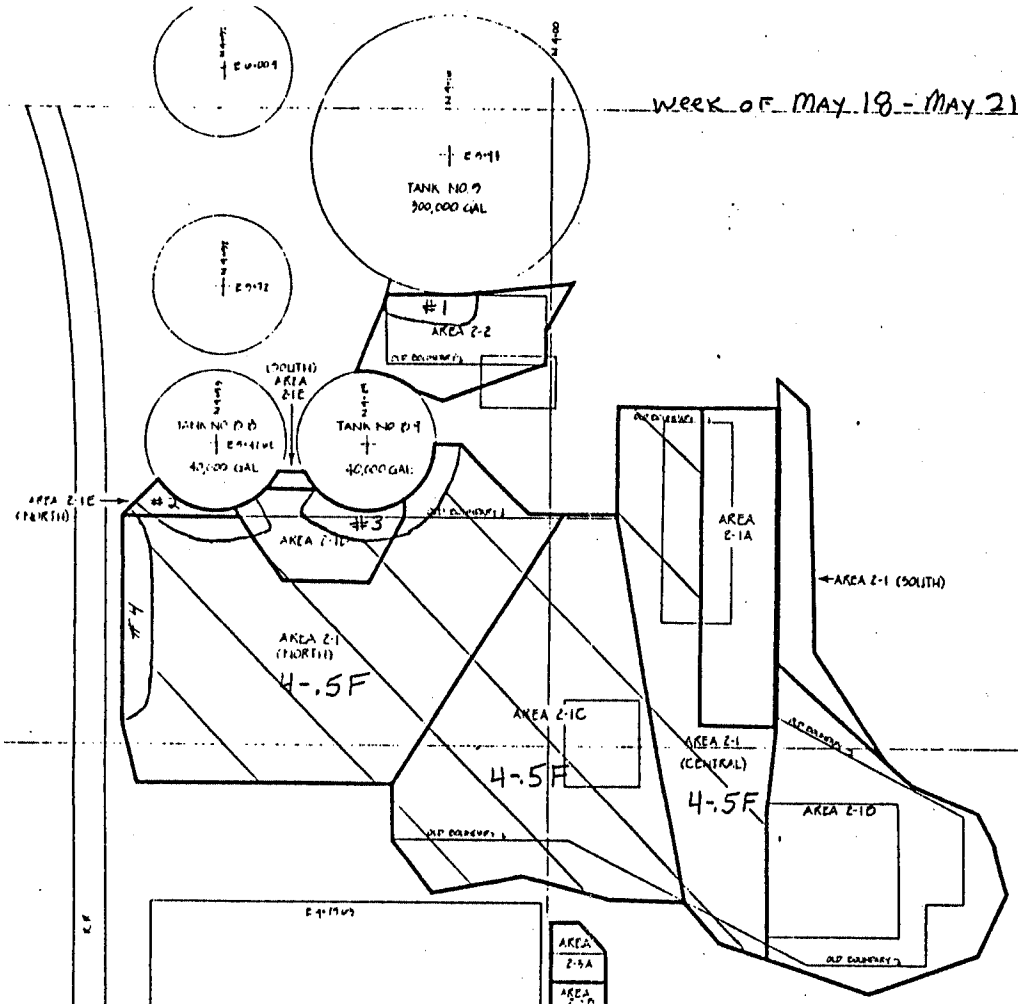
Phase III of the project will be the reinstallation of aboveground structures and equipment which were removed to allow excavation.

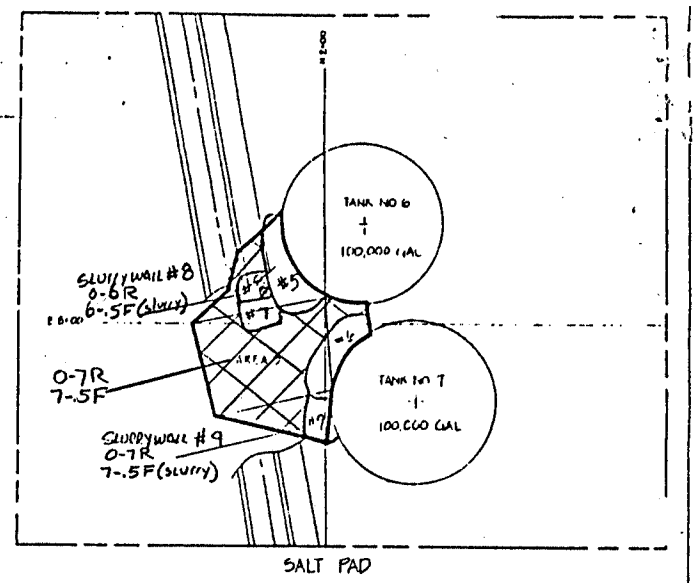
J. W. Bichsel
Sr. Project Engineer

JWB/rf

Attachments

Week of May 18 - May 21, 1981





AREA	WITH REMOVAL
AREA 2-1	2-7
AREA 2-1A	0
AREA 2-1D	0-7
AREA 2-1C	0-9
AREA 2-1D	0-7
AREA 2-1E	0-9
AREA 2-3A	0-7
AREA 2-3D	9-7
AREA 2-2	0-7
AREA 9	0-5

EXPLANATION

R = Removed

S = SAVED

F = FILLED

J-864-04 April 1981

HART-CROWSER & associates inc.

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

June 22, 1981

Mr. James Krull, District Supervisor
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

Attached is the summary report issued by Hart-Crowser for the soil removal and replacement as required in Department of Ecology's Order, Docket No. DE 81-153.

Sincerely,

Bob Hartman
Robert Hartman
Technical Superintendent

RWH/sr

Attachment

cc Enforcement Officer
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504

J-864-04

HART CROWSER & associates inc.
GEOTECHNICAL ENGINEERING

June 2, 1981

Hooker Chemical & Plastics Corp.
Port of Tacoma Plant
P. O. Box 2157
Tacoma, Washington 98401

Attn: Mr. James Bischel

Re: Completion of Geotechnical Monitoring Services During Removal and Replacement of Contaminated Soil
Hooker Chemical & Plastics Corp.
Tacoma Plant
Tacoma, Washington

Gentlemen:

This letter verifies the completion of our geotechnical monitoring services during the removal and replacement of contaminated soils as proposed by our letter of February 10, 1981 and authorized by Hooker Chemical Purchase Order No. 21-15184. This work was performed in general compliance with the Washington Department of Ecology Order, Docket No. ED 81-153. The project commenced on April 27, 1981 and was completed on May 21, 1981 in a timely fashion. Our work was accomplished by Lori Herman and Curt Thompson under the direction of Garry Horvitz, P.E.

During the earthwork, we observed that the contaminated soil was removed within the boundaries and to the depth as delineated in our report letter to you of May 11, 1981 and as indicated on the attached figure. In addition we observed the placement and compaction of backfill and monitored the foundation stability of the structures located within or adjacent the excavation area. Daily records of our observations were compiled on a weekly basis and transmitted to your office as Letter of Transmittal's dated May 11, 1981, May 20, 1981 and May 22, 1981.

We have enjoyed this opportunity to work with you. If you have any questions or any further need for geohydrologic or geotechnical services, please do not hesitate to contact us.

Sincerely,

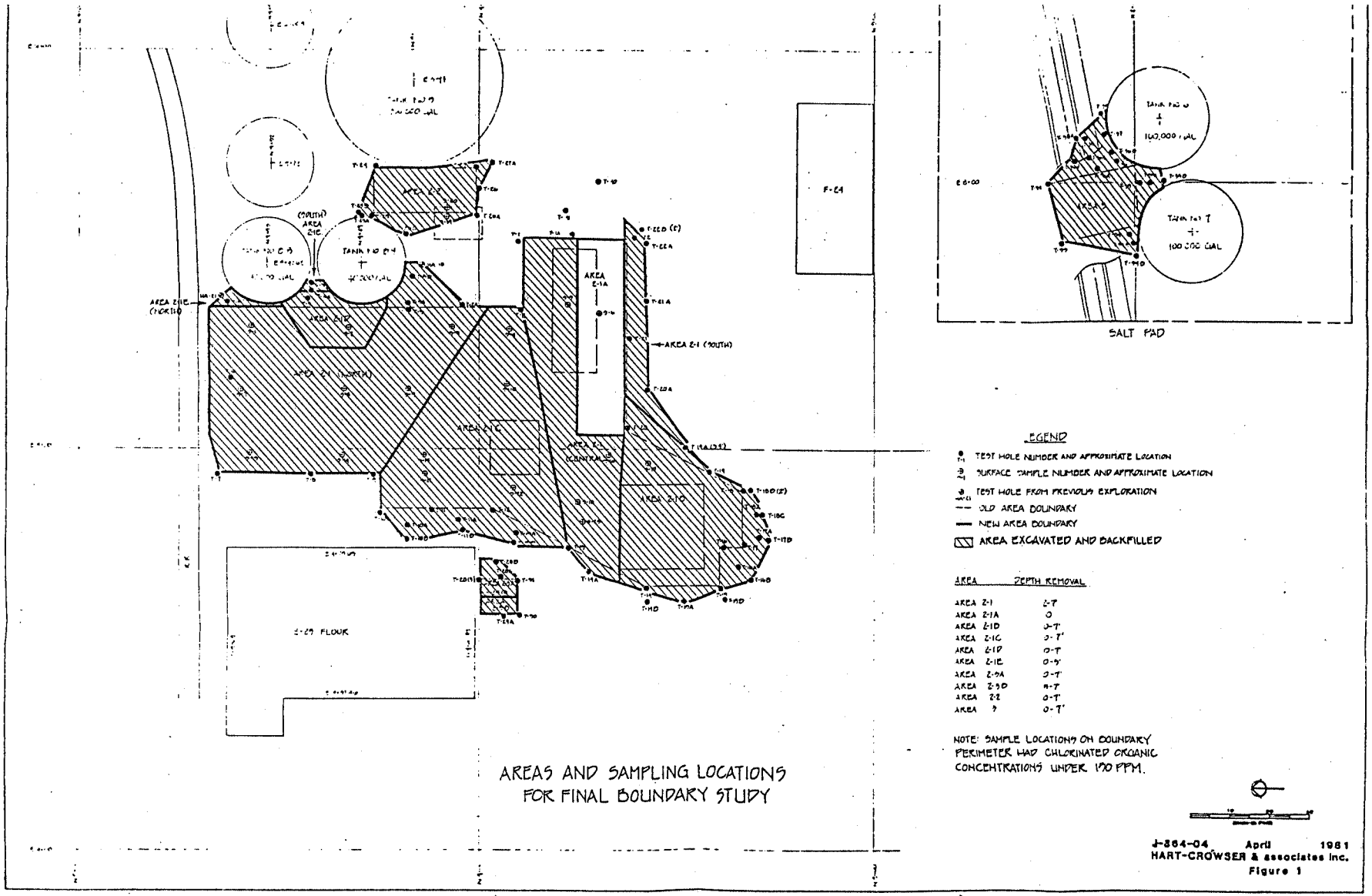
HART-CROWSER & ASSOCIATES, INC.

Lori J. Herman

LORI J. HERMAN
Geotechnical Engineer

LJH:cb

Enclosure: Figure 1



AREAS AND SAMPLING LOCATIONS
FOR FINAL BOUNDARY STUDY

J-364-04 April 1981
HART-CROWSER & associates inc.
Figure 1

Box 345
OCC
MISC

hooker electrochemical DIVISION

605 ALEXANDER AVE. P.O. BOX 2157, TACOMA, WASHINGTON 98401
PHONE (206) 383-2661

August 12, 1981

Mr. James Krull, District Supervisor
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Krull:

Attached is a progress report for work related to the Department of Ecology Order Docket No. DE81-153. Item number 4 has been completed.

Sincerely,

Bob Hartman

Robert Hartman
Technical Superintendent

RWH/sr

Attachment

cc Enforcement Officer
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504

hooker

INTER-OFFICE MEMORANDUM

To: L. P. Hallahan
Manager, Engineering-West

File Ref.: 81003

Copies to:

CWV	DCB	CLW
JWB	SAH	RLHall/Carbo
RWH	LDF(2)	Gr Bk

Date: August 10, 1981

From: J. W. Bichsel

Div./Dep't: Engineering-West

Subject: TACOMA REMEDIAL GROUNDWATER PROGRAM

Location: Tacoma, Washington

Instruction #4 in the Washington State Department of Ecology Order, Docket No. DE 81-153, states "Cover with a relatively impermeable material all areas of the plant where mean concentrations of chlorinated organics in the unsaturated zone exceed 15 parts per million. These ares are the red and yellow areas as defined in the Hart-Crowser submission of October 31, 1980, except that no sealing is required in Area 1."

Asphalt paving of the areas specified in the D.O.E. Order was completed on August 7, 1981. The contractor was Woodworth & Company, Inc.

The areas paved are shown on Hooker Drawing A21-14203. In Area 2 the paving was extended to the east and west for better access to Building H-25.

J W Bichsel

J. W. Bichsel
Sr. Project Engineer

JWB/rf

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

June 16, 1981

Mr. Lyle Feller
Hooker Chemicals and Plastic Corporation
P. O. Box 2157
Tacoma, WA 98401

Dear: Mr. Lyle Feller:

Enclosed are my field inspection reports related to the organics plant clean up project, that you requested.

Items 1, 2, and 3 of Washington Department of Ecology Docket No. DE 81-153 have been complied with. We wish to thank you for your cooperation and look forward to working with you to complete the remaining items.

Feel free to contact me if additional questions arise, at 206-753-0135 in Olympia.

Sincerely,

Jim Oberlander

Jim Oberlander
Environmental Quality Inspector

cc: Jim Krull, WDOE
Doug Pierce, Pierce County Health Dept.
Clark Gaulding, EPA Region 10

Enclosures:

JO:lw

HISTORIC LAND USE SURVEY OF THE TACOMA TIDEFLATS

JANUARY 1982

State of Washington
John Spellman
Governor

WDOE 82-4

Department of Ecology
Donald W. Moos
Director

HISTORIC LAND USE SURVEY OF THE TACOMA TIDEFLATS

Prepared for

WASHINGTON STATE DEPARTMENT OF ECOLOGY

January 1982
07927-003-05

Dames & Moore

DEPARTMENT OF ECOLOGY

Olympia, Washington 98504

INTRODUCTION

Commencement Bay and the Tacoma tideflat area have been a major harbor and industrial area since the 1910s. During this time the area has been intensively used by several hundred commercial and industrial enterprises.

Until the 1950s and the advent of the Washington State Pollution Control Commission, there were limited regulations and enforcement governing the disposal of waste material on land or in water. A major problem in the past was the lack of knowledge of the environmental ramifications of these waste disposal practices. As a result, there was uncontrolled disposal of liquid and solid waste materials in Commencement Bay, including the waterways and the tideflat area.

The effects of the uncontrolled dumping in the water and on the land gradually took its toll. Walter Adams, a long-time area resident, (personal communication) reported that the Hylebos Waterway was clean until the late 1920s, and that fish and crab were plentiful in the waterway. During the 1930s the quality of the water deteriorated and fish and crab became scarce. Mr. Adams said the water remained contaminated ("foul") until the mid-1940s. He attributed the deterioration of the water quality to Hooker Chemical, Schaffer Box,* and other wood-product industries discharging their waste by-products into the Hylebos. The waste from Schaffer Box was high in sulfides. From 1940 to 1945, the water quality improved. Mr. Adams felt this may be due to the fact that Hylebos discharging company(s) began sending their wastes off the Todd Shipbuilders pier located on the Blair Waterway. From 1945 through the 1970s, Hooker Chemical's material was shipped by barge and deposited in the deep disposal site located near the center of Commencement Bay about 1,500 yards southwest of Browns Point. Also, Schaffer Box ceased operation sometime during the mid-1930s.

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*See Site No. 114 for location.

By 1950, the water quality of the Hylebos Waterway had deteriorated again. The State of Washington Pollution Control Commission (1950) reported that the variety and quantity of bottom organisms varied with the degree of pollution. Fewer organisms were observed in the more polluted areas. Four areas were observed to have few or no organisms present. They were (1) the area near the ASARCO smelter in Ruston, (2) the area near the City of Tacoma sewer outfalls, (3) the 21st Street or landward end of the City Waterway, and (4) the turning basin of the Hylebos Waterway. The turning basin extended to Pennwalt Corporation at this time. It should be noted in this past period that the Hylebos Waterway received the effluent from all of the industries located on Lincoln Avenue via the Lincoln Ditch. Note that Blair Waterway did not exist to its present length in this prior time period. During the 1950s, herring fish kills in the Hylebos Waterway were commonplace in the spring months.

With the advent of regulations preventing the discharging of some waste materials directly into the waterways, the problem was transferred from the water to the land (Neilson, personal communication). Many of the waste materials were then deposited in landfills, on unoccupied parcels of land, and the land adjacent to the waste producer.

The accumulation of years of waste materials being discharged in the tideflats sediments, used as landfills, is evident in stormwater runoff from the area. As stormwater percolates through or runs off the soil, it dissolves soil-bound contaminants, which consist of high concentrations of metals and chlorinated organics.

This contaminated water can eventually reach the ground water or the waterways and contribute to the pollution. Also of note is the fact that sewer hookups to the tideflats were not made until about 1975 and many septic tanks and drainfields still exist as sewer hookup was not mandatory.

METHODOLOGY

The methodology employed was designed to provide a historical perspective of the effects of urbanization and industrialization on the Commencement Bay environment. Interviews of four Washington State Department of Ecology (DOE) staff (Jim Oberlander, Darryl Anderson, Frank Monahan, and Greg Cloud) were conducted to become familiar with industries that are in the area today. These staff members provided names, locations, and brief history of industries located in the tideflat area that (1) have contributed to the pollution problem in the past, (2) are presently contributing to the pollution problem in Commencement Bay and waterways. As a result of this review, 109 sites were identified.

Dames & Moore summarized the information gathered during the interview process. The summary of this information is presented in the Results section. Major contacts are referenced.

Each site was assigned an identification number (1 through 109) and the location was mapped on a 1979 aerial photograph of the Tacoma tideflat area. A folder was created for each site and information on each site was filed as it was gathered. This system continued for each subsequent site that was identified.

The next step in developing the historic perspective was to interview representatives from other federal, state, and local agencies and past inspectors for the DOE and Washington Water Pollution Control Commission. A list of all persons contacted (agency representatives and others) can be found in Table 1.

It should be noted that all interviews conducted for this study were informal. The interviewee was asked to recall information about specific industries (particularly those known to contribute contaminants to the environment), that were located in the tidelands during periods of development. Three aerial photographs (from 1946, 1968, and 1979) were used to assist the interviewees in recalling the nature of industries

TABLE 1

LIST OF INDIVIDUALS/ORGANIZATIONS CONTACTED

Abercrombie, Will	DOE
Adams, Walter	Citizen
Bannister, Leroy	Reichhold Chemical Co.
Barnard, Edmond	City of Tacoma Garbage Man, retired
Brackett, Gary	Tacoma-Pierce County Chamber of Commerce
Burlington Northern Railroad	
Burley, Mark	Simon & Sons
Cabodi, Al	U.S. Oil and Refining
Cascade Pole	
Custom Iron	
Dean, Dennis	Beltline Railroad
Evans, Ric	Victor Lyon Realty
Farmer, Merwin	Ultra-Poly, Inc.
Fenske, Fred	DOE
Fleischer, Burt	Allied Chemical
Grosz, James	Stauffer Chemical
Guizzetti, Joe	Buffelen Woodworking
Hickson, Don	City of Tacoma Solid Waste Division
Hileman, Jim	EPA
Hurlburt, Kathy	Crown Zellerbach
Hayden, C.H.	Allied Chemical
Kewing, Al	Puget Sound Trucking
Kittrell, Bill	Port of Tacoma
Knudsen, Jim	DOE
Kucinski, Gary	Port of Tacoma
Lamkin, Floyd	Floyd Equipment Co., Inc.
Larsen, Bill	City of Tacoma Solid Waste Division
Laursen, Al	Pierce County Health Department
Manley, Harry	Retired, Foss Tugs
Manlove, Jim	Reichold Chemical Co.
Mauritzen, Orv	Architectural Woods, Inc.
May, Frank	U.S. Gypsum
McMann, Gravin	Georgia Pacific

TABLE 1 (Continued)

Morgan, Murray	Citizen
Neilson, Lyman	EPA
Oberlander, Jim, Darryl Anderson, Greg Cloud, Frank Monahan	DOE
Palko, Mike	DOE
Peterson, Beth	Kaiser Aluminum
Peterson, Shelly	S.V. Chemical
Pierce, Doug	Pierce County Health Dept.
Pierce, Rick	DOE
Ravel, D.	Pennwalt Corp.
Raymond, Bob	American Plywood Assoc.
Richards, Caritha	Superlon, Inc.
Rink, Dave	Jones Chemical
Robbinson, Ron	DOE
Sakala, Dave	Bonneville Power Authority
Sehmiel, Paul	Kaiser Aluminum
Springer, Stan	DOE
Superlon	
Tacoma Chamber of Commerce	
Taft, Wesley	Whitacre Engineers, Inc.
Thompson, Neil	EPA
Walker, Bob	Reichold Chemical Co.
Williams, Pat	Dunlap Towing and Log Sort Yard
Wood, Dean	Department of Fisheries
Woods, S.W.	U.S. Gypsum
Woodworth, John and Si McDaniel	Woodworth and Company, Inc.
Wolheter, Virgil	
Yoshamaka, Masato	Georgia Pacific

present. When a representative from an industry was interviewed the questions were directed toward that particular industry; i.e., (1) when did they locate in the area, (2) what raw products were used and how were they stored prior to use, (3) what products were manufactured, and (4) what waste by-products were produced and how were they disposed.

An additional 8 sites were identified through this second interview process, bringing the total number of sites to 117 (Table 2, Figure 1)*. All information was then analyzed and summarized. Based on this synthesis, 31 sites were selected for additional study, based on the nature of waste material deposited and the potential for associated hazard to the ecology of the area (Table 3).

Sites targeted for additional study were selected in a subjective manner, if:

1. The site was often mentioned by interviewees and was consistently referred to as a high concern area (e.g., Sites 23, 46, and 63).
2. The site contained a lagoon where waste by-products known to be hazardous, such as phenolic resins or pentachlorophenol, were disposed (e.g., Sites 1, 46, 103).

If a site was not included in the list, it should not necessarily be regarded as stable or non-significant. Most of the 117 sites still potentially pose some threat to the environment. However, due to time and money constraints, this investigation was not able to focus on all of the sites.

The interview process continued, focusing on the 33 target sites in Table 3. During the cycle, representatives of private industry and individuals were interviewed, with an emphasis on methods of waste disposal.

Information from these interviews was combined with the information obtained earlier. The data for all 117 sites were analyzed and the list of target sites was refined and expanded to 49 sites (Table 4). The same technique used to compile the first list was used during this revision process.

---

*Figure 1 is a fold-out located in the back of this publication.

TABLE 2

LIST OF 117 SITES IDENTIFIED IN THIS STUDY

Identification Number	Owner	Liquid Effluent Permits
1	Airo Services	
2	Vacant Lot	
3	Sound Oil and Refining	NPDES
4	Cascade Timber	
5	Don Oline	
6	General Metals of Tacoma, Inc.	
7	Vacant Lot	
8	Woodworth and Company, Inc.	
9	Jones Chemical	WDP
10	Hylebos Boat Haven, Knapp Boat Builders, Marine Technical Services	
11	Tacoma Boat Building	
12	Barney Coski	
13	Pedersen Oil	
14	B&L Trucking	
15	Wasser and Winters	
16	Louisiana Pacific	
17	Weyerhaeuser Company	
18	Dunlap Towing	
19 & 20	Pennwalt Corporation	NPDES
21	Petroleum Reclaiming	
22	Kaiser Aluminum and Chemical Corporation	NPDES
23 & 24	Murray Pacific	
25	U.S. Gypsum	
26	Buffelen Woodworking	NPDES
27	Western Farmers Association	
28	Joseph Simon & Son	
29	Tacoma City Light Power Plant	
30	Philadelphis Quartz	
31	Don Oline	

TABLE 2 (Continued)

Identification Number	Owner	Liquid Effluent Permits
32	Chemical Processors, Inc.	WDP
33	Lilyblad	
34	Vance Lift Truck	
35	Fletcher Oil	
36	Hooker Chemical Company	NPDES
37	Zeidell Marine Corporation	NPDES
38	Todd Chemical	
39	Sea-Tac Alaska Shipbuilding Corporation	
40	Continental Lime	
41	J.A. Jones Construction Company	
42	West Coast Orient	
43	Bonneville Power Administration	
44	Buckeye Service Corporation	
45	Murray Pacific	
46	Reichhold Chemical, Inc.	NPDES
47	Stauffer Chemical Company	NPDES
48	U.S. Oil and Refining	NPDES
49	Lilyblad	NPDES
50	Concrete Technology	NPDES
51	Fairliner Boat	
52	Port Terminal Cargo Van	
53	Washington Stevedoring Company	
54	United Grain	
55	Pacific Northwest Terminal	
56	Port of Tacoma Bauxite Alumina Shipping	
57	Port of Tacoma Cargo Vans	
58	Barthel Chemical Company	
59	Rheem Manufacture Company	
60	Woodlam, Inc.	
61	Georgia Pacific	NPDES
62	Purex Corporation	NPDES

TABLE 2 (Continued)

Identification Number	Owner	Liquid Effluent Permits
63	Abandoned City of Tacoma Solid Waste Dump	
64	S.V. Chemical	
65	Certain-Teed	
66	Allied Chemical	
67	Darling Delaware	
68	Milwaukee Railyard	
68a	Beltline Railroad	
69	Federal Meats	
70	Floyds Equipment Company	
71	Husky Truck Stop	
72	Wrecking Yard	
73	International Harvester	
74	Crosby & Overton	
75	Vacant Lot	
76	Seco	
77	Port of Tacoma	
78	Port of Tacoma Executive Offices	
79	Milwaukee Railroad	
80 & 81	St. Regis	NPDES
82	American Plywood Association	
83	St. Regis Door Plant	
84	Pacific Fabrications, Inc.	
85	Vacant Lot	
86	Foss Launch and Tug	
87	Peterson Boats	
88	Puget Sound Plywood	NPDES
89	Superior Oil	
90	Phillips Oil	
91	Union Oil	NPDES
92	Mobil Oil	NPDES
93	Shell Oil	NPDES

TABLE 2 (Continued)

Identification Number	Owner	Liquid Effluent Permits
94	Penoco Oil	
95	Fick Foundry	NPDES
96	Wheeler Osgood Waterway	
97	Hygrade Foods	NPDES
98	Joseph Simon & Son	
99	Standard Oil	
100	General Metals of Tacoma, Inc.	
101	Sewage Treatment Plant No. 1	
102	Martinac Shipbuilding Corporation	
103	Burlington Northern Railroad	
104	American Plating Co., Inc.	WDP
105	Dual 96-Inch Storm Drain	
106	Harmon Cabinets	
107	North Pacific Plywood, Inc.	NPDES
108	Scofield Co., Inc.	NPDES
109	Consumer Central Heating	
110	Paxport Mills	
111	Vacant Lot	
112	Vacant Lot	
113	Puget Sound Trucking	
114	Brazier Lumber	
115	Lindal Cedar Homes, Inc.	
116	Superlon Plastics Co., Inc.	
117	Acme Foundry	

TABLE 3

PARCELS OF LAND IDENTIFIED AS TARGET SITES

Identification Number	Owner	Address
1	Airo Services	4110 East 11th
3	Sound Oil	2628 Marine View Drive
18	Dunlap Towing	3009 Taylor Way
19 & 20	Pennwalt Corporation	2901 Taylor Way
22	Kaiser Aluminum	3400 Taylor Way
23	Murray Pacific	3002 Taylor Way
26	Buffelen	1901 Taylor Way
31	Don Oline Site	Taylor Way between East 11th and Lincoln
36	Hooker Chemical and all sites admitted to dumping	605 Alexander Avenue
43	Bonneville Power Administration	Taylor Way
46	Reichhold Chemicals, Inc.	2340 Taylor Way
47	Stauffer Chemical Co.	2545 Lincoln Avenue
48	U.S. Oil	3001 Marshall Avenue
55	Pacific Northwest Terminal	551 Port of Tacoma Road
57	Port of Tacoma - Cascade Pole	802 Port of Tacoma Road
60	Woodlam, Inc.	1476 Thorne Road
61	Pacific Resin	1754 Thorne Road
63	City of Tacoma Solid Waste (abandoned)	
64	S.V. Chemical	1918 Milwaukee Road
66	Allied Chemical	1410 Thorne Road
68	Beltline RR Carwash	2801 East-West Road
75	vacant Lot	Along Puyallup River
76 & 67	Seco, Darling Delaware, Pacific Auto Wrecking	SW corner of Lincoln and Marc
83	St. Regis Door Plant	1216 St. Paul Street
98	Simon and Sons	2202 River Road

TABLE 3 (Continued)

Identification Number	Owner	Address
100	General Metals Dumping (nonferrous materials)	1919 Portland Avenue
103	Burlington Northern Railroad Carwashing	East 21st Street
107	North Pacific Plywood	1549 Dock Street
111	Area used as a dump (idenified by Robbinson)	SW corner Taylor Way and Lincoln
113	Puget Sound Trucking	2114 Marshall Avenue
114	Braizer Lumber	Taylor Way

TABLE 4

REVISED LIST OF TARGET SITES

Identification Number	Owner	Address
1	Airo Services	4110 East 11th
3	Sound Oil	2628 Marine View Drive
5	Don Oline	Along Hylebos Waterway, north of General Metals
12	Barney Coski	
18	Dunlap Towing	3009 Taylor Way
19 & 20	Pennwalt Corporation	2901 Taylor Way
22	Kaiser Aluminum	3400 Taylor Way
23	Murray Pacific	3002 Taylor Way
26	Buffelen	1901 Taylor Way
28	Joseph Simon & Sons	1601 Taylor Way
31	Don Oline Site	Taylor Way between East 11th and Lincoln
32	Chemical Processors, Inc.	1701 Alexander Avenue
33	Lilyblad	Alexander Avenue
36	Hooker Chemical and all sites admitted to dumping	605 Alexander Avenue
37	Zidell Marine Corp.	401 Alexander Avenue
43	Bonneville Power Administration	Taylor Way
46	Reichhold Chemicals, Inc.	2340 Taylor Way
47	Stauffer Chemical Co.	2545 Lincoln Avenue
48	U.S. Oil	3001 Marshall Avenue
49	Lilyblad	2244 Port of Tacoma Road
52	Port Terminal	Terminal 4
55	Pacific Northwest Terminal	551 Port of Tacoma Road
57	Port of Tacoma - Cascade Pole	802 Port of Tacoma Road
61	Pacific Resin	1754 Thorne Road
63	City of Tacoma Solid Waste (abandoned)	
64	S.V. Chemical	1918 Milwaukee Road

TABLE 4 (Continued)

Identification Number	Owner	Address
68	Milwaukee Railroad Car Wash	1100 Milwaukee Road
68a	Beltline Railroad	2801 East-West Road
75	Vacant Lot	Along Puyallup River
76 & 67	Seco, Darling Delaware, Pacific Auto Wrecking	SW corner of Lincoln and Marc
79	Milwaukee Rail Yard	
80 & 81	St. Regis	801 Portland Avenue
83	St. Regis Door Plant	1216 St. Paul Street
88	Puget Sound Plywood	1221 Portland Avenue
98	Simon and Sons	2202 River Road
99	Standard Oil	East J Street
100	General Metals Dumping (nonferrous materials)	1919 Portland Avenue
103	Burlington Northern Railroad (car washing facility)	East 21st Street
107	North Pacific Plywood	1549 Dock Street
111	Vacant Lot	Lincoln Avenue (between Alexander and Taylor)
112	Vacant Lot	Area between 2216 Taylor Way and 2240 Taylor Way
113	Puget Sound Trucking	2114 Marshall Avenue
114	Braizer Lumber	1501 Taylor Way
115	Lindal Cedar Homes	2000 Taylor Way
116	Superlon	2116 Taylor Way
117	Acme Foundry	2240 Taylor Way

RESULTS*

This section presents a brief synopsis of the information collected for all 117 sites. The persons listed as contacts contributed information about the parcel of land via an interview or telephone conversation. A copy of the notes (including notes from interviews and telephone conversations) inscribed by the interviewer were delivered to DOE in a file.

Throughout the site discussions, mention is made at some sites of solid and liquid materials being discharged intentionally or accidently on or off site. Depending on the physical and chemical state of the discharged material and the condition of the receiving ground, these materials (with rainfall or other water assistance) can move across the disposal site or into the ground. Some materials were used as landfill. The materials or soluble components of these wastes may then enter surface water or shallow ground water where they potentially can cause problems to man and the environment.

The reader will note a disparity in the information at some sites. This may be both due to the lack of information or due to the lack of sufficient time to evaluate all sites equally. In some cases the past ownership may be incomplete since formal ownership records were not sought in this study. The recollections of persons interviewed may also be a source of error. More contacts could be made and to assist DOE, the unpublished file provided to DOE includes a list of additional contacts (Appendix A).

The following sites are discussed in the numerical order of Table 2. All sites selected as preliminary target sites and final target sites (Tables 3 and 4) are discussed. All final target sites selected are coded with a double asterisk after the site number.

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*Note: Discussion follows on page 70.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
1**	Airo Services	Don Oline Bay Chemical Co. Bay Smelting Co. Camp Mfg. Co.	4110 E. 11th Street Tacoma

Bay Chemical and Camp Mfg. Co. were both owned by Mr. Richard Camp. During the early 1950s, Camp Mfg. Co. was involved in chrome plating. The wastes from this process consisted of acids, cyanide, and other compounds. It was reported that vats of chemicals were discharged periodically. Camp Mfg. Co. was replaced with the Bay Smelting Co. and later Bay Chemical Co. Zinc sulphate was manufactured on this site and calcium chloride (procured from Hooker) was packaged for distribution. During this time, there was an impounding basin on site. Wastes from the zinc sulphate manufacturing process and from stationary tank car washing (formerly rail tank car) were disposed of in the basins. The bottom of the basin was coated with resins from tank car washings. Bay Chemical moved their zinc sulphate operation to eastern Washington in 1974. At that time, the calcium chloride packaging operation was sold to Crown Zellerbach and the property was sold to Don Oline. Today, they still package calcium chloride and lease the land from Airo Services.

In 1978, Airo Services bought the site. They clean tanks and ship bilges on site. The wastes are then taken to recyclers.

This parcel of land was included on the list of target sites as a result of the activities of Bay Chemical.

Contacts: Hurlburt; Neilson; Jones, April 1951

Identification Number	Present Owner/ Lessee	Previous Owners	Address
2	Vacant Lot		Marine View Drive

The DOE staff noticed barrels containing oils and varnishes on the site. These materials came from a Foss tug. A few months ago the site was cleaned up.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
3**	Sound Oil and Refining		2628 Marine View Drive

The site where Sound Oil and Refining is located was filled with material from the Woodworth and Company, Inc. gravel pits (see Identification Number 8 below).

Periodically they "bottom off" or "water draw" the tanks to remove water that settles to the bottom of the tank. When this is done, the water and some crude spills to the ground. The water that is removed contains some impurities that are in the crude oil. These impurities vary from shipment to shipment and may be toxic.

This parcel of land was included on the list of target sites for two reasons. First, the soils may be permeated with contaminants resulting from the "bottoming off" process. The "tank bottoms" from leaded tanks and oil water separator sludge have been classified as a hazardous material by the EPA under RCRA. Second, it is not known where the filter cake was disposed.

Contacts: Taft, Fenske

Identification Number	Present Owner/ Lessee	Previous Owners	Address
4		Cascade Timber	

During the past 5 to 6 years ASARCO slag has been used as ballast in the log sort yard. This slag contains elevated concentrations of arsenic and heavy metals.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
5**	Don Oline		Marine View Drive

The area has been used as a dump site for General Metals waste including car interior "fluf" (see Identification Number 6 below) and is now covered with fill. A red line can be observed on the shoreline demarcating the soil layer that is contacting the waste material.

This parcel of land was included on the list of target sites as a result of the waste from General Metals that was deposited. Seepage from this material may be entering the Hylebos Waterway.

Contact: Libby S. Goldstein, Dames & Moore (personal observation)

Identification Number	Present Owner/ Lessee	Previous Owners	Address
6	General Metals of Tacoma, Inc.		1902 Marine View Drive

General Metals converts scrap material into cubes, pellets, or strips for shipment to Japan.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
7	Vacant Lot		Marine View Drive

This site has been used as collection center for waste oil.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
8	Woodworth and Company, Inc.		102 Norpoint Way N.E. Tacoma

This is currently the site of a sand and gravel quarry.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
9	Jones Chemical Company, Inc.	Woodworth and Company, Inc.	1919 Marine View Drive

Jones Chemical has repackaged chemicals for distribution at this site for the past 7 years. Previously, Woodworth and Company, Inc. operated a gravel pit on the site.

Contact: Rink

Identification Number	Present Owner/ Lessee	Previous Owners	Address
16	Louisiana Pacific		3701 Taylor Way

This is another log sort yard in which used slag is used for ballast. Elevated concentrations (up to 100 mg/l--soluble and insoluble) of arsenic seeping into the Hylebos Waterway have been attributed to log sort yards that use slag from ASARCO, Inc. as ballast.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
17	Weyerhaeuser Co.		3401 Taylor Way

This is one fo the few log sort yards in the tideflat area that is mostly paved. No problems were observed at this site at present. In prior times, before paving and runoff treatment, problems were reported at this site.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
18**	Pennwalt Corp./ Dunlap Towing		3009 Taylor Way

Pennwalt Corporation owns this parcel of land and leases it out to Dunlap Towing, who operates a log sort yard on the site. Last year (1980), they stopped using slag from ASARCO, Inc. at the request of DOE.

They currently use another material when replacement ballast is needed. However, a substantial amount of ASARCO slag remains on the site.

This parcel of land was included on the list of target sites as a result of slag use here and proximity to other industries.

Contact: Ravel, Williams

Identification Number	Present Owner/ Lessee	Previous Owners	Address
19** & 20**	Pennwalt Corp.		2901 Taylor Way

Pennwalt Corporation began operations in 1929. Throughout Pennwalt's operations in the tideflats they have produced chlorine gas, caustic soda, hydrogen gas, and sodium chlorate. In the 1940s DDT was repackaged on this site, and Pennwalt manufactured sodium arsenite in the 1950s. In 1960, Endrin was also observed on site. Approved low-level radiation waste is located in Site 20.

Tests on the sludge produced during the salt purification process indicate that it was toxic to herring. As a result, Pennwalt began dumping the sludge in lagoons on their property in 1957. These lagoons may also contain waste from the sodium arsenite manufacturing operation. DOE inspectors reported that sodium arsenate is buried on this site. Pennwalt Corp. has experienced problems with liquids seeping from the lagoons and entering the Hylebos Waterway. As a result of these problems, this site was included on the list of target sites.

Contact: Neilson, Ravel

Identification Number	Present Owner/ Lessee	Previous Owners	Address
25	U.S. Gypsum Co.	Mineral Fiber Producing Co. (1946-1949) Carbide Manufacturing (1943-1946)	2301 Taylor Way

The Carbide Manufacturing Company had a contract with Foss Tug to discharge the waste material from their carbide manufacturing process in Commencement Bay. The operations of the mineral fiber producing company located on this site between 1946 and 1949 were assumed to be similar to the operation of U.S. Gypsum. It is not known where their waste material was deposited. U.S. Gypsum deposited their waste material in landfills located outside of the study area. One of these landfills is located along Hylebos Creek. The raw products used in the operations of U.S. Gypsum are slag and a resin binder. The waste by-products produced at the plant included off-specification mineral fiber insulation and shot (unfiberized slag).

Identification Number	Present Owner/ Lessee	Previous Owners	Address
26**	Buffelen Woodworking		1901 Taylor Way

The Buffelen Woodworking Company was started in 1918 with a sawmill and a door factory. Buffelen began manufacturing plywood in the 1920s for use in the door factory. During World War II, the Buffelen Manufacturing Company began manufacturing plastic-faced overlaid plywood. The plant became cooperatively owned in 1955.

The waste product of prime concern during the last 40 years is the phenol-based glues used in the plywood manufacturing process. (Today "Plyophen," a phenol and formaldehyde-base glue, is used.) The name of the glue used in the 1940s, 1950s, and 1960s is not known.

A widespread practice of plywood industries was to dispose of the glues that collected in the glue sump onto sawdust piles. The sawdust was then used as either hog fuel or landfill material. If the glue-impregnated sawdust was used as landfill material, it may be a contributing source of phenols and formaldehyde entering the waterways.

This plant has its own well; one other well was abandoned. A ground water pump station also pumps to a ditch which goes to Blair Waterway.

It has been noted that phenolic resins and glues were dumped along the banks during the late 1960s.

This parcel of land has been included on the list of target sites.

Contact: Wood; Guizzetti; Larsen; Bannister;
Plywood Pioneers Assoc., 1960

Identification Number	Present Owner/ Lessee	Previous Owners	Address
27	Western Farmers Assoc.	Buffelen Mfg. Co.	1801 Taylor Way

The property was previously owned by Buffelen Mfg. Co. There does not appear to be a problem associated with this site, unless Buffelen used glue-impregnated sawdust as landfill.

In addition, small amounts of malathion are currently used on site.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
30	Philadelphia Quartz		1202 Taylor Way

Miscellaneous innocuous debris is dumped on site.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
31**	Don Oline		

This site is owned by Mr. Don Oline and has been used by many industries as a disposal area (trucked in by Oline) for industrial waste products. The area was swampy and two ponds were located on the site. These ponds were filled in about 8 years ago (the fill material is not known). Hooker Chemical admitted to sludge disposal on this site. Acology Oil, then Puget Sound Industrial Petroleum (now Chempro--see Identification Number 32) may also have disposed of material on this site. In the 1950s, Mutual Fir Column discharged methymercuric phosphate waste from their sump into a shallow bog near their plant. This shallow bog is assumed to be this site. This parcel of land discharges both to Hylebos and Blair Waterways.

It is evident that this site has been used by many industries as an area to discharge industrial wastes. As a result, this parcel of land is included on the list of target sites.

Contact: Guizzetti, Robbinson, Taft, EPA, Neilson

Identification Number	Present Owner/ Lessee	Previous Owners	Address
32**	Chemical Processors, Inc.	Puget Sound Industrial Petroleum Acology Oil Don Oline	1701 Alexander

Chempro has been at this site for 6 years. Plating wastes are produced here.

The waste disposal practices of Acology Oil are not known, although it has been reported that refuse oil (solvents, PCBs) were discharged on site. This parcel of land was included on the list of target sites.

Contact: Robbinson, Springer

Identification Number	Present Owner/ Lessee	Previous Owners	Address
33**	Lilyblad	Don Oline	

Lilyblad recently purchased this property from Don Oline. They are seeking to use the property as a tank farm for petroleum. Recently, an old dump was located on this site. The waste material was gray and located 1-1/2 feet below the surface. The origin or composition of this material is unknown. It may have come from Hooker Chemical, industries located on site 32 prior to Chempro, General Metals, or other industries located in the area during the 1950s, 1960s, or 1970s. This parcel of land was included on the list of target sites.

Contact: Abercrombie, Wood

Identification Number	Present Owner/ Lessee	Previous Owners	Address
34	Vance Lift Truck		3302 E. 11th

Vance Lift Truck has been known to collect waste oil from their equipment into an oil/water separator. The disposal methods are not known.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
35	Fletcher Oil		401 Alexander Avenue Building 331

Petroleum is stored in bulk amounts on this unpaved, unsealed site. There is some speculation that oil may be entering the ground water since many oil spills have occurred at the site.

Identification Number	Present Owner/ Leasee	Previous Owners	Address
36**	Hooker Chemical Company		605 Alexander Avenue

Hooker Chemical Co. began operations of this plant in 1929. This study was unable to gather information on the plant's operations prior to 1948. The following products were produced in 1948: sodium hydroxide, 110 tons per day (tpd); chlorine, 90 tpd; hydrogen, 2.7 tpd; muriatic acid, 3 tpd; trichlorethylene and tetrachlorethylene, 22 tpd; and hydrogenated oils, 24 tpd. In addition, the following wastes were produced: brine sludge, 2.5 tpd; caustic soda, 2 tpd; sulfuric acid and weak

hydrochloric acid, 0.75 tpd; calcium chloride, 10 tpd; calcium hydroxide (slurry from acetylene plant), 8 tpd; and miscellaneous wastes (small amounts of muriatic acid, crude oils, and boiler blowdown). These waste products were discharged from the plant into drain pipes or ditches and eventually entered the Hylebos Waterway. The lime slurry from the acetylene plant was deposited in a holding pond where it solidifed and dried. The sludge from the pond was then hauled away to the deep marine water site or land disposal sites. This process continued through the 1960s.

Presently, Hooker Chemical Co. only operates the chlorine production plant; the acetylene plant has been shut down.

During the past few years Hooker has taken the initiative to clean up waste products deposited on land. Hooker has identified five areas in the tideflats where they used to dump waste products. These sites are identified as 36a on Figure 1. Hooker has excavated 2,000 cubic yards of contaminated material on the plant site and replaced it with clean fill material.

This parcel of land and the areas identified as 36a have all been included on the list of target sites.

Contact: Neilson, Springer, Kucinski, Adams, Woodworth

Identification Number	Present Owner/ Lessee	Previous Owners	Address
37**	Zidell Marine Corporation	Zidell Ship Dismantling	401 Alexander Avenue

From the 1940s to the present, this area has been used as a shipyard. The Zidell Marine Corporation is currently located at this site.

Some excavation has taken place on the site during the past year. This excavation has uprooted a lot of debris that was buried. Car

Identification Number	Present Owner/ Lessee	Previous Owners	Address
40	Continental Lime	Domtar Lime	1220 Alexander Avenue

Waste ponds are located on-site.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
41	J.A. Jones Construction Co.		2330 Alexander Avenue

In the last 2 years, J.A. Jones Construction Company built a large graving dock. Large amounts of soil (fill material) were removed and deposited at this location and at various other locations in the Tacoma tideflat during this construction. The areas where this material was deposited are designated as Identification Number 41a on Figure 1.

J.A. Jones Construction Company lined the dock walls with crushed slag and the floor with bank-run rock. The slag can come from ASARCO, Inc.

Contact: ENR (September 24, 1981), R. Pierce, Dean, Kucinski, Abercrombie

Identification Number	Present Owner/ Lessee	Previous Owners	Address
42	West Coast Orient		Corner of Alexander Ave. and East-West Road

This is a log sort yard. Slag obtained from ASARCO, Inc. is used as ballast.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
45	Murray Pacific	Stauffer Chemical	2407 Port of Tacoma Road

Murray Pacific operates a log sort yard on this site. Slag from ASARCO, Inc. is used as ballast. Therefore, problems arising from arsenic leaching from the slag can be associated with this site.

In 1966 piles of material were observed on this site. The composition of the material is not known. Stauffer Chemical owned the property prior to Murray Pacific, but they did not utilize the area.

The present site was elevated by fill from Blair Waterway dredging.

Contact: Grosz, EPA

Identification Number	Present Owner/ Lessee	Previous Owners	Address
46**	Reichhold Chemical, Inc.		2340 Taylor Way

The plant located in the tideflat area in the late 1950s. During the 1960s and 1970s, Reichhold Chemical, Inc. manufacured resins, formaldehyde, pentachlorophenol, and phenols. Standard practice at this time was to pass the waste effluent from the acid neutralizing to the resin waste ponds. This would help to precipitate the resins and lower the concentration of phenols in the effluent. When the waste ponds filled with sediment, they were dredged and the spoils were stored on site. Piles of activated carbon saturated with phenols were also deposited in their dump area during the 1960s. The fate of the disposal site is unknown, because the representative from Reichhold Chemical, Inc. would not respond to questions. It is assumed that the majority of the spills were not cleaned up and that the dredge spoils are still on their property. Pentachlorophenol spills have occurred, and it was

also reported that a fine dust containing sodium pentachlorophenol was dispersed on site.

This information indicates that the soils around the Reichold Chemical plant may be contaminated with hazardous compounds (phenols, resins, and pentachlorophenol). As a result, this parcel of land was included on the list of target sites.

Contact: Robbinson, Springer, Manlove, Neilson, EPA, Walker

Identification Number	Present Owner/ Lessee	Previous Owners	Address
47**	Stauffer Chemical Co.	Rainier Steel	2545 Lincoln

Rainier Steel was located at this site until 1950. They smelted scrap iron and steel. The details of their operation are not known. In 1950, Stauffer Chemical Co. bought the land and began producing a fertilizer, "Superphosphate." Liquid aluminum sulphate was added to their production line in 1953. Today, they produce one product--aluminum sulphate.

There are three waste ponds on site. They were all dredged in 1973 and the spoils are stored on their site. Seepage from the site has been observed entering Blair Waterway by the DOE investigators.

This parcel of land has been included on the list of target sites as a result of the ponds and seeping materials.

Contact: Robbinson, Wood, Grosz

Identification Number	Present Owner/ Lessee	Previous Owners	Address
48**	U.S. Oil and Refining Co.		3001 E. Marshall Street

U.S. Oil and Refining Co. began their crude oil refining operations in the Tacoma tideflats site in 1957. The company's main products are gasoline and jet fuel. Many factors contribute to the status of this site. First, the western portion of their property is sitting on the old City of Tacoma dump (Identification Number. 63). Second, the visual evidence indicates that U.S. Oil and Refining used the northeast section of the property as a dump. The area is littered with 55-gallon drums and other waste objects. Third, the problem associated with tank bottoms and filter cake (see Sound Oil, Identification Number 3) would also pose a problem for U.S. Oil and Refining. This parcel of land was included on the list of target sites.

Contact: Cabodi, Woodworth, Fenske

Identification Number	Present Owner/ Lessee	Previous Owners	Address
49**	Lilyblad		2244 Port of Tacoma Road

Lilyblad recycles and reclaims solvents at this site. Presently, Lilyblad is under a DOE order for the illegal discharge and operation of an unpermitted solvents plant. Spills have occurred on site and they discharge to Blair Waterway via the Lincoln Ditch. This site was included on the list of target sites.

McDonald Crane Co. was located at this site prior to Puget Sound Trucking. No information was gathered on the operation of McDonald Crane Co.

The Widing Transportation Co. hauled waste from Reichhold Chemical. The destination of this material is not known.

Everts Transportation was located on this site in 1963 prior to Widing Transportation. The company cleaned trucks containing glues, resins, and chemicals on this site. Two settling ponds are located on this site (one was in use while the other was dredged). The location of where the dredge spoils were deposited is not known. Both ponds were built on the site of the abandoned City of Tacoma landfill. The soil is very porous underneath the ponds.

The industries located on this site, particularly the Everts Transportation Co., saturated the soils with chemicals. The operations of Widing Transportation are not known, but they may have also deposited waste material on this site.

The chemicals that permeated the soils may be leaching into the subsurface ground water and into the waterways. As a result, this parcel of land was included on the list of target sites.

Contact: Robbinson, Neilson, Kewing, Manlove

Identification Number	Present Owner/ Lessee	Previous Owners	Address
114**	Brazier Lumber	Architectural Woods, Inc. Chemical Process Co. (late 1950s, early 1960s) Tacoma Powdered Metals (1950s) Schaffer Box and Pulp (1924-1932)	1501 Taylor Avenue

Today, the property is owned by Brazier Lumber and is used as a log sort yard. During the 1960s, Architectural Woods, Inc. and Chemical Processors leased the property from Eisenhower, Hunter, and Ramesdale.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
111**	Vacant Lot		Lincoln between Alexander and Taylor Avenues

The leachate from this site has an associated pH of 13. The leachate appears to originate behind a building on the site, and could be residue from the DuPont Chemical Company, a previous owner of the adjacent site (see Identification Number 116). This vacant parcel of land was included on the list of target sites due to the uncertain nature and origin of this leachate.

Contact: Robbinson

Identification Number	Present Owner/ Lessee	Previous Owners	Address
112**	Vacant Lot		Area between 2116 Taylor Way and 2240 Taylor Way

Waste from U.S. Gypsum was reported to have been deposited on this site. This vacant lot was included on the list of target sites.

Contact: Robbinson

Identification Number	Present Owner/ Lessee	Previous Owners	Address
113**	Puget Sound Trucking	McDonald Crane Company Widing Transportation Everts Transportation	2114 Marshall Avenue

Puget Sound Trucking has been located at this site since 1978. Trucks are stored and maintained on this site.

Identification Number	Present Owner/ Lessee	Previous Owners	Address
116**	Superlon Plastics Co., Inc.	Justus Cedar Homes DuPont Chemical Co. Lattimer-Goodwin Chemical	2116 Taylor Avenue

Superlon Plastics Co., Inc. located on this site in 1967. Justus Cedar Homes was located on this site prior to Superlon, and DuPont Chemical was located on the site prior to Justus Cedar Homes. Very little information is known about the operations of the companies located on this site. It is assumed that DuPont Chemical Co. and Lattimer-Goodwin dumped their effluent into drainage ditches. This appears to have been the standard practice for industries located in the tideflat during the 1940s, 1950s, and 1960s. This parcel of land was included on the list of target sites.

Contact: Adams, Superlon

Identification Number	Present Owner/ Lessee	Previous Owners	Address
117**		Acme Foundry	2240 Taylor Avenue

In the late 1960s, this property went into receivership. Prior to this time, Acme Foundry was located on this site.

Presently a staining company has a month-to-month lease for the property. Acme Foundry produced steel, iron, and aluminum. Since some wastes from the steel and iron industries have been classified as hazardous by RCRA, this parcel of land has been included on the list of target sites.

Contact: Brackett, Evans

Architectural Woods used the site as a warehouse. The waste from Chemical Process Co. went to a septic tank.

During the late 1940s and early 1950s, Tacoma Powdered Metals was located at this site. Their operational processes are not fully known, but they did produce powdered iron.

Prior to Tacoma Powdered Metals, Schaffer Box and Pulp was located on this site. Their black liquor from the sulfide process entered the Hylebos Waterway. This industry was a prime contributor to the contamination of the Hylebos Waterway during the early 1930s (see page 1 of this report).

This site was included on the list of target sites due to the diverse industries represented and the uncertain nature of their operations.

Contact: Robbinson, Adams, Taft, Brackett

Identification Number	Present Owner/ Lessee	Previous Owners	Address
115**	Lindal Cedar Homes, Inc.	Mutual Fir Column Co.	2000 Taylor Avenue

Lindal Cedar Homes, Inc. manufactures precut homes, cabins, commercial buildings, churches, motel units, and apartments. Lindal Cedar Homes moved to this site in 1970 or 1971.

Mutual Fir Column Co. was located on this site prior to Lindal Cedar homes. The waste by-products from this operation were collected in a sump and then pumped into a relatively large shallow bog. The area around the plant, particularly to the north and west, was a bog. In the late 1960s and 1970s the area was filled in. One of the waste by-products that was deposited in the lowland bogs was methymercuric phosphate. This parcel of land was included on the list of target sites.

Contact: Neilson, Brackett, Taft

fill material. Figure 2 shows the areas where the dredge spoils were deposited (Bob Perry, personal communication). This dredge material most likely contained waste from industries such as Hooker Chemical, Kaiser Aluminum, and Schaffer Box.

Until sewers were installed in the tideflats in the mid-1970s, most of the liquid waste discharged from an industry entered septic tanks or drainage ditches. Flows in the ditch eventually drained into the industrial waterways. Stormwater runoff through the ditches continue to convey contaminants leached from the bottom materials to the waterways.

The Union Pacific Railroad began building the Delin Street railroad tunnel prior to 1910. It was to form a link between the Nalley Valley and the intersection of Pacific Avenue and 15th Street. For reasons that are not clear (perhaps flooding in the tunnel), the partially finished tunnel was abandoned in 1910. The tunnel was filled with railroad ties and lumber and sealed. The area has settled and cave-ins may have occurred, providing some access to the tunnel (Murray Morgan, personal communcation and Will Abercrombie, personal communication). An EPA survey is currently underway to check rumors of illegal dumping into this tunnel area.

Waste material from U.S. Gypsum, General Metals, and wood waste from various wood industries were deposited along the banks of the Hylebos Creek in Milton in the early 1970s (Stan Springer, personal communication). Chemicals have since been leaching from the buried material and seeping into the creek.

Drainage from the Nalley Valley and runoff from Interstate 5 enters the City Waterway via the dual 96-inch drain pipes located at the landward end of the waterway (see the discussion of Site No. 105 above). This drainage conveys process chemicals and waste product to the marine environment of Commencement Bay.

The City of Puyallup operated a solid waste landfill located along the Puyallup River. Mr. Dean Wood (personal communication) suspected that industrial wastes may have been deposited at this site.

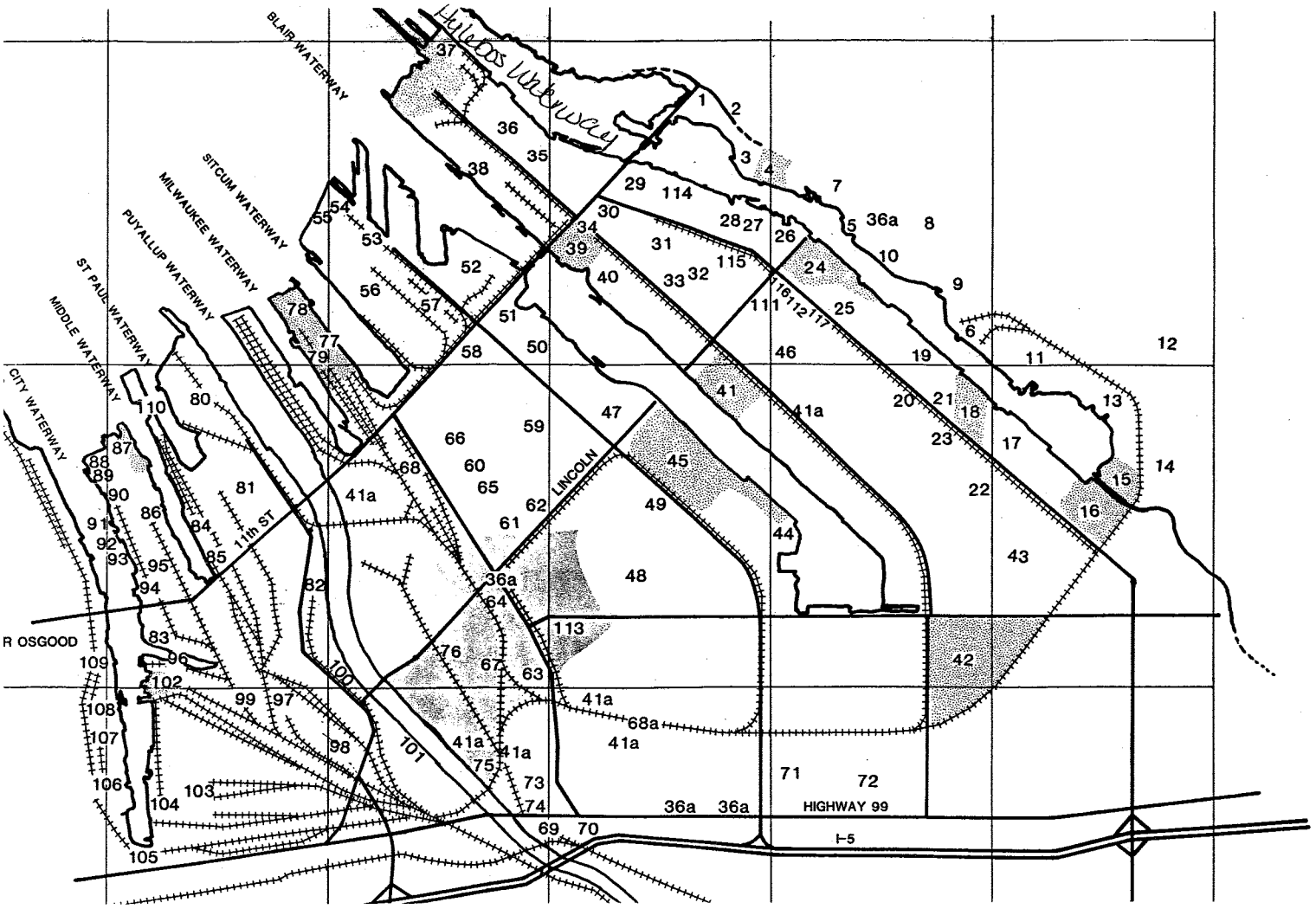
DISCUSSION

Analyzing the history of industries in the tideflat area and the nature of their contribution of contaminants to the environment was a difficult task. This may be attributed to many factors. First, industries do not appear to retain records on operations and associated procedures for more than 5 years. Second, management personnel at the larger companies often are assigned to the local office for a relatively short period of time. When they depart, they take with them the knowledge of the plant's operations. Third, the ownership of many properties change often. The present owners often have little (if any) knowledge of the operations processes, or waste disposal procedures associated with the previous tenant industries.

As a result of these three factors it was very difficult for the industries to verify information obtained from other sources; i.e., public agencies or private individuals. However, a substantial amount of information was obtained despite these restrictions, permitting the identification of target sites (Table 4).

Other sources adversely affecting the water quality in the waterways have not been addressed under the discussion of the 117 sites. These include: (1) where dredge spoils were deposited on land, (2) drainage ditches in the tideflats, (3) vacant parcels of land, (4) the Delin Street Railroad Tunnel, (5) drainage into the Hylebos Creek in Milton, (6) storm drainage from the Nalley Valley, (7) the City of Puyallup's abandoned landfill along the Puyallup River, and (8) areas where slag from ASARCO, Inc. has been deposited. These are discussed in detail below.

Information obtained during this investigation indicates that the water quality of the Hylebos Waterway began to deteriorate during the 1930s. During this period, chemicals dumped into the waterways ultimately settled to the bottom and became bound in the sediments. When the Hylebos Waterway was dredged in 1931, 1934, 1939, 1952, and 1958, the contaminated sediments were deposited on land and used as



Areas Identified as Possible Waste Disposal Sites In Tacoma Tideflats

Key

- Slag from Asarco Inc
- Abandoned City of Tacoma landfill

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MEMORANDUM
March 1, 1982

To: Frank Monahan

Through: Dick Cunningham

From: John Bernhardt JB

Subject: Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington

INTRODUCTION

Early in 1981, the Department of Ecology (WDOE) and U.S. Environmental Protection Agency (USEPA) initiated a cooperative study of selected dischargers in the Port of Tacoma area to identify sources of toxic pollutants found in Commencement Bay water, biota, and sediment. Six facilities were selected for study based on proximity to the bay and consideration of the chemicals handled, namely:

1. Reichhold Chemicals, Inc;
2. U.S. Oil and Refining Company;
3. Pennwalt Corporation;
4. Tacoma Central Sewage Treatment Plant;
5. Sound Refining; and
6. St. Regis Paper Company

The locations of these facilities are shown in Figure 1.

A standard WDOE Class II inspection/receiving water study was to be performed concurrently at each facility with one major modification -- inclusion of sampling for the USEPA organic priority pollutants and certain other toxics. The results would be documented in WDOE investigative reports which, along with other studies, would provide government management agencies with the information needed to make the most informed decisions regarding the issue of toxics pollution in Commencement Bay. USEPA assisted in the field and provided laboratory support and quality assurance for the organic priority pollutant aspect of the studies.

Memo to Frank Monahan
Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington
March 1, 1981

An environmental assessment of surface waters in the vicinity of Reichhold Chemicals, Inc., the first of the surveys performed, is presented in this report. The Class II inspection results are presented in a separate report (Yake, 1981).

LOCATION AND DESCRIPTION

Reichhold is one of three large chemical manufacturers (Hooker and Pennwalt are the other two) sited on the finger peninsula between Blair and Hylebos waterways. The plant site and adjacent areas of significance to the study are depicted in Figure 2.

The plant manufactures a variety of organic and inorganic chemicals and resins at three main process areas located on-site: chemicals; resins; and treated fiber products. Chemicals involved in these processes include phenol, pentachlorophenol, formaldehyde, butyl phenol, and others as shown in Table 1.

Historical records of chemical spills were reviewed as part of this study. Since 1974 Reichhold personnel have reported seven chemical spills where some of the spilled material extended beyond the plant site:

Date	Chemical Spilled	Amount Spilled
08/21-22/74	50% sodium hydroxide	1,800 lbs.
01/01/75	phenol	4,000 lbs.
11/17/75	oily material	5 gal.
06/11/78	phenol	small
01/16/80	phenol	small
11/30/80	phenol	3,000 lbs.

Spills contained on-site normally are not reported. An excellent Spill Prevention Containment and Countermeasure Plan has been developed by the company for responding to spills (Manlove, 1981).

Facility process wastewaters and surface runoff are handled in several ways, as described by Yake (1981):

> "Process wastewaters are routed to a series of four ponds for treatment. Washdown and storm drainage from the general plant site is routed to a pump house, from which it can either be pumped to the pond system or to the city sewer, while wash and storm waters from the north corner of the plant drain to

an arm of the peripheral drain ditch. This peripheral ditch drains a "dredged solids disposal area" at the south end of the property. During normal conditions, the water in this ditch is essentially static. During storm events, the drain ditch may discharge to the Lincoln Avenue drain and thence to Blair Waterway. If, however, greater than 1 mg phenols/L is detected in the drain ditch, all flow is pumped to the treatment ponds; or, if the treatment capacity of the ponds is exceeded, directly to the Tacom City sewer."

METHODS

Sampling for the most part was performed during April 21-22, 1981 at five stations (Figure 2). Grab or composite samples were collected depending on the constituent addressed. The following conventional water quality analyses were performed:

Laboratory

pH (S.U.)
Dissolved oxygen (mg/L)*
Salinity (ppt)
Specific conductance (umhos/cm)
Chemical oxygen demand (mg/L)
Fecal coliform (col/100 ml)
Nitrate-N (mg/L)
Nitrite-N (mg/L)
Ammonia-N (mg/L)
Orthophosphate (mg/L)
Total phosphate (mg/L)
Total solids (mg/L)
Total non volatile solids (mg/L)
Total suspended solids (mg/L)
Total non volatile suspended solids (mg/L)
Formaldehyde (mg/L)
R. phenolics as phenol (mg/L)*
R. oil and grease (mg/L)*

Field

Temperature (°C)*
Specific conductivity* (umhos/cm)

*The grab sample parameters are designated by an asterisk.

A second set of fecal coliform samples was collected on May 6, 1981.

Samples for laboratory analysis were packed in ice (as required) and transported to the WDOE environmental laboratory in Tumwater. All analyses were performed according to Standard Methods (APHA, AWWA, and WACF, 1976) or USEPA methods (USEPA, 1979).

Memo to Frank Monahan
Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington
March 1, 1982

Three water samples were collected for analysis of organic toxic chemicals included in the USEPA 129 "priority pollutant" list and other selected toxics:

1. South Branch Lincoln Avenue Drain above Reichhold;

2. Lincoln Avenue Drain below Reichhold; and

3. Alexander Avenue Drain below Reichhold.

These sites were selected to best bracket the plant with the limited number of analyses available for the study.

Lincoln Avenue and Alexander Avenue drains below Reichhold were to be sampled at 15-minute intervals (approximately 500 ml per sample) over a two-hour period with ISCO compositors specially cleaned for toxics sampling. However, the Alexander unit malfunctioned so grab samples collected at the planned interval were hand-composited at this site. A quality assurance "blank" sample was processed through each compositor before sampling commenced.

A single toxics grab sample was collected at the Lincoln Avenue station above Reichhold.

The toxics samples were forwarded to three laboratories depending on analyses needed:

1. USEPA Contract Laboratory, West Coast Services, Inc. - organic priority pollutants and other selected organics;

2. USEPA Manchester Laboratory - cyanide; or

3. WDOE Tumwater Laboratory - phenol, formaldehyde, and metals (except mercury, Redmond laboratory).

Bottom sediment was sampled at two sites, lower Lincoln Avenue drain and Blair Waterway near the Lincoln Avenue outfall (Figure 2). At each site approximately 10 subsamples were collected with a small scoop and composited into a single sample. The samples were forwarded to the USEPA contract laboratory for organic toxics analyses.

Limited biological sampling was performed on May 6, 1981 at the two stations cited above. At 50 organisms per sample, the edible mussel Mytilus edulis, a filter feeder, was collected, then later homogenized to provide the five grams of tissue required for metals analysis. The organisms ranged from 33 to 55 mm in length. These analyses were performed at the WDOE Tumwater laboratory.

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Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington
March 1, 1982

During July 30, 1981, WDOE and USEPA collected intertidal and deepwater sediment samples at a number of locations in Commencement Bay as part of another toxics investigation relating to these waters (Swartz, et al., 1982). Four or five samples of surface sediments (10 x 10 x 2 centimeters each) were collected along a transect at each intertidal sampling site. Amphipod bioassays (Rhepoxynius abronius) were performed at the federal Marine Science Center in Newport, Oregon. The two sediment sampling sites cited above were included in this sampling.

RESULTS

Five basic areas are addressed: (1) Physical; (2) Water Quality Sampling; (3) Bottom Sediment Sampling; (4) Mussel Tissue Analysis; and (5) Sediment Bioassays.

(1) Physical

Reichhold is situated in a lowland area where surface runoff, seepage, small pipes of unknown origin, and other industrial sources possibly may influence the quality of drainage waters. Estuarine waters enter the ditches during flood tide providing flushing action. Thus, there are numerous possible sources of toxic substances observed.

Drainage flows were very low at the time of the survey. The plant's sampling and gaging weir was not overflowing. Thus, essentially all of the Lincoln drain flow (0.18 cfs) below the plant originated from the two small ditches upstream (Figure 2). Alexander drain was about four times larger (0.71 cfs) resulting in a combined flow of less than 1 cfs reaching Blair Waterway.

Flow in the Alexander drain appeared to be somewhat higher than normal due to street washing periodically performed as heavy-duty trucks hauled excavated soils from nearby J.A. Jones Construction Company property (Figure 2).

(2) Water Quality Sampling

Sampling results for the conventional analyses provided by the WDOE analytical laboratories are presented in Table 2. Noteworthy findings observed for the 18 parameters covered and five stations sampled are summarized below.

a. At about 10 ppt during the low tide, free-flowing conditions that existed at the time sampling was performed, salinities were high in all of the ditches sampled. Commencement Bay in general is about 30 ppt salinity. These data and height of

the high tide line along the ditch banks suggest tidal waters substantially influence water quality in the ditches. The tidal gates located near the mouth of the Lincoln drain apparently are not effective.

b. Periodic washdowns by heavy-duty gravel trucks hauling excavated soils from J.A. Jones' property accounted for the high suspended solids observed in the Alexander Drain.

c. The high total solids values in the ditches apparently are due to the saline waters which typically give such analytical results.

d. Formaldehyde, used in the manufacture of resins and plastics, was present at levels substantially below the generally accepted criteria of about 50 mg/L (McKee and Wolfe, 1965). The concentration varied considerably by station. High variance is typical of this laboratory test; however, even with this considered the data suggest one or more sources in the Lincoln/Alexander drainage.

The results of analyses performed by West Coast Services, Inc. for the organic priority pollutants and other toxics are presented in Table 3 for the three sites sampled.

Six organics were observed of which two, methylene chloride and acetone, appeared to be, at least in part, sample bottle cleaning residuals. These compounds also are used by Reichhold. One of the remaining compounds, pentachlorophenol (PCP), exceeded the USEPA chronic toxicity criteria for both freshwater and saltwater (Table 4). Pentachlorophenol is a commercially produced bactericide, fungicide, and slimicide used primarily for the preservation of wood, wood products, and other materials (USEPA, 1980). Reichhold produces PCP; however, whether or not this was the source was not confirmed. PCP is widely used and not observed in previous sampling of surface waters near Reichhold (Table 3).

The three remaining organics were detected at generally low concentrations.

Alexander Drain exceeded the USEPA freshwater "not to exceed anytime" or "acute" criterion for five metals (Zn, Pb, Cu, Cd, and Hg) while the criteria for two metals (Cu and Cd) were exceeded in the two Lincoln Drain samples. The "not to exceed as a 24-hour average" or "chronic" criterion was exceeded for most metals at all freshwater stations. It is not known why metals concentrations were

highest in the Alexander drain other than the street washing or earthen material hauled may have been factors. Metals criteria violations were generally less severe in the marine sample (Table 3).

The 1980 USEPA priority pollutant scan consistently detected considerably more organics per sample in Lincoln Drain than the present sampling. The reason for this difference is not known; however, it is important to note since laboratory variance or intermittent discharge may be factors.

Excluding the contaminants methylene chloride and acetone, toluene and 1,1,1-trichloroethane were the only organics present in both the current and earlier USEPA samples. The concentrations were low and far below criteria in all cases.

Heavy metals were generally present in higher concentrations during the present effort. This is particularly true of lead, arsenic, and cadmium.

(3) Bottom Sediment Sampling

Seven organic compounds were observed in the sediments (Table 3). The sample bottle cleaning solvents methylene chloride and acetone again were present.

Bis (2-ethylhexyl) phthalate (BEHP) is one of a group of plasticizers, the phthalated esters, which are interfused with various polymers to increase flexibility, extensibility, and workability (White and Robbins, 1974). These substances are ubiquitous in modern society, being present in foil wraps, tubing, clothing, upholstery, and almost anything else involving plastics.

BEHP in the environment is readily adsorbed onto suspended particulates, complexes with humic substances, and to some extent, is taken up by organisms (USEPA, 1979).

Since sediment criteria do not exist for priority pollutants or other toxics, these data can only be evaluated by comparison with data collected from other areas.

Priority pollutant analyses performed statewide by USEPA during 1979 to 1980 (Unpubl. data, 1981) were reviewed in an effort to place the findings for Lincoln drain in perspective. BEHP (dry weight) was detected in 22 of 35 bottom sediment samples collected:

Memo to Frank Monahan
Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington
March 1, 1982

Location	BEHP Concentration (ug/Kg dry weight)
Duwamish River below Renton	200
Naches River at Mouth	200
Spokane River at Spokane STP Outfall	100
Cedar River near Landsburg	80
Spokane R. 1.5 mi. below Spokane STP	70
Spokane R. 0.5 mi. below Spokane STP	54
Spokane R. at Spokane STP Outfall	53
Five sites	0.3 to 52
Ten sites	0.02 to 0.29
Thirteen sites	none detected

It should be noted that all of these samples were collected from freshwater areas. At 5,675 and 1,449 ug/Kg, respectively, the Lincoln drain and Blair Waterway sediment BEHP values were very high, if the statewide sampling is used as a point of reference. The significance of these levels in terms of the aquatic toxicity is not known. BEHP is known to persist in sediments for some time but not to the extent of some compounds such as PCBs and DDT.

A high concentration of this compound (9,900 ug/Kg dry weight) was observed in a sediment sample collected where Lincoln Avenue Drain enters the opposite side of Blair Waterway from the south (Bernhardt, 1982). These data and the Reichhold survey results suggest a significant source in or near Blair Waterway. Reichhold does not use this compound.

Gamma BHC (Lindane) is an effective stomach, fumigant, and contact poison with relatively long residual effects (USEPA, 1980). It is used on a variety of crops to control aphids, grasshoppers, ants, roaches, flies, mosquitos, weevils, and many others (Thompson, 1977). Generally this compound is only slightly adsorbed by bottom muds. At 6.61 and 2.48 ug/Kg, the Gamma BHC observed in the Lincoln drain below Alexander Avenue and Blair Waterway sediment samples may be of some concern judging from the 0.34 ug/L saltwater acute toxicity criteria; however, it is not known whether the sediment BHCs are actually available to epifauna or infauna for uptake. Gamma BHC was detected in only one of 35 sediment samples collected by USEPA from freshwater areas of Washington State during 1978 to 1980 (Unpubl. data, 1981).

Location	BHC Concentration (ug/Kg dry weight)
Spokane R. at Spokane STP Outfall	2
Thirty-four sites	none detected

The source of this insecticide with regard to Blair Waterway sediments near the mouth of Lincoln Avenue drain is unknown.

Sediment metals were not collected because of laboratory load considerations. Samples were collected at a later date. The results are not available as of this writing.

(4) Mussel Tissue Analysis

The tissue metals data for the edible mussel, Mytilus edulis, are compared with data from other Puget Sound studies in Table 5. It is important to note in reviewing these data that Price (1978) on a fairly consistent basis, detected higher metals concentrations than the other investigators (Cloud, 1978; Heffner, 1981; Olsen and Schell, 1977). Data analyzed at the same laboratory are most comparable although an expected range of values can be obtained from samples analyzed by several laboratories.

Considering the WDOE analytical results only, copper and zinc concentrations in mussels collected during the present study appear to be somewhat elevated compared to the BWMP background stations. They are, however, not as high as concentrations near ASARCO (Table 5). Nickel, chromium, and lead were generally near background while cadmium was lower than the other areas. Arsenic was higher than any previous sampling results for Commencement Bay, including near ASARCO.

(5) Sediment Bioassays

Laboratory results for the two samples collected are given below:

Location Sampled	Initial Number	Number Recovered	Comments
Lower Lincoln Ave. drain embayment	20	0	very fine sediments
Similar zone of Blair Waterway near Lincoln Avenue outfall	20	16	medium sand
Control (Yaquina Bay)	20	18.2	mean of 50 samples

A problem is suggested by the high mortality observed in the lower Lincoln Avenue drain embayment. However, sufficient information is not available to determine the cause. Gamma BHC was very high in the sediment sample analyzed for organics. Sediment metals have

been shown to be elevated in other Blair Waterway areas and this is more than likely the case for Lincoln drain, as indicated by the mussel tissue and water sampling data. There could be some adverse habitat characteristic not evaluated in the study. The embayment sediments were visually quite different from the waterway sediments. The percent organics appeared to be greater (high sediment oxygen demand) in the embayment. There also is the problem that neither the sampling nor testing were replicated.

As a first step in reviewing the sediment toxicity results, USEPA plans to analyze all of the samples collected in Commencement Bay as a single unit. Correlation tests will be performed to determine if any constituents are routinely level at elevated concentrations when high mortalities occur. Specific site results cannot be adequately interpreted for cause and effect until this is done.

DISCUSSION

Reichhold Chemicals, Inc. was not discharging during the low flow conditions that existed at the time of the survey. Thus, this facility, other inputs within the Lincoln/Alexander Avenue drainage, and incoming Blair Waterway waters were all considered as possible sources in evaluating factors affecting water quality. Reichhold was considered as an intermittent source.

Lincoln/Alexander drainage waters contained a small number of toxic pollutants which appeared to be intermittent in nature and not associated with an easily definable source. The levels observed also were generally low with only one organic constituent, the preservative pentachlorophenol, exceeding the USEPA criteria by a slight margin. Low levels of formaldehyde were observed and the data suggested one or more sources within the drainage.

Metals were somewhat elevated within the drainage with, like other Commencement Bay areas, the following being of concern: zinc; lead; copper; cadmium; arsenic; nickel; and mercury.

Concentrations of constituents in the environment can be somewhat misleading when small drainage ditches are addressed which are of limited value as habitat for aquatic life and used almost entirely as an avenue for surface runoff and discharges. Pollutant loading to Blair Waterway which supports a significant assemblage of biota and recreational and other benefits, is of greater concern. Loadings to the waterway based on the flow conditions that existed at the time of the survey (low flow) are given below for the toxic constituents observed:

Memo to Frank Monahan
Assessment of Surface Water Quality in the Vicinity of Reichhold Chemicals, Inc., Tacoma, Washington
March 1, 1982

Parameter	Lincoln Avenue Drain (lbs/day)	Alexander Avenue Drain (lbs/day)	Total (lbs/day)
Formaldehyde	<1.94	9.07	9.07 to 11.00
Pentachlorophenol	N.D.	0.18	0.18
1,1 Dichloroethane	0.004	0.04	0.044
Toulene	N.D.	0.01	0.01
1,1,1-Trichloroethane	0.02	N.D.	0.02
Zinc	0.03	0.76	0.79
Lead	0.10	0.76	0.86
Copper	0.02	0.91	0.93
Cadmium	0.01	0.04	0.05
Chromium	<0.01	0.34	0.35
Arsenic	0.97	3.78	4.75
Nickel	0.05	0.42	0.47
Molybdenum	0.03	0.07	0.10
Mercury	.0002	.0008	0.001

N.D. = None Detected.

The loadings were calculated by the conversion: Flow (cfs) x concentration in mg/L x 5.4 = lbs/day. Pertinent flows and concentrations are given in Tables 2 and 3.

The need for further investigation into the source of formaldehyde is indicated by what appears to be a relatively high loading rate. Arsenic may be a problem in the embayment. A problem is not suggested with the remaining parameters because dilution is considerable once the receiving waters of Blair Waterway are reached. The effects of these constituents can only be fully ascertained when evaluated along with loadings from the many other point and nonpoint sources along Commencement Bay.

JB:cp

Attachments

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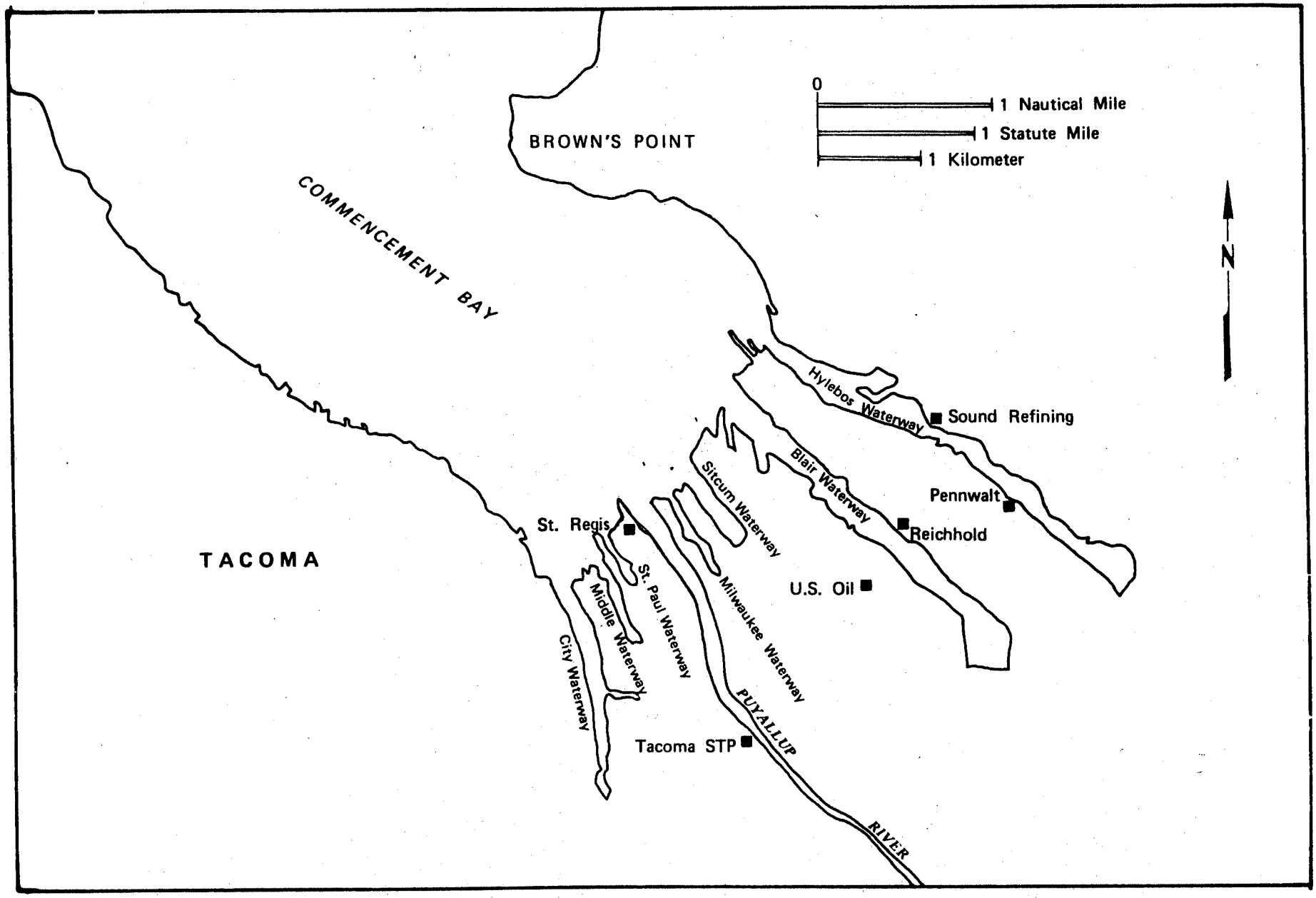

FIGURE 1. Map depicting locations of industries investigated as part of WDOE assessment of toxics pollution in Commencement Bay, during summer 1981.

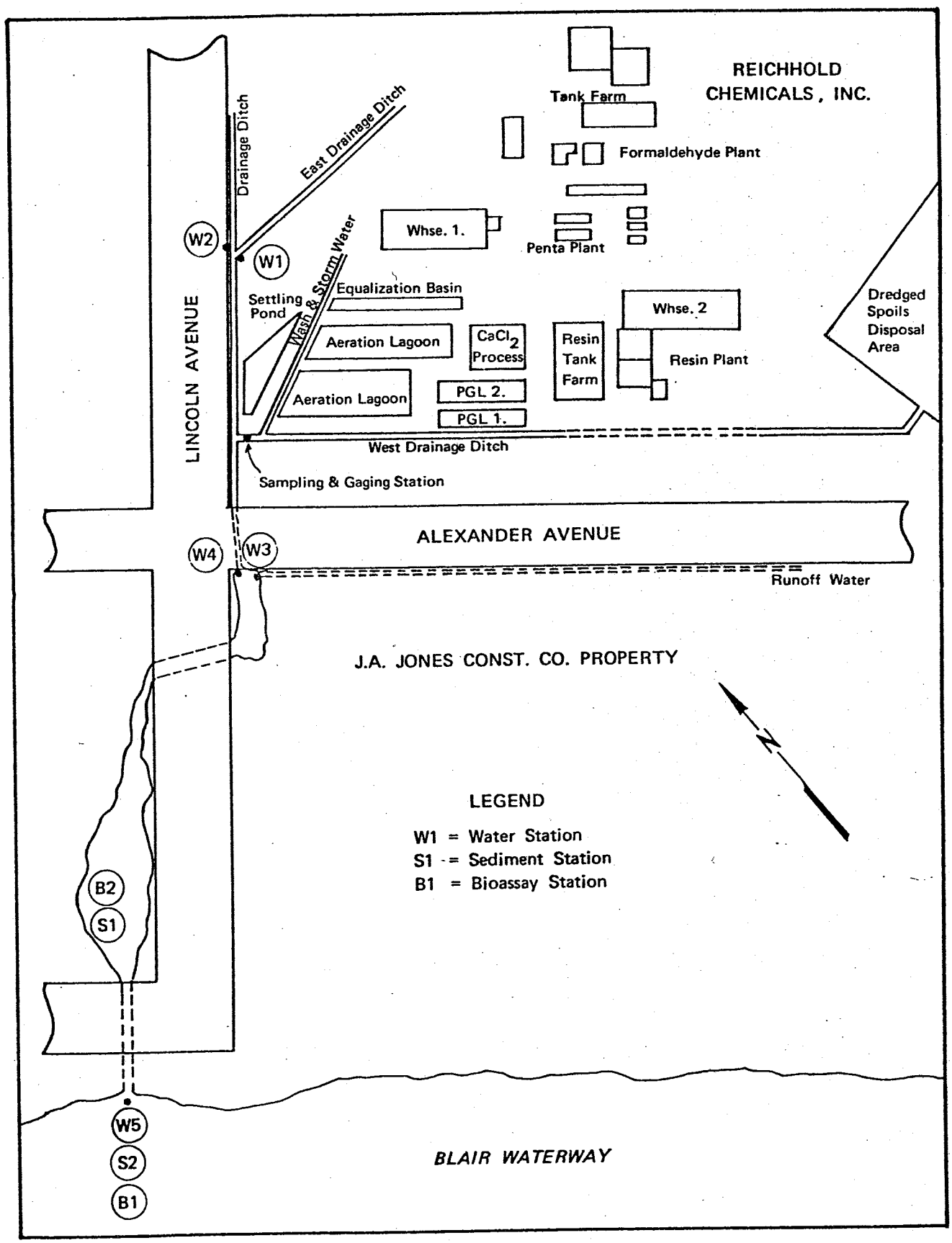

FIGURE 2. Map showing layout of Reichhold Chemicals, Inc. and water quality sampling sites included in WDOE receiving water survey, April 21-22, 1981.

Table 1. List of chemicals involved in the three major manufacturing processes employed at Reichhold Chemicals, Inc.[1/]

Chemical Process Area	Resin Process Area	Treated Fiber Products
Chemicals Manufactured: Formaldehyde solution Formaldehyde catalyst Pentachlorophenol Butyl phenol p-tert butyl phenol Calcium chloride brine	Major Resins Produced: Urea-formaldehyde Phenol-formaldehyde Polyvinyl acetate Polyster Polyurethane	Major Solvents Used: Methyl ethyl ketone Acetone
Major Raw Materials: Methanol Molybdenum trioxide Ammonium hydroxide Ferric chloride Phenol Chlorine Isobutylene Hydrochloric acid	Major Raw Materials: Phenol Urea Formaldehyde Vinyl acetate Propylene glycol Phthatic anhydride Maleic anhydride Adipic acid Poly-glycol Freon Styrene	

[1/] Source: Manlove (1981).

Table 2. Summary of conventional water quality sampling data collected by WDOE from surface waters in the vicinity of Reichhold Chemicals, Inc. during April 21, 1981.

Parameter	Water Quality Sampling Data				
	South Branch Lincoln Avenue Drain above Reichhold (W1)	North Branch Lincoln Avenue Drain above Reichhold (W2)	Lincoln Avenue Drain below Reichhold (W3)	Alexander Avenue Drain below Reichhold (W4)	Blair Waterway Near Lincoln Avenue Drain Outfall (W5)
GENERAL					
Site Description	Open ditch	Open ditch	Culvert outfall	Culvert outfall	Estuary
Average width/depth (ft)	1.4/0.10	1.4/0.10	1.8/0.12	40-inch	--
Flow	Trickle	Trickle	.18/0.28	.70/1.10	--
Time Sampled	1200	1200	1415	1415	1520
FIELD TESTS					
Temperature (°C)	14.4	13.2	12.4	12.6	--
LABORATORY TESTS					
pH (S.U.)	7.3	--	7.3	7.6	7.6
Dissolved oxygen (mg/L)	13.7	--	11.5	--2/	10.4
Salinity (ppt)	9.4	--	11.2	9.3	21.8
S. Conductance (umhos/cm)	14,400	--	16,100	13,400	27,700
Chemical Oxygen Demand (mg/L)	350	--	930	670	730
Fecal coliform (col/100 ml)	5800/170 1/	-/18	-/150	-/80	2/31
Nitrate-N (mg/L)	0.10	--	0.31	0.16	0.25
Nitrite-N (mg/L)	<0.01	--	<0.01	<0.01	<0.01
Ammonia-N (mg/L)	0.98	--	1.1	1.2	0.18
Orthophosphate (mg/L)	0.64	--	0.17	0.01	0.06
Total phosphate (mg/L)	0.67	--	0.48	0.02	0.09
Total solids (mg/L)	10,000	--	13,000	12,000	37,000
Total Non-vol. Solids (mg/L)	7,600	--	10,000	11,000	20,000
Total Suspended Solids (mg/L)	38	--	14	2,200	21
T. Non-vol. Sus. Solids (mg/L)	25	--	7	2,000	15
Formaldehyde (mg/L)	21	--	<2	2.4	6.4
R. Phenolics as phenol (mg/L)	0.023	--	0.012	0.018	0.012
R. Oil and Grease (mg/L)	<1	--	<1	<1	9

1/ A second set of fecal coliform samples was collected on May 6, 1981.

2/ Analysis affected by sediment interference.

Table 3. Summary of Priority pollutant and other toxics sampling data collected by WDOE in the vicinity of Reichhold Chemicals, I during April 21, 1981.

	Water Samples (ug/L)[3]							EPA Historical Water Quality Sampling Data					Sediment Samples (ug/Kg)[4]	
Sampling Results	S. Branch Lincoln Drain Above Reichhold	N. Branch Lincoln Drain Above Reichhold	Alexander Drain Below Reichhold	Lincoln Drain Below Reichhold	Blair Waterway near Lincoln Drain	ISCO Field Blank	ISCO Field Blank	Reichhold Storm Drain Above Weir (Sampled 9/23/80)	Lincoln Drain S.W. Corner Reichhold Property[5] (Sampled 9/23/80)	Lincoln Drain Below Alexander Avenue (Sampled 9/23/80)	Lincoln Drain S.W. Corner Reichhold Property (Sampled 6/3/80)	Lincoln Drain Below Alexander Drain (Sampled 6/3/80)	Lincoln Drain Below Alexander Drain	Blair Waterway Intertidal Zone Near Lincoln Drain
Time Sampled	1200	1200	1230-1415	1210-1415	--	1200	1050	--	1219	1115	1650	1645	1330	1340
WDOE Station Number	W1	W2	W3	W4	W5	W3	W4	--	--	--	--	--	51	52
EPA Sample Number	--		16713	16712	--	16709	16708	38218	38211	38214	22320	22308	16716	16717
EPA Laboratory Number	--		8J-14	8J-13	--	8J-10	8J-8	--	--	--	S1a	S1	8J-15	8J-16
Parameter														
Acid Compounds														
Pentachlorophenol	--		47	ND	--	ND	ND	ND	--	--	ND	ND	ND	ND
t-butylphenol	--		ND	ND	--	ND	ND	200	200	--	ND	ND	ND	ND
Base/Neutral Compounds														
Bis(2-ethylhexyl) phthalate	--		ND	ND	--	2	ND	5	5	--	ND	ND	ND	ND
Diethyl phthalate	--		ND	ND	--	ND	ND	ND	--	--	ND	ND	1934	ND
1,2 Dichlorobenzene	--		ND	ND	--	ND	ND	5.4	--	--	T	ND	ND	ND
Napthalene	--		ND	ND	--	ND	ND	--	--	--	7.9	ND	ND	ND
Flourene	--		ND	ND	--	ND	ND	ND	1.0	--	ND	ND	ND	ND
Volatile Organics														
Methylene chloride	--		ND	19	--	33	48	ND	--	--	1.3	T	264	ND
Dimethyl-1, 4-dioxane	--		ND	ND	--	ND	ND	--	--	--	ND	ND	ND	ND
Acetone	--		ND	16	--	ND	ND	ND	--	--	ND	ND	77	ND
Hexachloroethane	--		ND	ND	--	ND	ND	ND	--	--	ND	T	ND	ND
1,2-(trans)dichloroethylene	--		ND	40	--	ND	ND	4.4	1	--	1.0	ND	ND	ND
1,1 Dichloroethane	--		ND	ND	--	ND	ND	ND	--	--	ND	ND	3	ND
Toluene	--		1	12	--	ND	ND	ND	--	--	4	4	6	ND
Hexachlorobenzene	--		ND	ND	--	ND	ND	ND	--	--	ND	T	ND	ND
Methyl Ethyl Ketone	--		ND	ND	--	6	ND	ND	--	--	ND	ND	ND	ND
1,2-Dichloroethylene	--		ND	ND	--	ND	ND	ND	--	--	T	ND	ND	ND
1,1,1-Trichloroethane	--		4	ND	--	ND	ND	1.2	--	--	ND	ND	ND	ND
Chloroform	--		ND	ND	--	ND	ND	7.2	--	--	2.4	1.8	ND	ND
Trichloroethene	--		ND	ND	--	ND	ND	50	1	--	1.5	T	ND	ND
Hexachlorobenzene	--		ND	ND	--	ND	ND	ND	0.7	--	T	ND	ND	ND
Benzene	--		ND	ND	--	ND	ND	--	0.3	--	422	4	ND	ND
Tetrachloroethylene	--		ND	ND	--	ND	ND	--	--	--	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--		ND	ND	--	ND	ND	--	0.9	--	ND	ND	ND	ND
Pesticides														
Gamma BHC	--		ND	ND	ND	ND	ND	ND	--	--	ND	ND	6.61	2.48
Metals (ug/L)[1]														
Zinc	21		200	30	24	<5	<5	40	50	40	55	50	--	--
Lead	30		112	40	89	<5	<5	2	80	25	10	17	--	--
Copper	38		24	38	24	<1	<1	3	19	19	26	85	--	--
Cadmium	10		10	10	20	<5	<5	0.5	<.2	<.2	0.1	0.6	--	--
Chromium[2]	<20		90	<10	<20	<10	<10	<1	5	6	3	4	--	--
Arsenic	90		160	380	28	<5	<5	4	140	75	216	190	--	--
Nickel	<50		110	50	110	<50	100	23	26	21	40	17	--	--
Molybdenum	62		19	30	13	<13	<13	--	--	--	ND	ND	--	--
Beryllium	--		--	--	--	--	--	<0.3	0.5	0.6	0.3	0.3	--	--
Silver	--		--	--	--	--	--	<0.4	<.4	<.4	0.25	0.48	--	--
Thallium	--		--	--	--	--	--	<3	<3	<3	1	1	--	--
Selenium	--		--	--	--	--	--	<2	4	7	2	12	--	--
Antimony	--		--	--	--	--	--	<2	<2	<2	9	14	--	--
Manganese	--		--	--	--	--	--	--	--	--	375	400	--	--
Total Mercury	<0.20		0.20	0.20	<0.20	<0.20	<0.20	0.07	0.56	0.35	1.1	0.45	--	--
Tentitively Identified Organic Compounds														
2,3,4,6-Tetrachlorophenol	ND		X	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND
Thiobismethane	ND		ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	X

[1] The metals criteria are based on the total recoverable form and a hardness of 50 as $CaCO_3$.

[2] Total recoverable hexavalent chromium.

[3] -- = Not analyzed for; ND = analyzed for but none detected; X = tentatively identified; T = trace.

[4] Analyses are reported on the dry basis; samples are 36.3 percent solids.

[5] Same location as USEPA 6/3/80 sample number 22320.

Table 4. Summary of USEPA water quality criteria for chemical compounds observed in surface waters near Reichhold Chemicals, Inc.

Parameter	Freshwater (ug/L) Not to Exceed: Anytime	24-hr. Average	Acute	Chronic	Saltwater (ug/L) Not to Exceed: Anytime	24-hr. Average	Acute	Chronic
Acid Compounds								
Pentachlorophenol	--	--	55	3.2	--	--	53	34
t-butylphenol	--	--	--	--	--	--	--	--
Base/Neutral Compounds								
Bis(2-ethylhexyl) phthalate	--	--	940	3	--	--	2,944	3.4
Diethyl phthalate	--	--	940	3	--	--	2,944	3.4
1,2 Dichlorobenzene	--	--	1,120	763	--	--	1,970	--
Napthalene	--	--	2,300	620	--	--	2,350	--
Flourene	--	--	--	--	--	--	--	--
Volatile Organics								
Methylene chloride	--	--	--	--	--	--	--	--
Dimethyl-1, 4-dioxane	--	--	--	--	--	--	--	--
Acetone	--	--	--	--	--	--	--	--
Hexachloroethane	--	--	980	--	--	--	540	--
1,2-(trans)dichloroethylene	--	--	11,600	--	--	--	224,000	--
1,1 Dichloroethane	--	--	980	--	--	--	540	--
Toluene	--	--	17,500	--	--	--	6,300	5,000
Hexachlorobenzene	--	--	250	50	--	--	160	129
Methyl Ethyl Ketone	--	--	--	--	--	--	--	--
1,2-Dichloroethylene	--	--	11,600	--	--	--	224,000	--
1,1,1-Trichloroethane	--	--	--	--	--	--	31,200	--
Chloroform	--	--	--	--	--	--	--	--
Trichloroethene	--	--	45,000	21,900	--	--	2,000	--
Hexachlorobenzene	--	--	250	50	--	--	160	129
Benzene	--	--	5,300	--	--	--	5,100	700
Tetrachloroethylene	--	--	5,280	840	--	--	10,200	450
1,1,2,2-Tetrachloroethane	--	--	--	2,400	--	--	9,020	--
Pesticides								
Gamma BHC	--	--	100	--			0.34	
Metals (ug/L)[1/]								
Zinc	180	47	--	--	170	58	--	--
Lead	74	0.75	--	--	--	--	668	25
Copper	12	5.6	--	--	23	4.0	--	--
Cadmium	1.5	0.012	--	--	59	4.5	--	--
Chromium[2/]	2,200	--	--	44	--	--	10,300	--
Arsenic	440	--	--	40	--	--	508	--
Nickel	1,100	56	--	--	140	7.1	--	--
Molybdenum	--	--	--	--	--	--	--	--
Beryllium	--	--	130	5.3	--	--	--	--
Silver	1.2	--	--	0.12	2.3	--	--	--
Thallium	--	--	1,400	40	--	--	2,130	--
Selenium	260	35	--	--	410	58	--	--
Antimony	--	--	9,000	1,600	--	--	--	--
Manganese	--	--	--	--	--	--	--	--
Total Mercury	.0017	.00057	--	--	3.7	.025	--	--
Tentitively Identified Organic Compounds								
2,3,4,6-Tetrachlorophenol	--	--	--	--	--	--	--	--
Thiobismethane	--	--	--	--	--	--	--	--

[1/] The metals criteria are based on the total recoverable form and a hardness of 50 as $CaCO_3$.

[2/] Total recoverable hexavalent chromium.

Table 5. Summary of recent trace metals data collected on the edible bay mussel (Mytalis edulis) in Puget Sound.

Study	Date Sampled	Metal (ug/g) Copper	Zinc	Nickel	Chromium	Cadmium	Lead	Mercury	Arsenic
Present Effort									
Lower Lincoln Ave. Drain	5/5/81	13	450	5.1	1.5	2.8	<5.0	0.097	56
Blair Waterway nr. L.A. Drain	5/5/81	13	330	2.7	1.6	2.3	<5.0	0.015	19
Olsen And Schell (1977)									
Puget Sound & Hood Canal	--	7.4[1]/ 4.9-12.6	169.7 / 77.9-317	-- / --	6.4 / 0.93-11.9	3.7 / 2.8-5.5	6.6 / 2.5-14.8	.109 / .016-.130	-- / --
Price (1978)[2]									
Lower Puget Sound	6,7,8/77	9.7[3]/ 4.8-90.9	309.1 / 84.2-969.7	-- / --	-- / --	9.7 / 3.0-17.0	18.2 / 5.4-34.5	.194 / .017-1.3	43.6 / 18.8-72.7
Commencement Bay									
Browns Point	--	--	303.0	--	--	--	13.3	0.37	45.4
Hylebos Mouth	--	11.0	969.7	--	--	3.9	26.8	0.19	44.8
S.W. Shore Com. Bay	--	25.4	369.7	--	--	17.0	34.5	0.29	60.6
ASARCO S.E.	--	90.9	545.5	--	--	10.3	33.9	1.03	54.5
ASARCO N.W.	--	24.2	848.5	--	--	12.1	30.3	0.36	72.7
Cloud (1979)[2]									
Near ASARCO (WDOE Lab)	9/20/78	297.0	472.7	<30	<6	7.9	35.2	--	4.6
Near ASARCO (ASARCO Lab)	9/20/78	407.9	407.9	--	--	4.6	29.7	--	15.8
Heffner (1981)									
Near ASARCO (WDOE Lab)	2/24-25/81	135	533	1.4	1.7	2.95	.89	--	16.2
Near ASARCO (ASARCO Lab)	2/24-25/81	278	642	<4.7	9.4	8.9	51.9	--	10.7
Nr. Hartstene Is. (WDOE Lab)	2/24-25/81	11	162	2.7	1.5	5.0	1.01	--	1.70
BWMP Stations[4]									
Dabob Bay	9/6/79	18	261	4.0	2.1	17.0	1.36	--	2.61
Dabob Bay	8/25/80	12	223	1.3	.99	10.5	1.77	--	1.04
Port Susan	7/9/80	6	81	1.4	.86	3.57	1.86	--	.98
Carr Inlet	7/10/80	7	148	.78	.82	5.92	1.33	--	.77
Case Inlet	7/9/80	7	141	1.1	.72	6.34	1.23	--	1.65

[1] 7.4 / 4.9-12.6 = mean / range

[2] Reported as ug/g wet weight; converted to dry weight using .165 dry/wet ratio used by Olsen and Schell (1977).

[3] 9.7 / 4.8-7.3 = median / range

[4] BWMP = Basic Water Monitoring Stations sampled by Department of Ecology (WDOE).

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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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M E M O R A N D U M

TO: File

FROM: Jim Oberlander J.O.

SUBJECT: "Lilyblad Pond" and Related Fill, Tacoma

DATE: March 5, 1982

This property, once a tidal wet land, has been filled with a mix of waste from local industrial activity. The general location is centered between 11th and Lincoln Avenue, Taylor Way and Alexander Avenue; near Chemical Processors, Poligen and behind the Washington Educators factory.

Mr. Glenn Tegen of Lilyblad Petroleum, also part owner of the Poligen Petroleum Tank Farm, wishes to develop a ten-acre site, southeast of the Poligen area. Fill removal and site grading exposed the present pond and revealed an unusual waste.

Working closely with Mr. Tegen, 23 test (backhoe) pits and several trenches were dug on the proposed site for observation and necessary reviews.

The following comments were recorded while reviewing each recently dug pit. A map with pit station location and property layout is attached. An area photo was taken as well as 35 mm photo of some of the pits. Some samples were also taken.

The field inspections February 18, and February 22, 1982, were conducted after a period of very heavy rains.

JO:cl

Attachment

FEBRUARY 18, 1982

PIT NO.

1. Clear Water
   No Oil
   No Odor
   All Dredge Soil Sand
   Ground Water at Surface

2. Clear Water
   No Oil
   No Odor
   Dredge Sand Spoils
   Ground Water at Surface

3. Clear Water
   No Oil
   Dredge Spoils
   Ground Water near Surface

4. Clear Water
   No Odor
   Dredge Spoil
   Ground Water near Surface

5. Clear Water
   No Odor
   Dredge Spoils and Some Old Domestic Garbage
   Ground Water near Surface

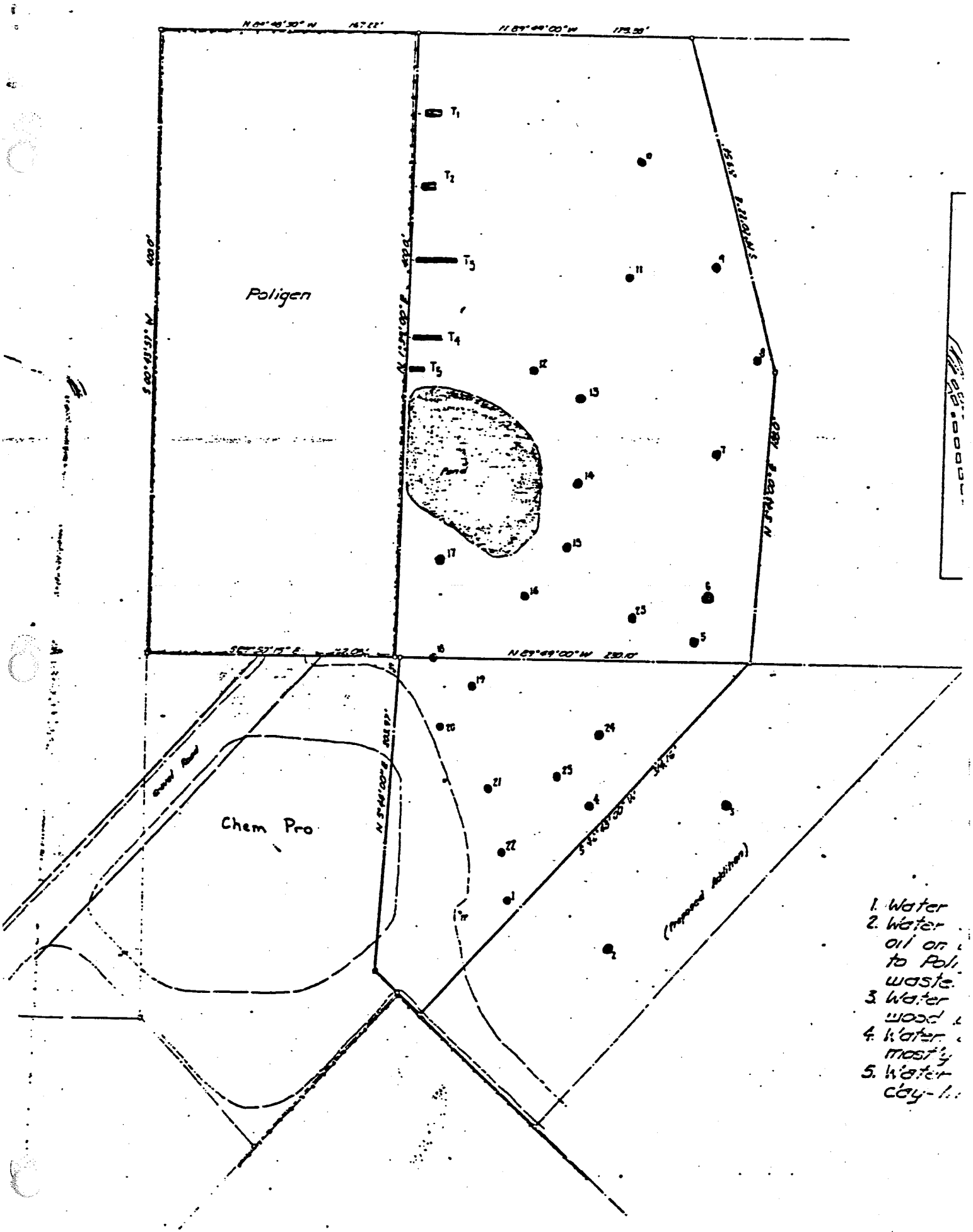
6. Clear Water
   No Odor
   Pit Run and Some Domestic Garbage
   Ground Water at Surface

7. Clear Water
   Mix of Wood and a Little White Lime
   Ground Water 3' Below Grade

8. Clear Water
   No Oil
   No Odor
   Woodwaste and a Little Concrete
   Ground Water 3' Below Grade

9. Minor Unknown Sheen on Water
   Woodwaste and Concrete
   Ground Water 4½' Below Grade

10. Clear Water
    Woodwaste and Concrete
    Ground Water 4' Below Grade


Poligen
Chem Pro
T1
T2
T3
T4
T5
Pond
Gravel Road
(Proposed Additions)
1. Water
2. Water
oil on
to Poli
waste
3. Water
wood
4. Water
mostly
5. Water
clay-l

DONALD W. MOOS
Director

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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MEMORANDUM

March 5, 1982

To: Will Abercrombie, S.W. Regional Office

Through: Jerry Freeman, Laboratory Section Head

From: Don Kjosness, Aquatic Biologist, Olympia Environmental Laboratory

Subject: 96-Hour Bioassay Information. Sample from Hooker Chemical - Behind Chempro, Pierce County

Sample Identification:

Laboratory Reference Number:	82-0037
Date Sample Collected:	January 6, 1982
Date Sample Received:	January 7, 1982
Sample Submitted by:	Will Abercrombie
Sample Description:	"Pit behind Chempro, Hooker Chemical Sludges." A grey-brown, clay-like material.

"Lilyblad Pond"

From under Poligen fence line.

Test Procedure:

The sample was tested for toxic properties in accordance with the Department of Ecology "General Procedure for Static Basic Acute Fish Toxicity Test".

Test Results:

The test data are tabulated in detail on the following pages.

Test Details:

The sample was tested at 100 and 1000 ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Salmo gairdneri*). The organism length ranged from 52 to 77 mm, giving a short-to-long ratio of 1:1.5. The average length was 69 mm. The average weight was 2.57 grams.

Five trout were added to 17 liters of sample/water mixture in each aquarium. This gave a flesh-to-mixture ratio of 0.8 grams/liter.

The test was started on January 18, 1982 at 1500 hours and completed on January 22, 1982 at 1500 hours.

Conclusions:

100 ppm (mg/L) - 0/5 fish died = 0% mortality.
1000 ppm (mg/L) - 5/5 fish died = 100% mortality.
Control - 0/30 fish died = 0% mortality.

(Quick & Dirty)

DK:cp

DW Material

Attachments

State of Washington
Department of Ecology

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Laboratory: Olympia Environme[ntal]
Analyst: Don Kieswess

Industry/Toxicant: Hooker Sludge
Address: Behind Chempro - Pierce Co.
Collector: Will Abercrombie
Date Sample Collected: 1-6-82

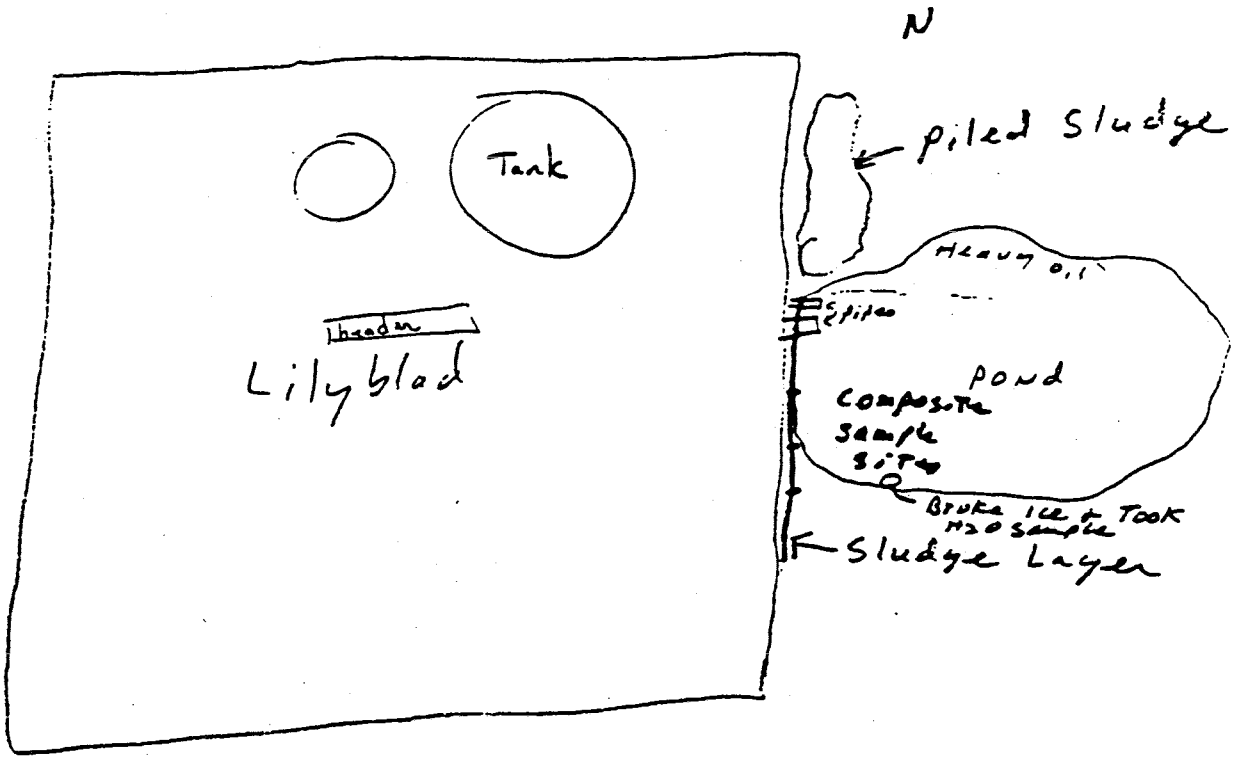
Beginning: Date 1-18-82 Time 1500
Ending: Date 1-22-82 Time 1500
Test Organism: Rainbow Trout (Salmo gairdneri)
Required Test Temperature Range: 12° ± 1 °C

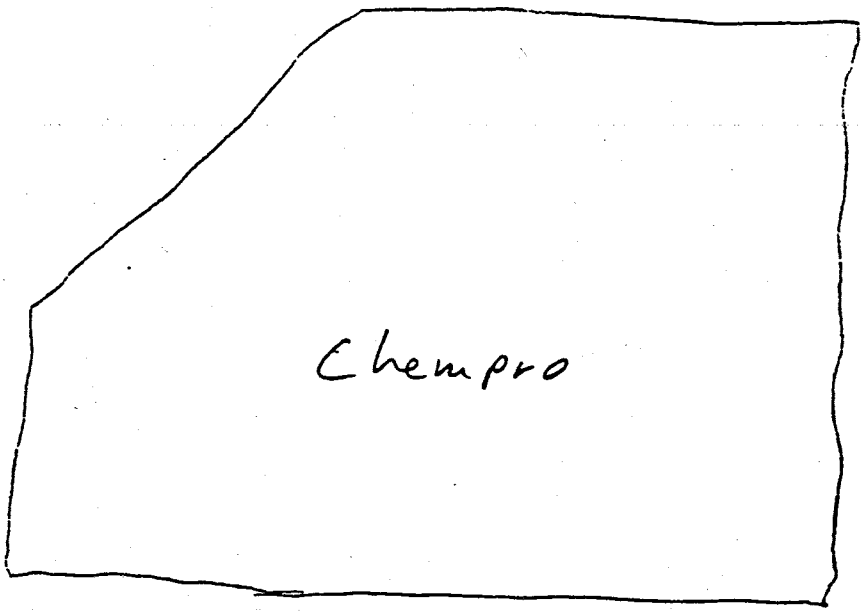
Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25 C					Temperature (C)					Total Hardness (mg/l as $CaCO_3$)		Total Alkalinity (mg/l as $CaCO_3$)		Conductivity umho
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0
82-0057	1	100	0	0	0	0	0	10.9	10.4	10.3	10.6	10.4	8.2	8.0	8.2	8.2	8.0	9.4	10.0	10.6	10.8	11.0	52	56	56	79	123
[illegible] Behind Chem Pro													[illegible]														
	2	1000	0	5	–	–	–	10.8	10.3	–	–	–	8.2	11.6	–	–	–	7.8	10.0	–	–	–	80	152	69	186	189
Control	16	Tap H_2O	0	0	0	0	0	10.7	10.2	10.4	10.5	10.2	8.0	7.3	7.4	7.4	7.4	10.2	11.6	11.6	11.8	11.8	40	44	44	54	110
	17	-"-	0	0	0	0	0	10.8	10.4	10.5	10.3	10.4	8.0	7.3	7.4	7.4	7.4	10.2	11.6	11.6	11.8	11.8	44	44	46	56	111
	18	-"-	0	0	0	0	0	11.0	10.5	10.2	10.1	10.4	8.0	7.4	7.4	7.4	7.4	10.2	12.0	12.0	12.0	12.0	44	44	44	60	111
	19	-"-	0	0	0	0	0	10.9	10.3	10.1	10.3	10.5	8.0	7.3	7.4	7.4	7.4	10.2	12.0	12.0	12.0	12.0	44	44	46	58	113
	20	-"-	0	0	0	0	0	10.9	10.4	10.2	10.3	10.3	8.0	7.4	7.4	7.4	7.4	10.2	12.4	12.4	12.2	12.2	44	48	46	58	113
	21	-"-	0	0	0	0	0	10.9	10.3	10.0	10.4	10.6	8.0	7.4	7.4	7.4	7.4	10.2	12.4	12.4	12.2	12.2	44	48	48	58	113

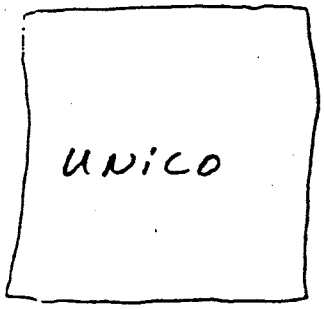
Sample Description: A grey & brown clay-like material
Average Weight: 2.59 Mean Length: 69 Longest: 77 Shortest: 52 Ratio (long/short): 1.5:1
Number of organisms per chamber: 5 Ratio of flesh to water: 0.8 Comments: 17 L/TANK

*[illegible]d on file with the Department of Ecology: [illegible] [PROCE]DURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

DATA VERIFIED BY [illegible signature] DATE 3-3-82







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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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MEMORANDUM

March 10, 1982

To: Jim Oberlander, S.W. Regional Office

Through: Jerry Freeman, Laboratory Section Head

From: Don Kjosness, Aquatic Biologist, Olympia Environmental Laboratory

Subject: 96-Hour Bioassay Information. Sample from Lilyblad, Tacoma

Sample Identification:

Laboratory Reference Number:	82-0747
Date Sample Collected:	February 22, 1982
Date Sample Received:	February 23, 1982
Sample Submitted by:	Jim Oberlander
Sample Description:	"Hole #11 Soil". A white, clay-like material.

Test Procedure:

e sample was tested for toxic properties in accordance with the Department Ecology "General Procedure for Static Basic Acute Fish Toxicity Test".

Test Results:

The test data are tabulated in detail on the following pages.

Test Details:

The sample was tested at 1000 ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Salmo gairdneri*). The organism length ranged from 53 to 78 mm, giving a short-to-long ratio of 1:1.5. The average length was 68 mm. The average weight was 2.61 grams.

Five trout were added to 17 liters of sample/water mixture in each aquarium. This gave a flesh-to-mixture ratio of 0.8 grams/liter.

The test was started on March 1, 1982 at 1400 hours and completed on March 5, 1982 at 1400 hours.

Conclusions:

1000 ppm (mg/L) - 0/30 fish died = 0% mortality.
Control - 0/30 fish died = 0% mortality.

DK:cp

Attachments

State of Washington
Department of Ecology

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Industry/Toxicant: LILY BLOD - POND ARRA
Address: TACOMA
Collector: J. OBERLANDER
Date Sample Collected: 2-22-82

Laboratory: OLYMPIA ENVIRONMENTAL
Analyst: DON KIOSNESS
Beginning: Date 3-1-82 Time 1400
Ending: Date 3-5-82 Time 1400
Test Organism: RAINBOW TROUT (SALMO GAIRD
Required Test Temperature Range: 12° ± 1°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 25 C 0	24	48	72	96	Temperature (C) 0	24	48	72	96	Total Hardness (mg/l $CaCO_3$) 0	96	Total Alkalinity (mg/l $CaCO_3$) 0	96	Co w
747	1	1000	0	0	0	0	0	9.4	7.0	4.3	4.1	3.9	7.6	7.4	7.2	7.4	7.4	11.0	11.4	11.4	11.2	11.4	62	56	42	57	1
"ECK #11	2	—11—	0	0	0	0	0	9.6	6.7	4.7	4.5	4.2	7.6	7.4	7.2	7.4	7.4	11.0	11.4	11.4	11.2	11.4	72	52	42	56	1
SOIL	3	—11—	0	0	0	0	0	9.5	6.8	4.5	4.2	4.0	7.6	7.4	7.2	7.4	7.4	11.0	11.6	11.6	11.4	11.6	66	52	42	48	1
	4	—11—	0	0	0	0	0	9.8	7.3	4.8	4.6	4.3	7.6	7.4	7.2	7.4	7.4	11.0	11.6	11.6	11.4	11.6	58	52	42	57	1
	5	—11—	0	0	0	0	0	9.6	6.9	4.2	4.0	3.8	7.6	7.4	7.2	7.4	7.4	11.2	11.8	11.8	11.6	11.6	68	48	42	52	1
	6	—11—	0	0	0	0	0	9.3	6.5	4.4	4.2	4.0	7.6	7.4	7.2	7.4	7.4	11.2	11.8	11.8	11.6	11.6	62	56	40	50	1
CONTROL	19	$Tap H_2O$	0	0	0	0	0	9.4	7.2	4.6	4.4	4.2	7.2	7.2	7.0	7.2	7.2	11.0	11.2	11.2	11.0	11.0	54	52	47	52	11
	20	—11—	0	0	0	0	0	9.6	6.8	4.3	4.1	4.0	7.2	7.2	7.0	7.2	7.2	11.0	11.2	11.2	11.0	11.0	54	52	44	63	11
	21	—11—	0	0	0	0	0	9.3	7.1	4.7	4.5	4.3	7.2	7.2	7.0	7.2	7.2	11.2	11.4	11.4	11.2	11.4	50	48	44	57	11
	22	—11—	0	0	0	0	0	9.5	6.6	4.5	4.4	4.2	7.2	7.2	7.0	7.2	7.2	11.2	11.4	11.1	11.2	11.2	52	48	47	52	110
	23	—11—	0	0	0	0	0	9.7	6.7	4.2	4.0	3.8	7.2	7.2	7.2	7.2	7.2	11.2	11.6	11.6	11.4	11.4	46	52	45	56	110
	24	—11—	0	0	0	0	0	9.6	6.9	4.3	4.1	3.9	7.2	7.2	7.0	7.2	7.2	11.2	11.6	11.6	11.4	11.4	46	52	42	46	111

Sample Description: A WHITE CLAY-LIKE MATERIAL
Average Weight: 2.61 Mean Length: 68 Longest: 78 Shortest: 53 Ratio (long/short): 1.5:1
Number of organisms per chamber: 5 Ratio of flesh to water: 0.8 Comments: 17L/TANK

State of Washington Department of Ecology

ORIGINAL TO: LAB FILES
COPIES TO: M McCALL
J. OBERLANDER

ENVIRONMENTAL LABORATORY DATA SUMMARY METALS

SOURCE LILYBLAD AT TACOMA PROGRAM NUMBER 030-1-572

DATE COLLECTED 2/22/82 RECEIVED 4/12/82 COLLECTED BY J. OBERLANDER

Sample (Log) Number	Units	Standard Deviation ±%	82-3-359							
Station:			82-747	Pond	Area /	Test	hole	#11	Soil	
Ag-EPA	mg/L	10	<0.04							
Ba-EPA	mg/L	10	<0.6							
Fe										
Ni-EPA	mg/L	10	0.12							
-EPA	mg/L	10	<0.02							
Cd-EPA	mg/L	10	0.03							
Pb-EPA	mg/L	10	0.20							
Mn										

NOTE: Dissolved Metals: Those that will pass through a 0.45 μ membrane filter
Suspended Metals: Those retained by a 0.45 μ membrane filter
Total Metals: Those found in the unfiltered, rigorously acid digested sample
mg/L = ppm = μg/ml
μg/L = ppb = ng/ml
mg/kg = ppm - μg/gm
μg/kg = ppb = ng/gm
"<" is "less than" and ">" is "greater than"

ECY 040-2-82 (a)
Rev. 8/81

1/9 SUMMARIZED BY [signature] DATE 5/13/82

REVIEWED BY [signature] DATE 5/17/82

Washington Department of Ecology

ENVIRONMENTAL LABORATORY DATA SUMMARY METALS

ORIGINAL TO: LAB FILES
COPIES TO:

SOURCE Lilyblad-Tacoma PROGRAM NUMBER 030/11/572

DATE COLLECTED 2/22/82 RECEIVED 3/18/82 COLLECTED BY J. Oberlander

Sample (Log) Number	Units	Standard Deviation ±%	82-1096								
Station			82-359								
Hg	mg/kg	15	<0.1	Pond	Area	/	Test	Hole	#11	Soil	
As											
Se											
Ba											
Ag											
Na											
K											
Ca											

NOTE: Dissolved Metals: Those that will pass through a 0.45 μ membrane filter
Suspended Metals: Those retained by a 0.45 μ membrane filter
Total Metals: Those found in the unfiltered, rigorously acid digested sample

mg/L = ppm = μg/ml
mg/kg = ppm = μg/gm
μg/L = ppb = ng/ml
μg/kg = ppb = ng/gm

"<" is "less than" and ">" is "greater than"

SUMMARIZED BY C. Wise DATE 5/13/82

REVIEWED BY [signature] DATE 5/17/82

ECY 040-2-82 (c)
Rev. 8/81

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DONALD MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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June 11, 1982

Mr. Glen Tegen
Lilyblad Petroleum, Inc.
2244 Port of Tacoma Road
Tacoma, Washington 98401

Subject: Undeveloped Ten Acre Site East of Poligen Tank Farm, 1700 Block Alexander Avenue, Tacoma

Dear Glen:

During the last several months, we have worked with Greg Allen of your staff to review fill material deposited in this area which you recently purchased. The evaluations have been an attempt to establish any present or potential environmental liabilities associated with the materials; both at the site or potentially migrating off-site. Then, if possible, make recommendations that would work to reduce impacts.

The task has been slow because we lacked factual information as to what waste was dumped here and where it came from.

One test result would give us direction on other needed tests. Your cooperation and assistance to dig test pits was of considerable help.

Our review cannot be considered an indepth study, but the following facts and comments can be drawn.

1. I have worked as an inspector in the Tacoma area for eight years and have observed some of the filling activities in this general area.

   To the best of my knowledge, waste filling has occurred upon the native river delta/tidal marsh soils. Reportedly, some of this area may have once been tilled and used as agricultural land. A 1957 air photo shows part of the area as a small lake. The Hart Crowser and Associates, Inc., report, Geology of the Port of Tacoma, is a good reference which describes soil conditions. The Dames and Moore report, 1982 Historic Land Use Survey of the Tacoma Tideflats, also adds some insight. Thus, the fill material of concern would probably be no deeper than the reach of the back hoe used for the test pits.

2. Present surface water and upper groundwaters on your new property in the porous fill may move towards the east and be pumped (Buffelen Woodworking Company pump stations) to the Lincoln Street Ditch. This ditch discharges to the Blair Waterway.

Surface drainage to the far west of the Poligen Area reaches a storm catch basin near 11th Street which is piped to the Hylebos Waterway.

To totally define the hydrology in this area of mixed fill would be very difficult.

3. Fill material in this ten-acre area varies from dredge sand on the south, old domestic garbage and concrete on the east, woodwaste and possibly a little bag house dust in the middle and north; plus stone blocks, wood waste and a considerable amount of white clay-like substance along the west border (see field notes on Test Pits for detail, memo enclosed).

4. I surmise the white clay-like substance extends well under your Poligen Property and reaches mid-center of this new property; probably, in a close arc around the pond that existed during the investigation.

5. The white clay material may have come from Hooker Chemicals, Tacoma, Organics Plant waste pond closed/removed several years ago.

   Our test data on a composite of this material reflects the levels of organics to be low. A fish bioassay test on the material reflects the material to be a dangerous waste per WAC 173-303. This category of solid waste was only regulated as of March 11, 1982.

   The high salt content of the substance may account for the fish kill. We use fresh water organism for the bioassay test.

   Mr. Lyle Feller, of Hooker Chemical, Tacoma, who also sampled this material and has related his test data. He found the organics levels way below what was thought to have been in their pond sludge, but the conductivity may be related to their salt brine production method. We do know as a fact organics plant sludge was dumped at several sites; though, the site for this area was thought to be more toward the west.

6. A very detailed priority pollutant scan from a composite water sample out of the site pond (1-27-82) may or may not reflect groundwater/or run-off pollutants. Pollutants (oils) on the surface of this pond came, in a large part, from your own tank farm loading rack next door.

   These identified chemicals and concentrations also could vary related to possible chemical stratification in this pond.

To-date, the numbers reflected in this priority pollutants liquid scan are higher than any other liquid data gathered in Commencement Bay. The "priority pollutants" concentrations (typed chemicals) were under 1 part per million. Some of the same water sample chemicals were also found in the white clay-like sludge. A majority of the chemicals are also found in oils, solvents and degreasers. The liquid and soil samples taken on January 6, 1982, found Tetrachloroethylene at 4. and 7. ppm, respectively.

The test hole #11 soil sampling data (February 22, 1982) showed interesting levels of total Arsenic and Mercury. However, the EP toxicity levels were below the federal RCRA limits.

A sampling of flows discharged by the Buffelen Pump Station and towards 11th Street for priority pollutants and heavy and trace metals would be most useful.

7. A "control (baseline) sample(s)" are most difficult to establish anywhere in the Tacoma Tideflats because of the many potential current sources, past practices, airborn fallout, etc.

   Standards and/or health/environmental limits are not set or even known for many chemicals.

Washington Department of Ecology (WDOE) posture for this ten-acre site is that development of this site may proceed, encouraging development which will provide a tight, impervious cap with an impervious side seal; shallow monitoring wells with french/drain laterals and a tightly lined stormwater system away from the area. This will hopefully provide entombment with monitoring access and potential limited pumping accessibility.

If, in the future, a serious environmental problem were to develop, additional steps might be requested.

I am not totally familiar with all the aspects of the Federal Superfund Legislation and the U. S. Environmental Protection Agency's (EPA's) "game plan" for the Commencement Bay area. I would suggest a scheduled sit down review with them. Phil Wong, EPA, at (206) 442-7216, would be the contact.

During our February 5, 1982, meeting, we briefly discussed steps involving WDOE on new plant construction at this site. We would require engineering plans and specifications for review and approval 180 days prior to construction. It is necessary that a SEPA checklist be completed and filed with the city planning department. Prior to operation of the facility, we would require a SPCC plan be completed. If the facility requires a waste discharge permit or hazardous waste TSD permit, they will also have to be started prior to site operation. Enclosed are several construction guidelines that you will find helpful.

If you should have any questions on these matters, please contact me at (206) 753-0135 in Olympia.

Sincerely,

Jim Oberlander
Environmental Quality Inspector

JO:si

Enclosures

cc: Ken Lepic, Chem Security Systems, Inc.
Ron West, ChemPro, Seattle
Lyle Feller, Hooker Chemical Co.
Phil Wong, EPA
Doug Pierce, Tacoma-Pierce County Health Department
Frank Monahan, WDOE

ROUTING SLIP

- [x] FOR YOUR INFORMATION
- [ ] FOR ACTION
- [ ] FOR APPROVAL
- [ ] FOR SIGNATURE
- [ ] PER OUR CONVERSATION
- [x] PER YOUR REQUEST
- [ ] READ AND RETURN
- [ ] READ AND ROUTE TO FILES
- [ ] ATTACH MATERIAL AND RETURN

TO
Greg Allen, Lilyblad Petroleum.

ADDRESS
P.O. Box 1381, Tacoma, WA. 98401

FROM
Jim Oberlander

PHONE NO.

DATE
10-26-82

SUBJECT

COMMENTS

FORM S.F. 80 (6/76)

3

Department of Ecology

ENVIRONMENTAL LABORATORY DATA SUMMARY METALS

ORIGINAL TO: LAB FILES
COPIES TO: Jim Oberlander ~~Will Abercrombie~~

SOURCE Pollock / Lily Blad, Tacoma [So. Pond along Wa. Educators] PROGRAM NUMBER

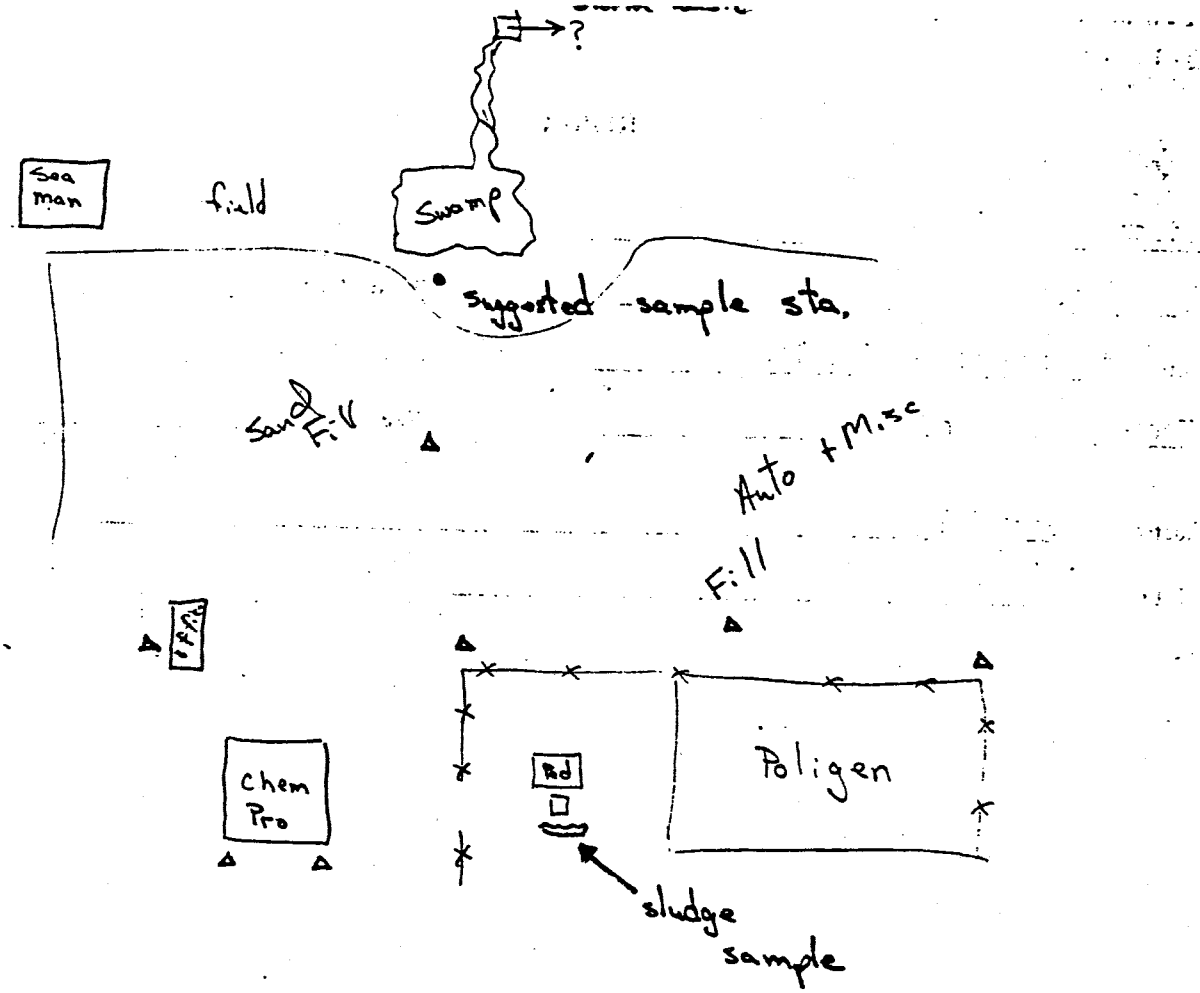
DATE COLLECTED 10-15-82 RECEIVED _____ COLLECTED BY Jim Oberlander, Greg Allen

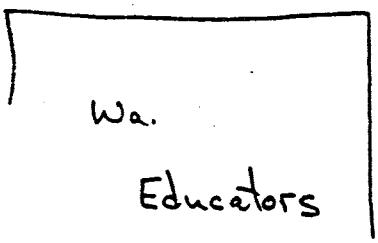
Sample (Log) Number	Units	Standard Deviation ± %	5478							
Station:			—							
Cu, Total	mg/L		0.05							
Zn, Total	mg/L		0.69							
Fe										
Ni, Total	mg/L		<0.02							
Cr, Total	mg/L		<0.01							
Cd, Total	mg/L		0.005							
Pb, Total	mg/L		0.16							
Mn										
pH			7.1							

NOTE: Dissolved Metals: Those that will pass through a 0.45 μ membrane filter
Suspended Metals: Those retained by a 0.45 μ membrane filter
Total Metals: Those found in the unfiltered, rigorously acid digested sample
mg/L = ppm = μg/ml
μg/L = ppb = ng/ml
mg/kg = ppm = μg/gm
μg/kg = ppb = ng/gm
"<" is "less than" and ">" is "greater than"

ECY 040-2-82 (a)
Rev. 8/81

SUMMARIZED BY G. Freeman DATE 10-21-82
REVIEWED BY _____ DATE 10-21-82





Δ monitoring Wells

10-15-91

Stu Springer 11-22-82

Deposition to John Koukkis

May + July 1973

73 – 76 Noticed dumps

Kiln bottoms → Fine flake lime precipitated

Mixed w/ fluff (car body) from Gen. Metals

Don Olsen was doing the dumping – lime bottoms.

To his knowledge during his years Hooker did not dump there!

Before 1973 – Tide Swampland

DOE had pictures of the area detailing that time period.

GLENN, 12/10/82

Ann Bailey from AM Test called with these results;

Organic Chlorides: less than 5 ppm

EP Toxicity: Arsenic .03 ppm
All other metals below maximum allowable levels.

These tests were done on the Poligen sludge dumped @ Cook's.

Written report should come our way by 12/15/82 or 12/16/82.

Greg

August 9, 1983

Glenn

Mr. Jim Oberlander
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11
Olympia, WA 98504

This letter will serve as notification that the lime sludge at Coski's has been removed and transported to E.S.I. in Idaho for disposal.

Attached for your perusal are copies of the hazardous waste manifests used on the shipments.

If you have any questions, call me at 572-4402.

Sincerely,

Greg Allen

Greg Allen

GA:kg
Attachment

P O Box 1381
2244 Port of Tacoma Road
Tacoma, Wa 98401
Telephone (206) 572 4402
Seattle (206) 682 1990
Washington (800): 562 8424
Telex 152472

515 116th N E
Suite 101
Bellevue, Wa 98004
Telephone (206) 454 7454

OCC '78-79, 81-83, 85
WQ Enforcement

INHOUSE MEMO TO: Lloyd Taylor
FROM: Frank Monahan
DATE: March 25, 1982
SUBJECT: Department of Ecology Docket # DE 81-153 issued to Hooker Chemical Corporation on January 23, 1981

IN INHOUSE FILE

Existing Source File

Box 401

M/S 533

JUN 07 1982

Mr. Greg Allen
Plant Manager
Lilyblad Petroleum, Incorporated
P.O. Box 1281
Tacoma, Washington 98401

Dear Mr. Allen:

In your letter of May 24, 1982, you stated that Lilyblad Petroleum, Inc, is planning to move all of its hazardous waste activities from the present plant site at 2244 Port of Tacoma Road in Tacoma, Washington to a new site at 1701 Alexander Avenue in Tacoma. This change in operations will have a two-fold effect regarding a permit to handle hazardous waste under the Resource Conservation and Recovery Act (RCRA).

First, the plant at 12701 Alexander Avenue would not be considered an existing facility under RCRA since this site was not in operation as a hazardous waste management facility prior to November 19, 1980 (40 CFR 260.10). Therefore, as a new facility you must submit both Parts A and B of the permit application at least 180 days before you expect to commence construction of the new hazardous waste storage and treatment facilities. In addition, you must have recieved a finally effective RCRA permit before beginning construction of such facilities [40 CFR 122.22(b)].

Second, your existing facility at 2244 Port of Tacoma Road is presently covered under Iterim Status. If you plan to close the hazardous waste management portion of the facility it will be necessary to follow the requirements for closure as outlined in 40 CFR 265 Subpart G. The closure plan that you have or file as required under Interim Status must be submitted to EPA at least 180 days prior to the date of closure.

In addition, you may wish to review the Department of Ecology's hazardous waste regulations to determine if there are any differences that will affect your operations.

We are presently reviewing the Part A application that you submitted with your May 24, 1982 letter and will be contacting you regarding minor changes.

Sincerely,

Kenneth D. Feigner, Chief
Waste Management Branch

cc: Chuck Rice, EPA
Jim Oberlander, DOE
WOO

PDay:mar 1078H 6/3/82

CONCURRENCES								
SYMBOL								
SURNAME	DAY	STAMNES	FEIGNER					
DATE	6/3/82	6/3/82						

Adams
Box 393

OCCIDENTAL CHEMICAL CORPORATION

1980 Post Oak Boulevard, POC II

Houston, Texas 77056

July 14, 1982

Dr. Richard T. Dewling
Regional Administrator
Region II
Environmental Protection Agency
26 Federal Plaza, Room 900
New York, New York 10278

Attention: RCRA Financial
Requirements

Mr. Charles R. Jeter
Regional Administrator
Region IV
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Attention: RCRA Financial
Requirements

Mr. Valdas V. Adamkus
Regional Administrator
Region V
Environmental Protection Agency
Federal Building
230 South Dearborn
Chicago, Illinois 60604

Attention: RCRA Financial
Requirements

Mr. Dick Whittington
Regional Administrator
Region VI
Environmental Protection Agency
First International Building
1201 Elm Street
Dallas, Texas 75270

Attention: RCRA Financial
Requirements

Mr. John J. Franke, Jr.
Regional Administrator
Region VII
Environmental Protection Agency
324 East 11th Street
Kansas City, Missouri 64106

Attention: RCRA Financial
Requirements

Ms. Sonia F. Crow
Regional Administrator
Region IX
Environmental Protection Agency
215 Fremont Street
San Francisco, California 94105

Attention: RCRA Financial
Requirements

Mr. John R. Spencer
Regional Administrator
Region X
Environmental Protection Agency
1200 6th Avenue
Seattle, Washington 98101

Attention: RCRA Financial
Requirements

Texas Department of Water Resources
Post Office Box 13087 - Capitol Station
Austin, Texas 78711

Attention: Robert G. Brydson, Jr.
Permits Division

Dear Sirs:

On behalf of Occidental Chemical Corporation, 1980 Post Oak Boulevard, POC II, Houston, Texas 77056, enclosed are two certificates of insurance, each titled Hazardous Waste Facility Certificate of Liability Insurance.

In accordance with the financial responsibility requirements under Subpart H of 40 CFR 264.147 or CFR 265.147 for owners or operators, we hereby submit the enclosed Certificates of Liability Insurance to demonstrate the required liability coverage for sudden accidental occurrences for our Occidental Chemical Corporation Treatment/Storage/Disposal Hazardous Waste Management Facilities.

Yours truly,

OCCIDENTAL CHEMICAL CORPORATION

Ronald B. Casriel
Vice President and Treasurer

Enclosures

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

July 13, 1982

1. National Union Fire Insurance Company of Pittsburgh, Pennsylvania , (the "Insurer"), of 70 Pine Street, New York, New York 10270 hereby certifies that it has issued liability insurance covering bodily injury and property damage to Occidental Chemical Corporation, (the "insured"), of 1980 Post Oak Boulevard, POCII, Houston, Texas 77056 in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at

REGION II

NYD000824482
Niagara Falls Plant Site
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

NYD000824482
Hyde Park Lagoons
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

NYD000824482
HCl Neutralization Ponds (at Newco)
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

CAD077355378
Oxychem Chowchilla Plant Site
Agricultural Products
P.O. Box 997
Chowchilla, California 93610

CAD051183739
Oxychem Courtland Plant Site
Agricultural Products
P.O. Box 155
Courtland, California 95615

CAD009184508
Oxychem Lathrop, CA Plant Site
Agricultural Products
P.O. Box 198
Lathrop, California 95330

REGION X

WAD009242314
Tacoma, WA Plant Site
Hooker Industrial & Specialty Chemicals
P.O. Box 2157
Tacoma, Washington 98401

for "sudden accidental occurrences." The limits of liability are $1,000,000 "each occurrence" and "annual aggregate", exclusive of legal defense costs. The coverage is provided under policy number GLA9567634, issued on June 17, 1982. The effective date of said policy is April 1, 1982.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

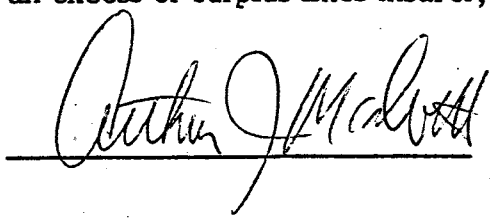
(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147 (f) or 265.147 (f).

(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA), the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.



MR. ARTHUR J. McDEVITT
Regional Casualty Manager, Authorized Representative
of National Union Fire Insurance Company
of Pittsburgh, Pennsylvania
3550 Wilshire Boulevard
Los Angeles, California 90010

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

July 13, 1982

1. American Centennial Insurance Company, (the "Insurer"), of 55 Madison Avenue, Box 1319 R, Morristown, New Jersey 07960 hereby certifies that it has issued liability insurance covering bodily injury and property damage to Occidental Chemical Corporation, (the "insured"), of 1980 Post Oak Boulevard, POCII, Houston, Texas 77056 in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at

REGION II

NYD000824482
Niagara Falls Plant Site
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

NYD000824482
Hyde Park Lagoons
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

NYD000824482
HCl Neutralization Ponds (at Newco)
Hooker Industrial & Specialty Chemicals
Buffalo Avenue & 47th Street - P.O. Box 344
Niagara Falls, New York 14302

CAD077355378
Oxychem Chowchilla Plant Site
Agricultural Products
P.O. Box 997
Chowchilla, California 93610

CAD051183739
Oxychem Courtland Plant Site
Agricultural Products
P.O. Box 155
Courtland, California 95615

CAD009184508
Oxychem Lathrop, CA Plant Site
Agricultural Products
P.O. Box 198
Lathrop, California 95330

REGION X

WAD009242314
Tacoma, WA Plant Site
Hooker Industrial & Specialty Chemicals
P.O. Box 2157
Tacoma, Washington 98401

for "sudden accidental occurrences." The limits of liability are $1,000,000 excess of $1,000,000 "each occurrence" and "annual aggregate", exclusive of legal defense costs. The coverage is provided under policy number XC001098, issued on June 17, 1982. The effective date of said policy is April 1, 1982.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

   (a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147 (f) or 265.147 (f).

(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA), the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Philip Arreguin BY

MR. PHILLIP ARREGUIN
Vice President Authorized Representative
of American Centennial Insurance Company
3325 Wilshire Boulevard
Los Angeles, California 90010

Carie
Box 399
79-84
HW

123 William Street
New York, New York 10038
Telephone: (212) 553-8000

HARTFORD SPECIALTY

HARTFORD SPECIALTY COMPANY • AN AFFILIATE OF THE HARTFORD INSURANCE GROUP

September 29, 1982

Regional Administrator
United States Environmental Protection Agency
1200 6th Avenue
Seattle, WA 98101

Re: ~~Reichhold Chemicals, Inc.~~
Hazardous Waste Facility Certificate of Insurance

Dear Sir:

The attached Hazardous Waste Facility Certificate of Insurance cancels and supercedes the previous Amendatory Endorsement Pollution Liability filing made for the above captioned insured.

A Certificate of Insurance is included for each applicable facility in Region X.

Very truly yours,

Norma Marshall

Norma Marshall, Account Executive
Hartford Specialty Company

NM:mml-2
0828A

HAZARDOUS WASTE FACILITY CERTIFICATE OF INSURANCE

THE HARTFORD

1. The Hartford Fire Insurance Company, (the Insurer) of Hartford Plaza, Hartford, Connecticut 06115 hereby certifies that it has issued liability insurance covering bodily injury and property damage to Reichhold Chemicals Inc., (the insured) of 525 North Broadway, White Plains, NY 10603 in connection with the insured's obligation to demonstrate financial responsibility tender 40 CFR 264.147 or 265.147. The coverage applies at:

EPA Identification Number: See Over

Name: See Over

Address: See Over

for sudden and accidental occurrences. The limits of liability are $ See Over each occurrence and $ See Over annual aggregate, exclusive of legal defense costs.

The coverage is provided under Policy Number 10 CLR B34072W, issued on July 15, 1982 The effective date of said policy is January 1, 1982.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.147(f).

(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA), the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrators of the EPA Regions in which the facilities are located.

OFFICE OF THE ATTORNEY GENERAL
K Sikenberry, Attorney General
Te...ple of Justice, Olympia, Washington 98504

December 6, 1982

Mr. Don Herron
Pierce County Prosecutor
930 Tacoma Avenue South
Tacoma, Washington 98402

Re: Barney Coski Dump Site
5403 Pendle-Lange Road
Tacoma, Washington 98422

Dear Mr. Herron:

I am an assistant attorney general assigned to represent the Department of Ecology. I am writing this letter on the Department's behalf in order to request that your office file misdemeanor charges against Mr. Bernard Coski for his continuing violation of RCW 79.95.240.

RCW 70.95.240 provides that

> After the adoption of regulations or ordinances by any county, city, or jurisdictional board of health providing for the issuance of permits as provided in RCW 70.95.160, it shall be unlawful for any person to dump or deposit or permit the dumping or depositing of any solid waste onto or under the surface of the ground or into the waters of this state except at a solid waste disposal site for which there is a valid permit: Provided, That nothing herein shall prohibit a person from dumping or depositing solid waste resulting from his own activities onto or under the surface of ground owned or leased by him when such action does not violate statutes or ordinances, or create a nuisance. Any person violating this section shall be guilty of a misdemeanor.

Mr. Coski does not have a solid waste disposal site permit as required by RCW 70.95.170. Mr. Coski has continued to allow dumping of solid wastes on his property for many years without obtaining the requisite permit.

State of Washington Department of Ecology

TELEPHONE REPORT

Call From: Greg Allen
Lilyblad Tacoma

Date: 12-8-82

Time: (am) pm (circle)

Phone No.:

Call To:

Subject: Poligen Sludge

Summary:

Fish Bio Assay Test on Tacoma Lime
all fish dead within 2 hrs.

Poligen Sludge Neutralized
Bio Assay fish lived 4 days

Organics being run - data by Friday

Suggested Look at 303.910 Petitions

Will send guideline on petition

Told him our lab quick - weekend
Bio Assay also on Tacoma Lime
Waste killed all fish - pH @ 11.5

Jim Oberlander
(Signature) (Date)

ECY 010-73

State of Washington
Department of Ecology

INSPECTION REPORT

J. Jewett

To Dist III Files

Inspector D. Anderson

Date of Visit 12-9-82

Permit Number

Name of Entity Polygen / Chempro site

Permit Expires

City TACOMA County PIERCE

New Industry

Person Contacted none

Type of Facility

Receiving Water

Type of Treatment System

Operation: ☐ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe Drive thru - noticed Pipe-fitters working at new Polygen site - Valves, pipes ~~etc.~~ etc. being laid. Also Chempro looked ok - no spillage outside dike - also noted new concrete mix tank on site - may will be used for ph control & mixing

CC

ECY 040-2-116

JOHN SPELLMAN
Governor

Poligen

DONALD W. MOOS
Director

392A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

RECEIVED
'82 DEC 15 A10:47
OLYMPIA, WA.

December 14, 1982

Mr. Greg Allen
Lilyblad Petroleum
P.O. Box 1381
Tacoma, Washington 98401

Subject: Poligen Sludge

Dear Greg:

Thank you for informing me on December 3, 1982 that the waste "Poligen" sludge (dangerous waste) illegally moved to the Coski Landfill has a plastic cover to protect it from storm water contact. You also stated several laboratory tests have begun to characterize both the Poligen Site sludge and waste from Tacoma Lime which may be related.

Those tests we have discussed and feel appropriate at this time are:

	Poligen Sludge (Coski)	Tacoma Lime Waste *
pH	x	x
pH Over Time	x	x
Conductivity	x	x
Fish Bioassay 96 hr.	x	x
Neutralized- Fish Bioassay 96 hr.	x	
Organics Indentification (Priority Pollutants)	x	
Other necessary tests		
RCRA Heavy Metals	x	
Halogenated Hydrocarbons (Procedure enclosed)	x	
Possible additional test that EPA would request		
RCRA EP Toxic Metals	x	
RCRA Pesticides	x	
Ignitability	x	

* (Data maybe available from manufacturer.)

Samples must be representative composites and saved for possible additional test.

~~Chuck Meade~~

U.S. ENVIRONMENTAL PROTECTION AGENCY Jim Oberlander

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 524

MAY 12 1983

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED

MAY 31 1983

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

David Scholes, Works Manager
Hooker Chemicals & Plastics Corp.
P.O. Box 2157
Tacoma, Washington 98401

Dear Sir:

The U.S. Environmental Protection Agency (EPA) is investigating the source(s) of contamination of the City of Tacoma's drinking water wells 9A and 12A. Those wells have been contaminated by several types of chlorinated solvents, most notably 1,1,2,2-tetrachloroethane, trichloroethylene (TCE), and 1,2-transdichloroethylene.

We are aware that the Hooker Chemical Company in Tacoma manufactured tetrachloroethane as an intermediate product in the making of trichloroethylene from 1947 to 1973. We have reviewed records submitted by Hooker on file with both EPA and the Washington Department of Ecology regarding the disposal of waste solvents and lime sludge related to the production of chlorinated solvents.

EPA is seeking to obtain certain additional information from you on this matter. As authorized under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund), EPA requests that the Hooker Chemicals & Plastics Corp. provide the following information regarding its Tacoma, Washington operations:

1. List the companies that had contracts to haul lime sludge generated in the solvents manufacturing process to each of the following sites:

   a. Petarcik Site (1972) - 911 Pacific Hwy. W., Tacoma, Wa.

   b. Dauphin Site (1972-1975) - 1801 Alexander Ave., Tacoma, Wa.

2. List the dates of all shipments of the lime sludge from Hooker property to the City of Tacoma Landfill. For each case, list the approximate volume of waste hauled and the name of the transporting company.

3. The information EPA currently has indicates that Tucci & Sons had a contract during 1972 to haul lime sludge from Hooker property. To what site was Tucci & Sons to haul the sludge, what dates was it picked up, and what was the approximate volume in each case? (Omit information already provided in #2 above.)

4. How did Hooker confirm that each shipment of sludge designated to go to the City of Tacoma Landfill actually went there? For example, Hooker may have copies of the weight receipts from the Landfill. Likewise, how did Hooker confirm that lime sludge hauled from Hooker property designated to go the the following locations was actually disposed of there?

   a. Petarcik Site (1972) - 911 Pacific Hwy. E., Tacoma, Wa.

   b. Marine Drive Site (1973) - 1902 Marine View Drive, Tacoma, Wa.

   c. Alexander Ave. Site (1972-1975) - 1801 Alexander Ave., Tacoma, Wa.

   d. Dauphin Site (1974) - 2911 Pacific Hwy E., Tacoma, Wa.

5. Hooker records indicate that for many years drums of waste solvent from the tetrachloroethane-trichloroethylene process were disposed of in Commencement Bay. Were any containers of this waste solvent ever ultimately disposed of on land? If so, what company removed them from Hooker property, on what dates, what was the approximate number of drums in each case, and where were they reportedly disposed of?

6. Hooker occasionally purchased tetrachloroethane from outside sources. What were the names and addresses of the outside suppliers from which Hooker purchased this product?

Please send the requested information no later than 30 days from receipt of this letter. If the records are voluminous, we will consider a request to review all the records in Hooker Chemicals & Plastic Corporation's offices and selectively designate the records to be provided or copied. In order to honor such a request, we will need to receive it no later than 15 days from receipt of this letter.

We appreciate your assistance in this matter. Please contact Chuck Shenk in the Toxic Substances Control Branch or Cheryl Koshuta in the Office of Regional Counsel if you have any questions. They can be reached at (206) 442-5153 and 442-4218 respectively.

Sincerely,

Robert A. Poss, Chief
Toxic Substances Control Branch
Air and Waste Management Division

cc: Lyle Feller, Hooker Chemicals and Plastics Corp.

Vim Oberlander

Occidental Chemical Corporation

REGISTERED MAIL
RETURN RECEIPT REQUESTED

CONFIDENTIAL

June 13, 1983

Robert A. Poss, Chief
Toxic Substance Control Branch
Air and Waste Management Division
U.S. Environmental Protection Agency
Region X
1200 Sixth Avenue, M/S 524
Seattle, Washington 98101

Dear Mr. Poss:

This communication is in response to your letter of May 12, 1983 requesting certain information from Occidental Chemical Corporation (OCC) (formerly Hooker Chemicals & Plastics Corp.) regarding prior disposal of waste solvents and lime sludge related to the production of chlorinated solvents. The following answers are numbered to correspond with the questions in your May 12 letter.

1. a) Petarcik Site (1972) - 911 Pacific Hwy. W., Tacoma, Washington

Burrows Construction Co.
1601 East 27th
Tacoma, Washington 98421

b) Donald Oline Site* (1972-1975) - 1801 Alexander Ave., Tacoma, Wa

Burrows Construction Co.
1601 East 27th
Tacoma, Washington 98421

Murray E. Fulton
d/b/a Hathaway Excavating Company
6242 24th Street, N.E.
Tacoma, Washington 98422

2. See Attachments. Weights presented for disposed material represent a wet slurry containing about 25-35% solids.

*Please note that OCC refers to the site at 1801 Alexander Avenue as the "Donald Oline" or "Alexander Avenue" site.

Special Environmental Programs
Hooker Chemical Center 360 Rainbow Boulevard South Box 726 Niagara Falls, New York 14302 716 [illegible]

CONFIDENTIAL

3. Tucci & Sons, Inc., did not transport any lime sludge from Occidental property during 1972, or at any other time. During the period February 17 through April 30, 1972 Tucci & Sons merely provided a loader and operator to load lime sludge into containers for transportation to the City of Tacoma Landfill. The City of Tacoma owned the containers and provided transportation.

4. Shipments of lime sludge to the City of Tacoma Landfill occurred during three time frames:

1) February 17, 1972 through April 30, 1972;
2) December 13, 1977 through December 23, 1977;
3) August 18, 1978 through August 30, 1978

For the first time frame Occidental received from the City of Tacoma Refuse Utility a listing showing the number of loads per day and the net weight for each load. For the other two time frames Occidental has copies of the Landfill's weigh tickets for each load. During disposal of lime sludge at the Petarcik, Marine Drive and Alexander Avenue (also known as the Donald Oline Site) sites Occidental personnel occasionally performed site inspections of the dumping procedures. The Dauphin site was never used by Occidental for the disposal of lime sludge.

5. Occidental's records do not indicate that drums of waste solvent from the tetrachloroethane/trichloroethylene process were at any time disposed of in Commencement Bay. Occidental's records also do not indicate that drums of waste solvent from this process were ever disposed of on land or landfill. It is important to note that while this process operated there was no waste solvent due to the ability to recycle this material. When this process was shut down, a few drums of waste solvent remained. These were disposed of at a reclaiming company not located in the Tacoma area.

6. Occidental's records show that drummed crude tetrachloroethane was purchased during 1957 and used in the production of trichlorethylene. The empty drums were subsequently sold. Although available records do not identify the supplier of the tetrachloroethane or the purchaser of the empty drums, interviews with company personnel indicate that some of the purchase was from a military surplus program.

CONFIDENTIAL

We trust that the above satisfactorily addressed your information request. Should you have any additional questions on this matter please address them to:

Michael J. Rudick
Associate General Counsel
Occidental Chemical Corporation
360 Rainbow Boulevard South
Niagara Falls, New York 14302

Sincerely,

Michael J. Rudick
Associate General Counsel

1213MJRac

ATTACHMENT

CONFIDENTIAL

Item 2:

Date	Total weight of lime sludge Disposed (from weigh tickets)
12-13-77	458.56 tons
12-14-77	461.25 tons
12-15-77	209.96 tons
12-16-77	35.23 tons
12-19-77	349.77 tons
12-21-77	212.84 tons
12-22-77	50.04 tons
12-23-77	151.33 tons
08-18-78	419.40 tons
08-21-78	41.38 tons
08-21-78	375.15 tons
08-25-78	438.63 tons
08-28-78	353.42 tons
08-29-78	451.19 tons
08-30-78	145.65 tons

Transporter for all above dates:

Woodworth & Company
1200 East D. Street
Tacoma, Washington 98421

1213eSIWac4

Robert Hamilton
City Attorney

[redacted]
Acting Land Use
Administrator

Shoreline Regulatory Order SRO-83-123
Illegal Landfill - Vicinity of Marine
View Drive and Lincoln Avenue

July 22, 1983

On June 3, 1983, a Shoreline Regulatory Order was issued to the Buffelen Woodworking Company, N. Douglas Storey and Donald Oline ordering the removal of landfill materials placed into the Hylebos Waterway and on uplands located in the vicinity of Marine View Drive and Lincoln Avenue extended by June 20, 1983, (see attachment). To date, the landfill has not been removed. Due to the continuation of this shoreline violation, the City Attorney's office is requested to initiate the appropriate legal procedures to ensure correction of the subject violation.

In addition, it should be noted that the Army Corps of Engineers also may be initiating action against Buffelen Woodworking Company and Donald Oline (see the attached letters). The City may wish to investigate partaking in a joint action with the Corps, as well as the State Department of Ecology, in this matter.

Should you have any questions, please contact Dick Gilmur or Tom Dolan of this department at 591-5363.

GAH:DG:sh

cc: Michael Bowlus
Army Corps of Engineers

Darrell Anderson
Department of Ecology

Attachments

CITY OF TACOMA

IN THE MATTER OF THE COMPLIANCE BY BUFFELEN)
WOODWORKING CO., N. DOUGLAS STOREY, AND)
DONALD OLINE with Chapter 90.58RCW and)
Chapter 1310 of the Land Use Regulatory)
Code of the City of Tacoma)

ORDER
SRO-83-123

To: Buffelen Woodworking Company
c/o Mark R. Patterson
Kane, Vandeberg, Hartinger and Walker
First Interstate Plaza
Tacoma, WA 98402

N. Douglas Storey
2215 Marine View Drive
Tacoma, WA 98422

Donald Oline
1940 Marine View Drive
Tacoma, WA 98422

RCW 90.58.140(2) reads in part as follows: No substantial development shall be undertaken on shorelines of the state without first obtaining a permit from the government entity having administrative jurisdication under this chaper.

Chapter 13.10.030.KK of the Land Use Regulatory Code reads as follows: "Substantial development means any development of which the total cost or fair market value exceeds one thousand dollars, or any development which materially interferes with the normal public use of the water or shorelines of the city." The Land Use Regulatory Code further defines development in Chapter 13.10.030.E as "dumping; filling; stockpiling of materials; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to the provisions of this chapter at any state or water level."

Chapter 13.10.130.D of the Land Use Regulatory Code identifies the activity of landfill as requiring a Shoreline Management Substantial Development Permit within the "S-10" Port Industrial Shoreline District.

Chapter 13.10.030.KK.14 and Chapter 13.10.030.JJ of the Land Use Regulatory Code identifies the activity of stockpiling of materials as requiring a valid Shoreline Management Substantial Development Permit within all of the City's Shoreline Districts.

Landfill materials have been placed into Hylebos Waterway and on uplands owned by Buffelen Woodworking Company, located in the vicinity of Marine View Drive and Lincoln Avenue extended north, Tacoma, Washington (see attached legal description), in violation of Chapter 90.58.140(2) RCW, and Chapter 13.10.030.E, JJ, KK and KK.14, and Chapter 13.10.130.D of the City of Tacoma's Land Use Regulatory Code. This fill consists of excavated dirt, and sand and gravel. A portion of the landfill protrudes into the Hylebos Waterway well beyond Mean Higher High Water (MHHW).

Chapter 13.10.340 of the City of Tacoma's Land Use Regulatory Code reads in part: The City Attorney is authorized to bring such injunctive, declaratory, regulatory order or other actions as are necessary to ensure that no uses are made of the shorelines of the City in conflict with the provisions and programs of this chapter or the Shoreline Management Act of 1971; and to otherwise enforce the provisions of this chapter in accordance with RCW 90.58.210 - 90.58.220 and 90.58.230, and pursuant to WAC 173-14.

In view of the foregoing and in accordance with the provisions of Chapter 13.10.340 of the City of Tacoma's Land Use Regulatory Code:

IT IS ORDERED THAT: Buffelen Woodworking Company, N. Douglas Storey, and Donald Oline shall upon receipt of this order, take appropriate action in accordance with the following instructions:

Cease and Desist from further dumping or placing of landfill materials at the described location and restore the shoreline to its condition prior to the commencement of the subject violation. Such restoration shall be accomplished by June 20, 1983.

Dated at Tacoma, Washington, this 3rd day of June, 1983.

Joseph A. Quilici
Acting Land Use Administrator

Approved as to form

Kyle Crews
Assistant City Attorney

PLA.2355R.

392A

State of Washington Department of Ecology

Doug Pierce TPCHD
Rick Hall WDOE

INSPECTION REPORT

To File

Inspector Jim Oberlander

Date of Visit 8-4-83

Permit Number

Name of Entity Coski Landfill

Permit Expires

City Tacoma County

New Industry

Person Contacted Mrs. Coski

Type of Facility

Receiving Water

Type of Treatment System

Operation: ☐ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

this pg only plus

Describe Inspected area where Polgen Sludge dumped & removed. Photos Taken Noted same odor. More removal in order, will Call G. Allen, Lillyblad & return to sample/ take out; if needed additional clean up.

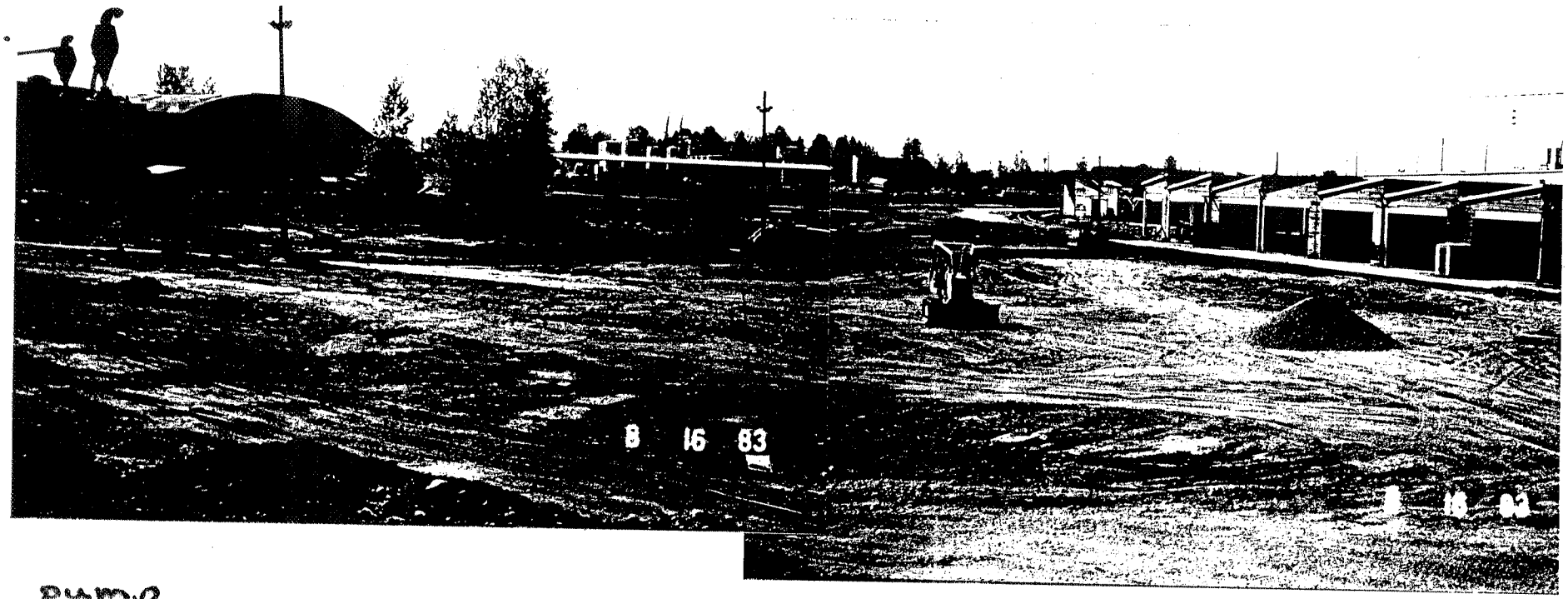
Industrial dumping continues!

Beware! man eating dog! Don't get out of car without contacting Coski's.

9-20-83 O.O. BB. Area of sludge totally dozer/changed no odor, thus no sample or additional work to be required.

cc

ECY 040-2-116



pump house

INHOUSE MEMO

TO: Jim Krull & Frank Monahan
FROM: Jim Oberlander
DATE: Aug. 31, 1983
SUBJECT: Hooker Chemical Inland Waste Disposal Site

IN INHOUSE FILE

File Pierce Co. Solid Waste General

DEPARTMENT OF ECOLOGY
OLYMPIA, WA. 98504
9 09 AM '83

City of Tacoma **Planning Department**

August 30, 1983

RECEIVED
SEP 2 1983
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Gerald A. Keller
Chief, Regulatory Functions Branch
Department of Ecology
Corps of Engineers
P.O. Box C-3755
Seattle, Washington 98124

RE: 071-0YB-4-008897-C
Bufflen Woodworking Company

Dear Mr. Keller:

On July 22, 1983, the City of Tacoma Planning Department requested the City Attorney's office to initiate appropriate legal procedures to ensure correction of the above referenced illegal landfill (see attachment). The attorney's office has informed Dick Gilmur, of my staff, that they are very interested in conducting joint litigation with the appropriate federal and state agencies on this matter. Kyle Crews, of the City Attorney's office, is handling this case and may be contacted at (206) 591-5885, should you have any questions pertaining to the City's enforcement actions.

During subsequent surveys of the subject site, Dick Gilmur and other members of my staff have noticed that a considerable amount of erosion is occurring due to wave and tidal action and, in part, to rains. It appears that the eroded material is being dispersed and deposited over the intertidal lands adjacent to this site which may result in a reduction of productive habitat.

Should you have any questions, please contact Dick Gilmur of my staff at (206) 591-5363.

Very truly yours,

George A. Hoivik
Acting Director

GAH:DG:sh

cc: Darrel Anderson, Dept. of Ecology
State Attorney General's Office

Suite 936, Tacoma Municipal Building, 740 St. Helens Avenue, Tacoma, Washington 98402-3793
(206) 591-5363

Box 401

State of Washington
Department of Ecology

INSPECTION REPORT

To Will Abercrombie & Files Inspector Cloud

Date of Visit 10/7/83 1030hr. Permit Number _____

Name of Entity Lilyblad Petroleum Permit Expires _____

City Tacoma County Pierce New Industry _____

Person Contacted —

Type of Facility _____

Receiving Water _____

Type of Treatment System _____

Operation: ☐ Satisfactory ☐ Fair ■ Unsatisfactory

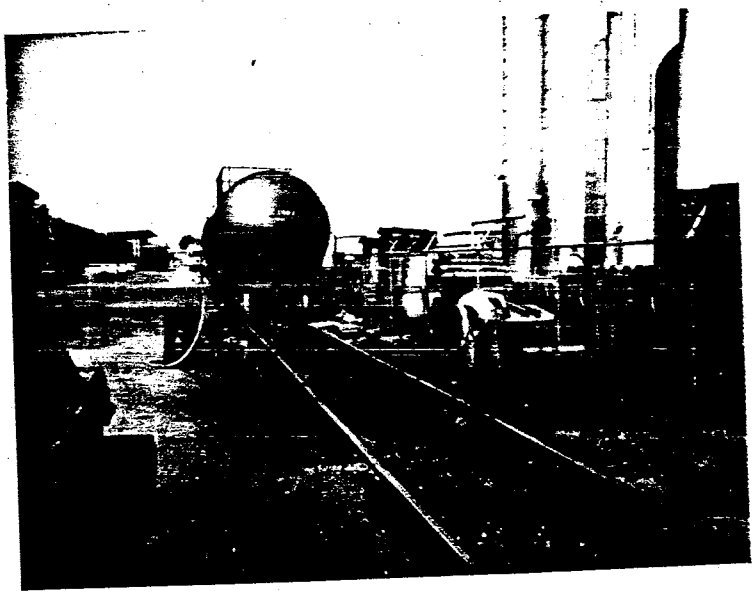
☐ Does not comply with permit conditions

Describe Oil on ground. Employee (shown in picture) was moving gravel. His explanation was that he was ~~told~~ ordered by his boss to dig a hole to collect the water and oil. This hole to be located approx where he is standing. The 55 gal drum & pump was picking up too much gravel. Appears to be a considerable amount of oil on the ground surface, the question arises How much is in the soils and what are the soils like???

CC

ECY 040-2-116

OVR For photo



OHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

October 13, 1983

Fife Industrial Park
2101 Exchange Bldg.
Seattle, WA 98104

Mr. Joe DePietro
1126 Mountain View Blvd.
Spanaway, WA 98387

Mr. Charles Woodke, III
380 7th Ave.
Fox Island, WA 98333

Gentlemen:

Pierce County Assessor records indicate that you are owners of property north of Pacific Highway South between Miller Street and Lawler Street in Fife.

The Port of Tacoma has begun a large ($1 million) fill and drainage project north of your ownerships. Located in a slough near your land holdings are industrial chemical sludges believed to be from Hooker Chemicals, Tacoma. The materials may have been dumped during 1972/73. The sludges contain chlorinated solvent residues. Regulations governing disposal of these materials were not enacted until recent years. However, moving these buried materials today requires following present dangerous waste regulation (RCW 70.105, WAC 173.303).

We are working closely with the Port of Tacoma, Tacoma-Pierce County Health Department, and Oxy Chemicals (formerly Hooker) to define and assess this situation. Information also suggests that this same waste may be deposited on your properties.

The Port of Tacoma will be using a back hoe and a team with protective clothing to dig and refill shallow test holes on their property to define the extent of sludge. They plan to do this work during the week of October 17, 1983. Time allowing, they are willing to do a few similar holes on your adjoining properties at their cost.

We would very much like to receive permission from you to work on your land. Ultimately, we will need to review all the specific area(s) that these chemicals sludges were dumped. Please contact me in Olympia at (206) 753-2353 or Curtis Ratcliffe, Port of Tacoma Engineering Department, (206) 383-5841 to discuss this matter.

Your assistance and cooperation will be greatly appreciated.

Sincerely,

Jim Oberlander

Jim Oberlander
Environmental Quality Inspector

JO:cl

cc: Chuck Schenk, EPA Seattle
Lyle Feller, Oxy Chemicals
Curtis Ratcliffe, Port of Tacoma
Tom Rogers, Tacoma-Pierce County Health
Dale Jones, City of Fife
Jim Krull, WDOE

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

Box 4101

November 8, 1983

Mr. Greg Allen
Lilyblad Petroleum, Inc.
P. O. Box 1381
Tacoma, Washington 98401

Subject: Sol-Pro/Lilyblad (SPL) Financial Assurance, Interim Status Standards Compliance, Tacoma Industry

Dear Mr. Allen:

The Washington Department of Ecology (WDOE) has reviewed your Financial Assurance package that you submitted last week. Although the package was not complete, I have included comments to help you in preparing your final submission. As you noted in our meeting last evening, I will expect the final Financial Assurance package in about two or three days. Also, thank you for submitting the rest of the ISS package on time, as requested.

Part I-5 of your application is incomplete or incorrect for the following reasons:

Letter of Credit: The actual letter of credit must be submitted in order to comply with the requirements of 40 CFR 265.143 and WAC 173-303-620(4)(d). This must be sent by certified mail. The wording of the letter of credit must be identical to the wording specified in section 264.151(d), with the following exception: Wherever "Regional Administrator" appears, "Director, Washington Department of Ecology" should replace it. It must be irrevocable and issued for a period of at least one year.

The letter of credit must be accompanied by a standby trust fund.

The letter of credit must be accompanied by a letter from the owner or operator referring to the letter of credit by number; issuing institution; date; identification number, name, and address of the facility; and the amount of funds assured.

The amount of the letter of credit must be greater than or equal to estimated closure costs (and adjusted annually or more frequently, as closure costs increase).

Please refer to 40 CFR 265.143(c) for more details.

Liability Insurance: Although policies SP8398622 and MN022527, issued by Industrial Indemnity and Mission National Insurance, in combination, meet the requirements of liability coverage amounting to at least $1 million per occurrence and at least $2 million annual aggregate, it is further required (40 CFR 265.147 and WAC 173-303(8)) that the certificate of liability insurance be identical to the wording in 40 CFR 265.151(j) with replacement of "Regional Administrator" with "Director, Washington Department of Ecology". A separate certificate of insurance is required for each policy.

Other Comments: Page 8, I-5, reference should be 265.151, not 265.150. Page 9, "Closure Surety Bond" should be "Letter of Credit".

I hope the above comments will be helpful. Again, specific questions on Assurance should be referred to Carrie Adams at the U. S. Environmental Protection Agency (EPA) in Seattle.

Sincerely,

Richard Pierce
Regional Engineer

RP:si

cc: Glen Tegen, Lilyblad Petroleum, Inc.

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

November 30, 1983

Mr. Bob Hartman
Occidental Chemical Company
P. O. Box 2157
Tacoma, Washington 98401

Dear Bob:

During 1979, your company reviewed with us and the U. S. Environmental Protection Agency (EPA) - Region X, the historical waste disposal practices of Occidental Chemical (formerly Hooker Chemical). The open information and individual site field reviews were greatly appreciated. Understandably, because we were asking about the past, many facts were lacking. Since that time, many new emphases have occurred, i.e., Commencement Bay-Superfund, dangerous waste regulations, rapid tideflat development, and sludge(s), apparently from your company, have been tested.

We look forward to the scheduled meeting of December 6, 1983, at 9:00 a.m., Tacoma-Pierce County Health Department, to review the new data and information gathered.

You have indicated that Occidental has retained a consultant to review this information during January 1984; we welcome this news. We suggest that the project's Scope of Work include:

1. All upland disposal sites.
2. Notification of property owners (long overdue!).
3. Historical air photo review.
4. Repeated plant employee interviews to include waste haulers and property owners, if known.
5. Repeated review of quantities and nature of waste.
6. On-site waste boundary definition (on-site test pits).
7. Waste testing from site samples and leachate.
8. Geo-hydrological review.
9. Risk assessment.

Should problems develop regarding these issues, please contact me at (206) 753-0135 in Olympia. Your company's commitment to protect the environment of Tacoma and your cooperation with the Washington Department of Ecology (WDOE) is greatly appreciated.

Sincerely,

Jim Oberlander

Jim Oberlander
Senior Environmental Quality Inspector

JO:si

cc: Chuck Shenk, EPA-Region X, Seattle
Doug Pierce, Tacoma-Pierce County Health Department
Jim Krull, WDOE-Headquarters
Frank Monahan, WDOE-SW Region

Occidental Chemical Corporation

TACOMA
Off-Plant Disposal Sites
Groundwater Investigation

- Alexander Avenue
- Dauphin
- Marine View Drive
- Peterson

[redacted]

Occidental Chemical Corporation

TACOMA
Off-Plant Disposal Sites
Groundwater Investigation

- Alexander Avenue
- Dauphin
- Marine View Drive
- Petarcik

February, 1984

Ref. No. 1002

CONESTOGA-ROVERS & ASSOCIATES LIMITED

Box 393

LIST OF FIGURES

LIST OF TABLES

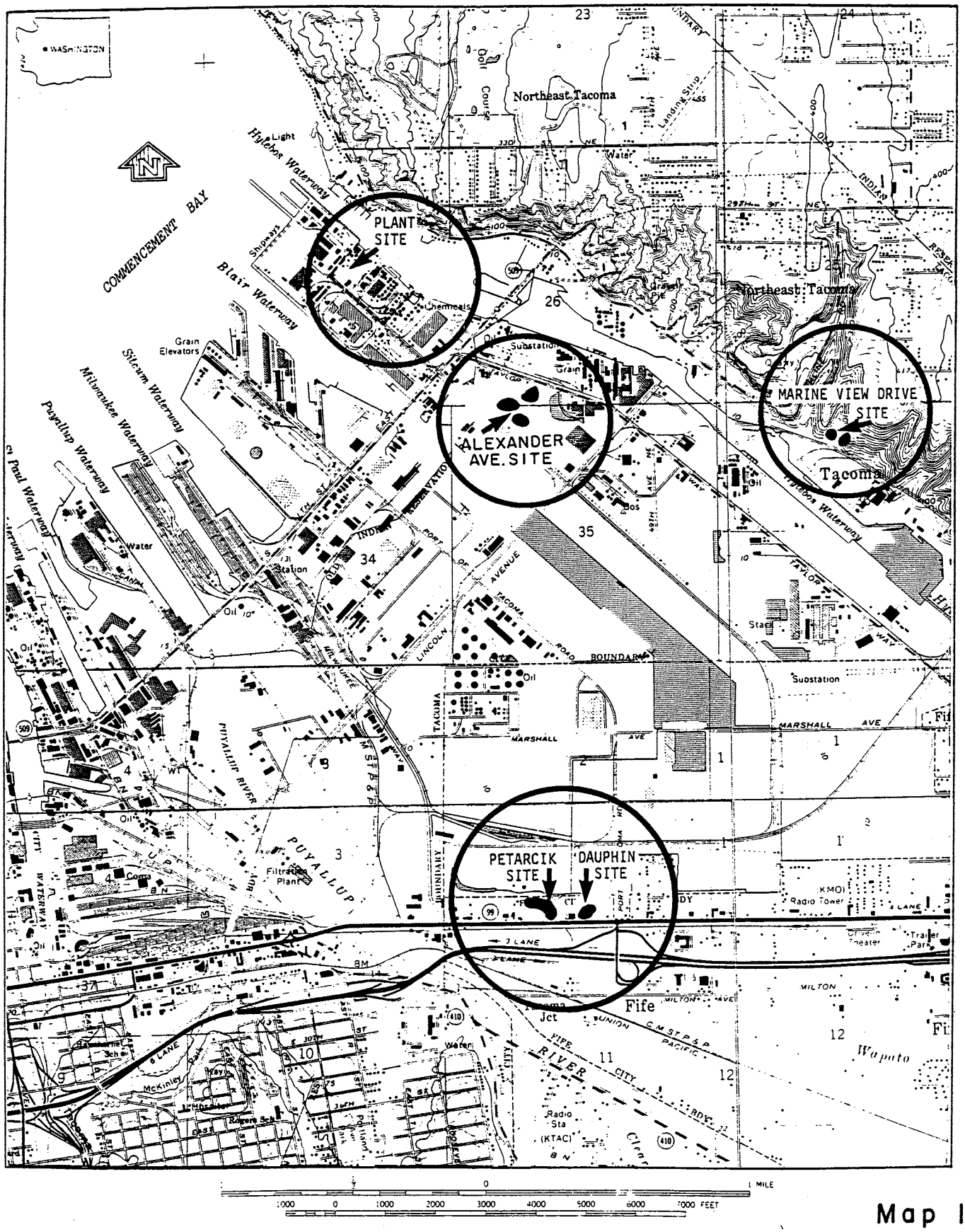
1.0 INTRODUCTION

From 1972 to 1975 contractors for the Tacoma Plant used the following four sites for waste disposal:

1) Alexander Avenue Site
2) Dauphin Site
3) Marine View Drive Site
4) Petarcik Site

Map 1 locates the disposal sites.

This report summarizes the historical use of the sites for waste disposal and recommends a plan of study for each site to define the nature of any environmental impacts and what, if any, work would be required to remediate a defined unacceptable environmental impact.



Map 1

LOCATION MAP OF PLANT AND RELATED DISPOSAL SITES

Tacoma, Wa.

CRA

1002 - 2/2/84

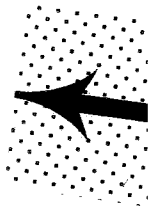
2.0 BACKGROUND

Copy

2.1 ALEXANDER AVENUE SITE

The Alexander Avenue Site (also referred to as the Oline Site, Lilyblad Site and Poligen Site) was used by contractors for Occidental Chemical Corporation (OCC) waste disposal during the period 1972 to 1975. During the time of use, the site was owned by Mr. Donald Oline.

The estimated quantity of OCC wastes disposed of at the site was 13,000 tons on a dry weight basis. The material was deposited as a 25% to 30% slurry coming from the 1972 lime pond at the Plant and the 1974 dredging of the Hylebos Waterway. The quantity of dredged material consisted of approximately 2,000 tons on a dry weight basis.



The disposed material, consisting primarily of a lime containing small amounts of chlorinated hydrocarbons, heavy metals and asbestos, was disposed at the site at a reported general depth of 1 to 2 feet prior to covering. During the active use of the site for waste disposal, other users reportedly disposed of waste at the site. Present activity on the

site includes diesel oil storage, and metal recovery facilities.

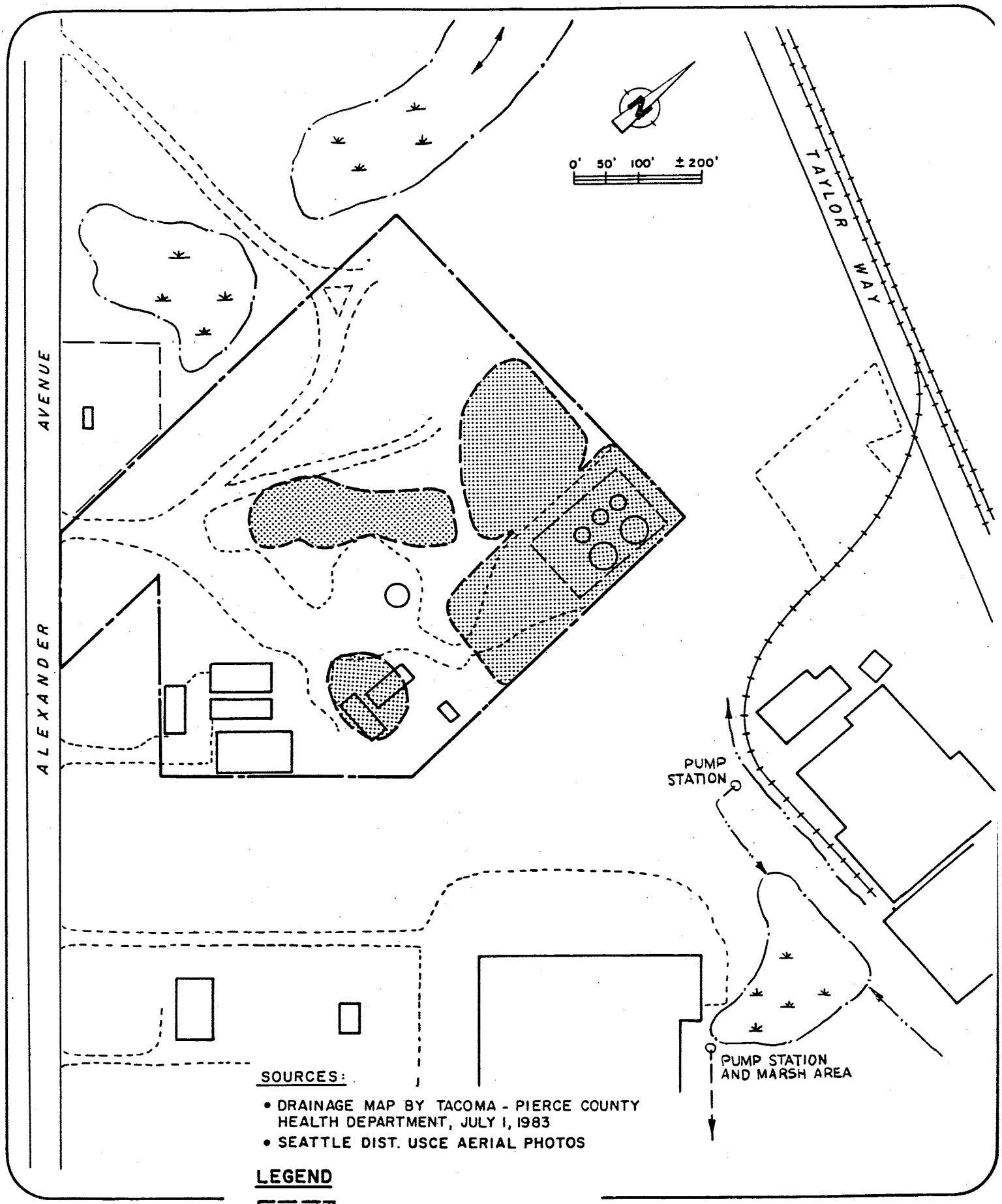
The Washington State Department of Ecology (DOE) in late 1981 requested a study of the site. In response to that request, monitoring wells have been installed at the site and the investigation is ongoing.

Figure 1 shows a plan view of the site location. The plan view was compiled from an examination of aerial photography spanning the period of disposal and from the compilation of an ownership record of the site.

Appendix A shows current owners of record of the parcels comprising the site.

2.2 DAUPHIN SITE

In 1974, OCC's contractors used lands owned by Mr. G. O. Dauphin to dispose of dredge materials from the Hylebos Waterway. The quantity of material, which was disposed as a 25% to 30% slurry, was estimated to be approximately 2,000 tons on a dry weight basis. Samples collected and analyzed during



CRA

1002-2/2/84

ALEXANDER AVENUE

figure 1

the dredging operations indicated that the disposed materials contained on-average approximately 100 ppm chlorinated hydrocarbons, 0.2% asbestos, 150 ppm lead, 50 ppm copper, 20 ppm chromium, <10 ppm cadmium and <1 ppm mercury.

In an interview by OCC personnel with Mr. Dauphin he indicated that the material was disposed in the low area east of the Dauphin garage facility. The aerial photographic history corroborates Mr. Dauphin's recollection. At the present, a Portage Motor Inn and a restaurant, and trucker's bunkhouse is being constructed on the more easterly portion of this property. Following disposal, the dredge material was allowed to dewater prior to covering with approximately 4 feet of clean soil fill.

Because of OCC's concern that the DOE have knowledge of a change in use of a past waste disposal area, OCC on July 19, 1983 notified the DOE that there was construction activity on the Dauphin site. Subsequently, the DOE investigated the situation and notified the owner and contractor of the suspected nature and location of the past waste disposal activities.

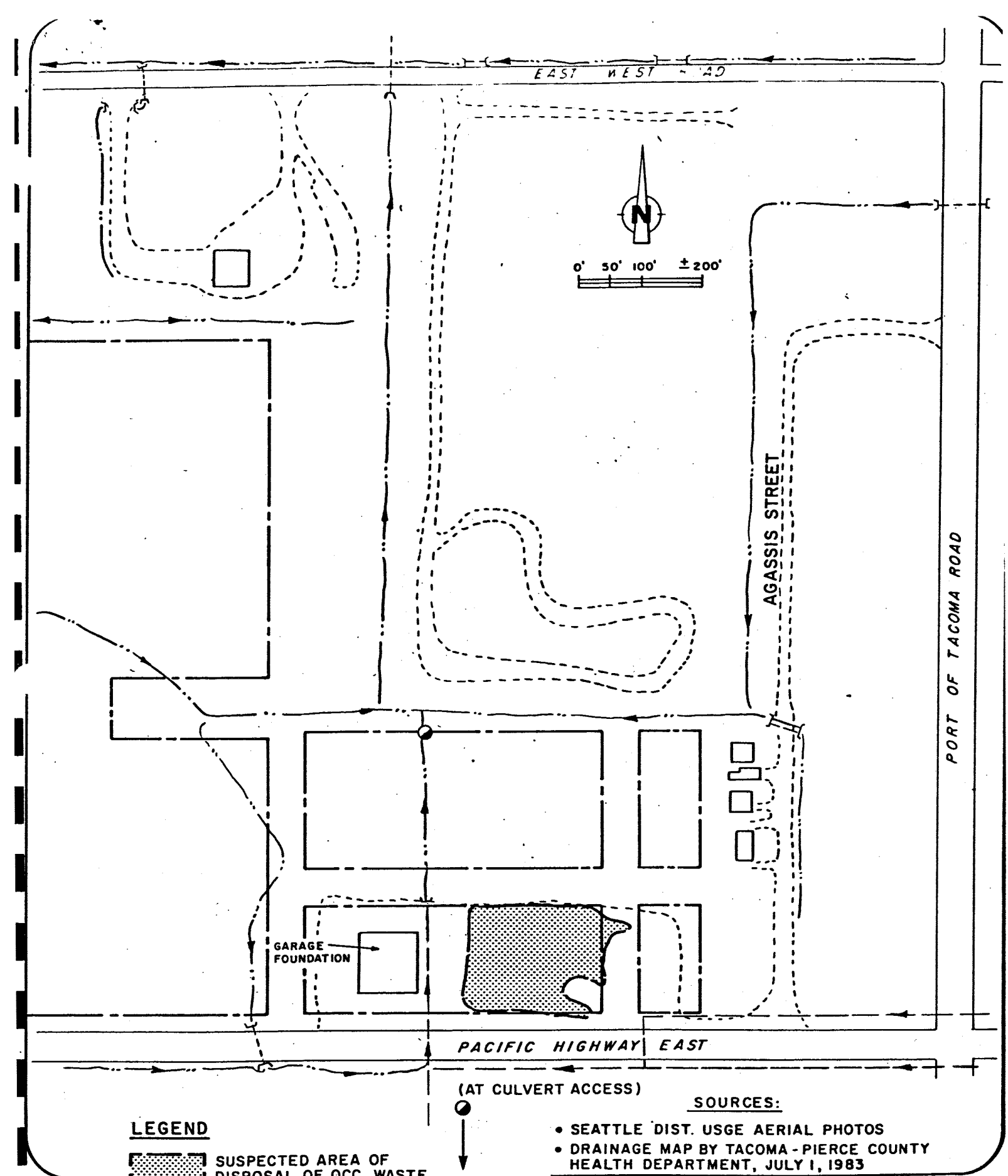
It has been reported that three homes adjacent to the site may use water from one or more private wells. DOE has advised OCC that it will sample and analyze water from this supply.

Figure 2 shows the location of the Dauphin site and the area suspected to contain the disposed dredge material. The figure was compiled from historical aerial photographs spanning the period of disposal and from ownership records of the site. The data base is being updated by the collection and analysis of available information.

Appendix A shows current owners of record of the parcels comprising the site.

2.3 MARINE VIEW DRIVE SITE

The Marine View Drive Site (also known as the General Metals Site) was used by a hauling contractor for the disposal of OCC waste in 1973. At the time of use, the site was owned by Mr. Donald Oline.



LEGEND

- SUSPECTED AREA OF DISPOSAL OF OCC WASTE
- PROPERTY BOUNDARY
- OPEN CHANNEL
- PIPE/CLOSED CHANNEL
- SURFACE WATER SAMPLING STATION

SOURCES:

- SEATTLE DIST. USGE AERIAL PHOTOS
- DRAINAGE MAP BY TACOMA-PIERCE COUNTY HEALTH DEPARTMENT, JULY 1, 1983

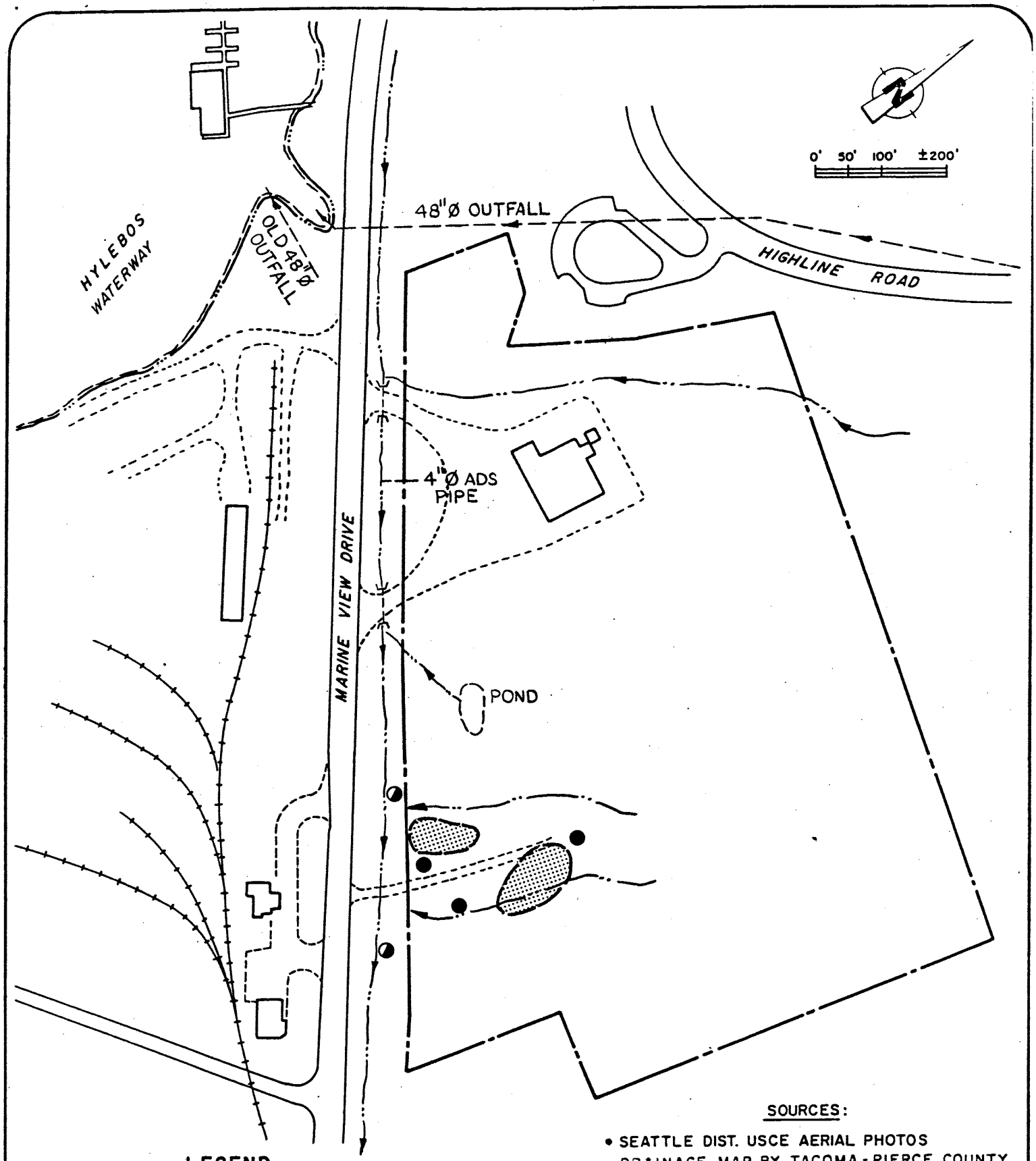
RA
2-2/2/84

DAUPHIN
figure 2

The quantity of material disposed at the site consisted of approximately 600 tons on a dry weight basis. The material was disposed of as a 25% to 30% slurry originating from the 1972 lime ponds at the Plant. Historical analyses would indicate that the material was primarily lime containing small amounts of chlorinated hydrocarbons, heavy metals and asbestos.

Figure 3 shows in plan view the site location. The plan view was compiled from historical aerial photography spanning the period of disposal and from an ownership record of the site. The data base is being updated by the collection and analysis of available information.

Appendix A shows current owners of record of the parcels comprising the site.



SOURCES:

- SEATTLE DIST. USCE AERIAL PHOTOS
- DRAINAGE MAP BY TACOMA-PIERCE COUNTY HEALTH DEPARTMENT, JULY 1, 1983

LEGEND

- SUSPECTED AREA OF DISPOSAL OF OCC. WASTE
- SURFACE WATER SAMPLING STATIONS
- MONITORING WELL INSTALLATIONS
- PROPERTY BOUNDARY
- OPEN CHANNEL
- PIPE / CLOSED CHANNEL

CRA

1002-2/2/84

MARINE VIEW DRIVE
figure 3

2.4 PETARCIK SITE

In 1972, OCC's contractor disposed of waste material on lands then owned by Mr. Joseph Petarcik. The quantity of material disposed of at the site consisted of approximately 5,500 tons on a dry weight basis. The material originating from the 1972 lime ponds at the Plant, was disposed as a 25% slurry and contained chlorinated hydrocarbons, asbestos and heavy metals. Analyses of the lime pond slurry indicated that it was primarily a material consisting of inorganic salts of calcium containing low levels of asbestos, chlorinated hydrocarbons, lead and copper.

During the disposal operations in 1972, the slurry materials apparently were disposed of into low areas of the site and were mixed with bark waste from a local log yard. Subsequently, the disposed material was covered with soil. During the period of disposal, the site was accessible to the general public for waste disposal, particularly along Pacific Highway East.

During construction activities by the Port of Tacoma for an open ditch, to carry surface runoff, through the site, samples were collected from the site and analyzed. Analytical data from the site has indicated widely varying results.

Figure 4 shows the location of the site, the location of the disposed material as determined from aerial photography spanning the period of disposal and the approximate location of the final route for the drainage ditch. The data base is being updated by the collection and analysis of available information. This should include the plotting of DOE field information regarding limits of disposal.

Appendix A shows current owners of record of the parcels comprising the site.

3.0 PROPOSED SITE INVESTIGATIONS

3.1 STUDY PURPOSE & STUDY PROTOCOLS

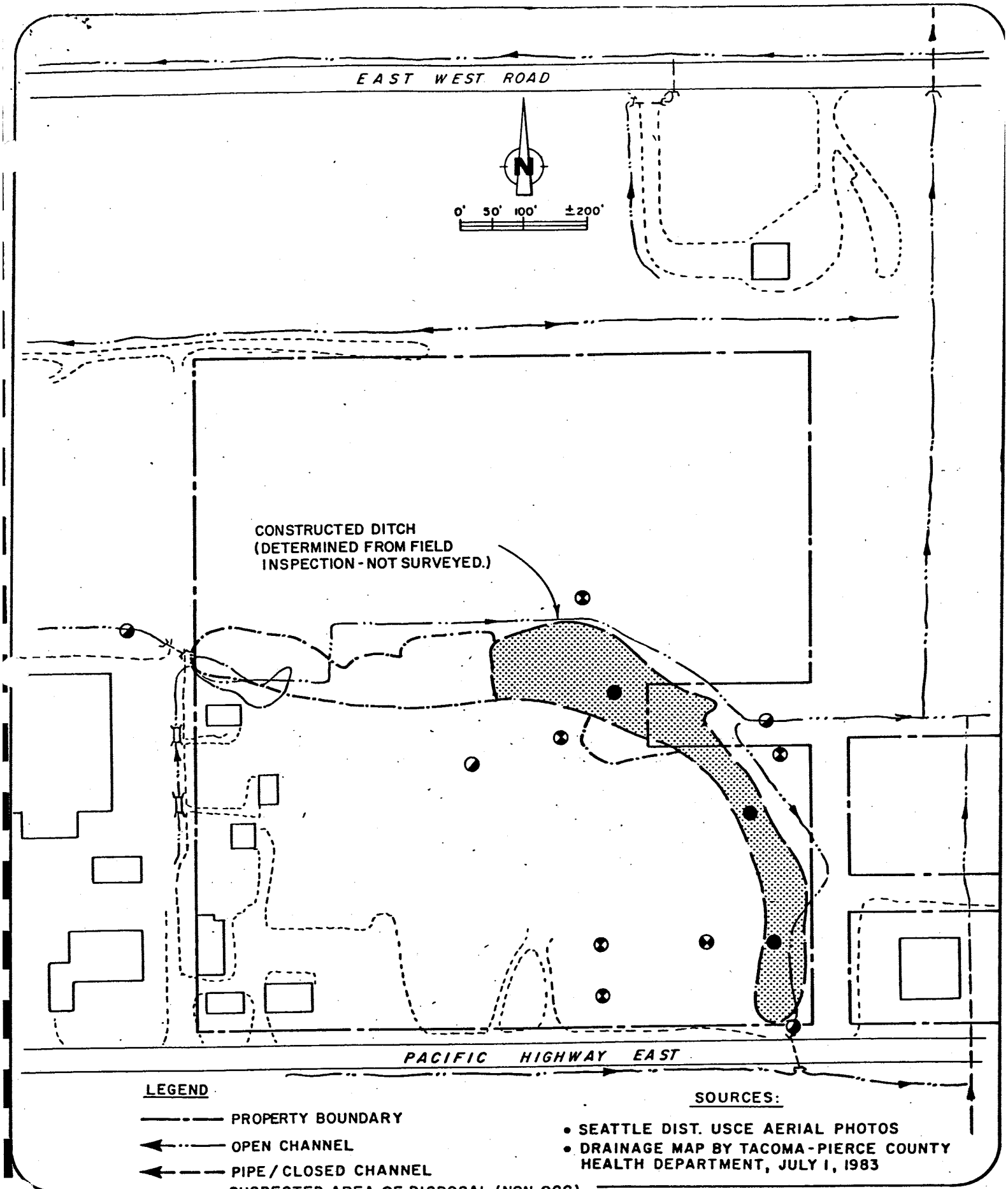
The purpose of the investigatory work is to define the nature of any environmental impact, the potential for future environmental impact and the need, if any, of remedial work.

The following protocols are presented in Appendix B.

(1) Monitoring Well Installation
(2) Soil Sampling for Soil Stratigraphy Definition
(3) Monitoring Well Development
(4) Water Sampling
(5) Safety Program

3.2 ALEXANDER AVENUE SITE

The Alexander Avenue Site is currently the subject of a hydrogeologic investigation under DOE purview. The DOE is actively inputting comments to the program of study and is reviewing all collected data.



CRA
002 - 2/2/84

PETARCIK

figure 4

Because of the current field investigations at this site, there is no need that OCC undertake any independent investigation. All data from the current investigation should be made available, on a timely basis, to OCC.

3.3 DAUPHIN SITE

The dredge materials disposed at the Dauphin site are not believed to pose a hazardous condition for the following reasons:

1) Analysis of the dredge material showed that on average, the material contained a chlorinated organic content around 100 ppm.

2) Historical analyses were performed on the material at the time of dredging. Because the materials were exposed to the air for a period of time during dewatering the levels of chlorinated organics now present would be even lower than historical analysis would indicate.

3) The disposed material was covered with 4 feet of soil.

4) Volatilization to the land surface under 4 feet of cover soil would be insignificant.

Nevertheless, to demonstrate that there is no need for concern regarding the disposed material, the following work will be proposed:

1) Utilizing the historic sampling and analysis of dredged material, undertake a risk assessment to determine whether volitalization could cause an environmental concern.

2) Collect and analyze surface water samples from the drainage channel along the western edge of the site to determine if groundwater migration and discharge to this ditch could cause an environmental concern.

Following the above work, an assessment of the overall risk posed by the site would be prepared and recommendations would be made regarding the need for any further investigation or remedial work.

Figure 2 locates the surface water sampling locations.

3.4 MARINE VIEW DRIVE SITE

The Marine View Drive Site is located in a heavily industrialized section of Tacoma as shown in the report entitled, "Historical Photography". The industries of the area use chlorinated solvents. Consequently, one would expect to find chlorinated hydrocarbons in surface waters and groundwaters in this area.

The proposed study will determine whether chlorinated organics from the small quantity of OCC wastes disposed of a decade ago is materially contributing to the levels of chlorinated hydrocarbons in this area. The proposed investigation will consist of the following:

1) Surface water sampling upstream and downstream of the site.

2) Installation of three wells on the site for the definition of groundwater flow gradient with sampling and analysis of the downgradient well(s). Figure 3 shows the proposed water sampling stations and location for monitoring well installations.

3.5 PETARCIK SITE

The disposed waste material at the Petarcik Site contain low level concentrations of chlorinated organics which have been covered with soil.

The following work will identify existing and potential environmental impacts which may be caused by the disposed material:

1) Collect surface water samples from the perimeter of the site for analysis for chloroform, trichloroethylene and tetrachloroethylene. The rationale for the selection of surrogate chemicals is discussed in Section 4.0.

2) Install 3 wells in the area of waste disposal and 6 clusters of wells (nests) around the perimeter of the disposed waste for the definition of horizontal and vertical groundwater gradients and the collection of water for analyses. Appendix B presents protocols for well installation and water sampling.

This information will indicate whether the disposed material would cause an adverse environmental impact and whether remedial work is needed.

The limits of disposal have been defined from historic aerial photography spanning the period of disposal. Subsequently, this will be augmented by plotting the DOE field information regarding limits of disposal.

Figure 4 schematically locates the surface water sampling stations and the monitoring well locations.

4.0 SURROGATES FOR CHEMICAL MONITORING

The most efficient approach to investigate potential impacts of past disposal practices is to limit analysis to selected indicator or surrogate chemicals. The surrogate chemicals represent the chemical load and its solubility and potential to migrate.

As can be seen by an examination of the section on historical plant processes, described in the report entitled "Tacoma Plant Site - Evaluation of Monitoring Data - February 23, 1984", two organic waste streams are potentially of major concern. These are:

1. Organic wastes from former chlorine purification processes.

2. Organic wastes from past production of trichloroethylene and perchloroethylene (tetrachloroethylene).

The major chemical component of the chlorine purification waste is chloroform. Chloroform comprises approximately 75 percent of the total organic components.

The primary identified components of wastes from the solvents process were trichloroethylene and tetrachloroethylene. While these two chemicals represented only 15 to 20 percent of this waste stream, most of the balance was not identified because of the inavailability of analytical tools prior to the shutdown of these facilities in 1973. The unidentified components were classified as "high boilers". In other words, these components would have a higher boiling point than trichloroethylene or tetrachloroethylene and would have a lower vapor pressure and a lower water solubility than tetrachloroethylene or trichlorethylene. Thus, they are less likely to migrate by either air or water pathways than tetrachloroethylene or trichlorethylene (see Table 1 for physical property data).

Testing for a multitude of chemicals conceivably present in OCC's past waste is not necessary to evaluate environmental impacts. Testing for those chemicals which, if found, are likely to be found in the highest concentrations will adequately describe the impact of past waste disposal.

The chemicals trichlorethylene, tetrachloroethylene and chloroform are indicators or surrogates for all chemicals likely to be found in the OCC disposed waste. These chemicals were present in the waste

TABLE 1

PHYSICAL PROPERTY DATA

	Trichloro-ethylene	Tetrachloro-ethylene	Chloroform
Formula	C_2HCl_3	C_2Cl_4	$CHCl_3$
Molecular Weight	131.40	165.85	119.39
Boiling Point °C	87.0	121.0	61.7
Density at 20°C	1.464	1.623	1.483
Liquid Viscocity (cp) at 20°C	.58	.90	.58
Vapor Pressure (mm) at 20°C	58	14	151
Solubility (ppm) at 20°C	1,100	165	8,200
KOW (octanol/water)	69.2	740	91
KOC (sorption coefficient)	38	360	50

at high concentrations and also are the most mobile in the hydrogeologic environment because of their relatively high solubility and relatively poor sorption coefficients.

These three chemicals will be monitored in water samples using EPA's Method 601.

All of Which is Respectfully Submitted,

CONESTOGA-ROVERS & ASSOCIATES LIMITED

Frank A. Rovers P. Eng.

APPENDIX A

PRESENT OWNERSHIP:

- Alexander Avenue Site
- Dauphin Site
- Marine View Drive Site
- Petarcik Site

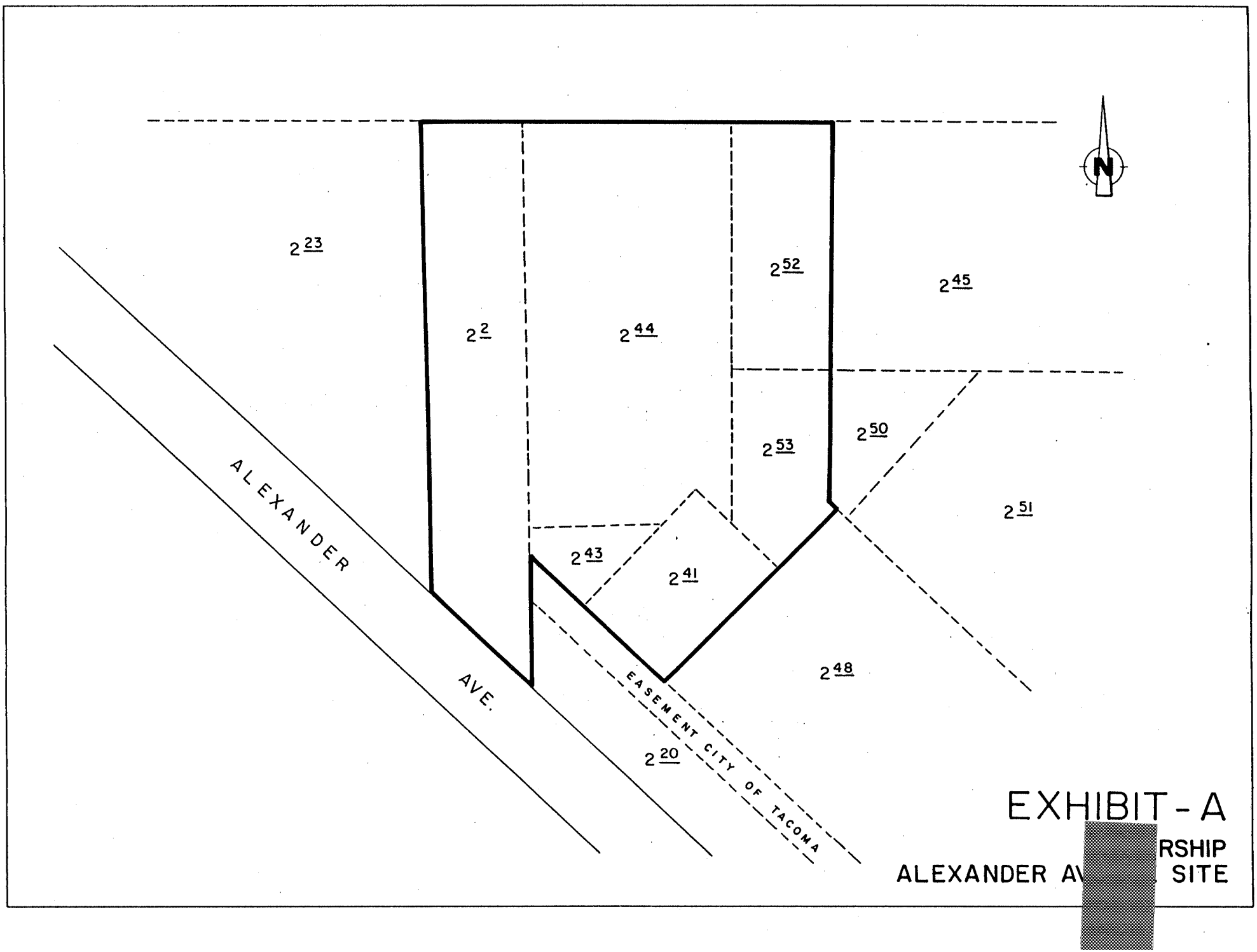


EXHIBIT - A

RSHIP

ALEXANDER AV SITE

OWNERSHIP - ALEXANDER AVENUE SITE

The outlined area of Exhibit A represents the property owned by Donald and Alba Oline (acquired 1965 - 1970).

2^{52} - Property acquired by Potters and Clarks (1980); and sold to present owner, Chemical Processors, Inc., in 1982

2^{2}, 2^{43} and 2^{44} - Property acquired by present owners, Emmerson H. and Lillian Potter, and D. Gordon and Virginia Potter in 1975

2^{53} - Property acquired by present owner, Solidus Corporation in 1981.

2^{41} - Property leased to Poligen, Inc. (1974 - 1981) and acquired by Solidus Corporation in 1981.

OWNERSHIP - DAUPHIN SITE

The outlined area of Exhibit B represents the property owned by Gilbert and Helen Dauphin (acquired 1957 - 1958, except for the West 1/2 of Block 7, acquired in 1976).

Block 11	- Property acquired by current owner, Mark and Lynda Smith, between 1979 and 1983.
Block 6 & West 1/2 Block 7	- Property acquired by present owners, Charles and Lona Woodke in 1978.

The East 1/2 of Block 7 owned by Frank and Janice Pupo.

Block 8 owned by Howard E. and Mary A. Pitzer.

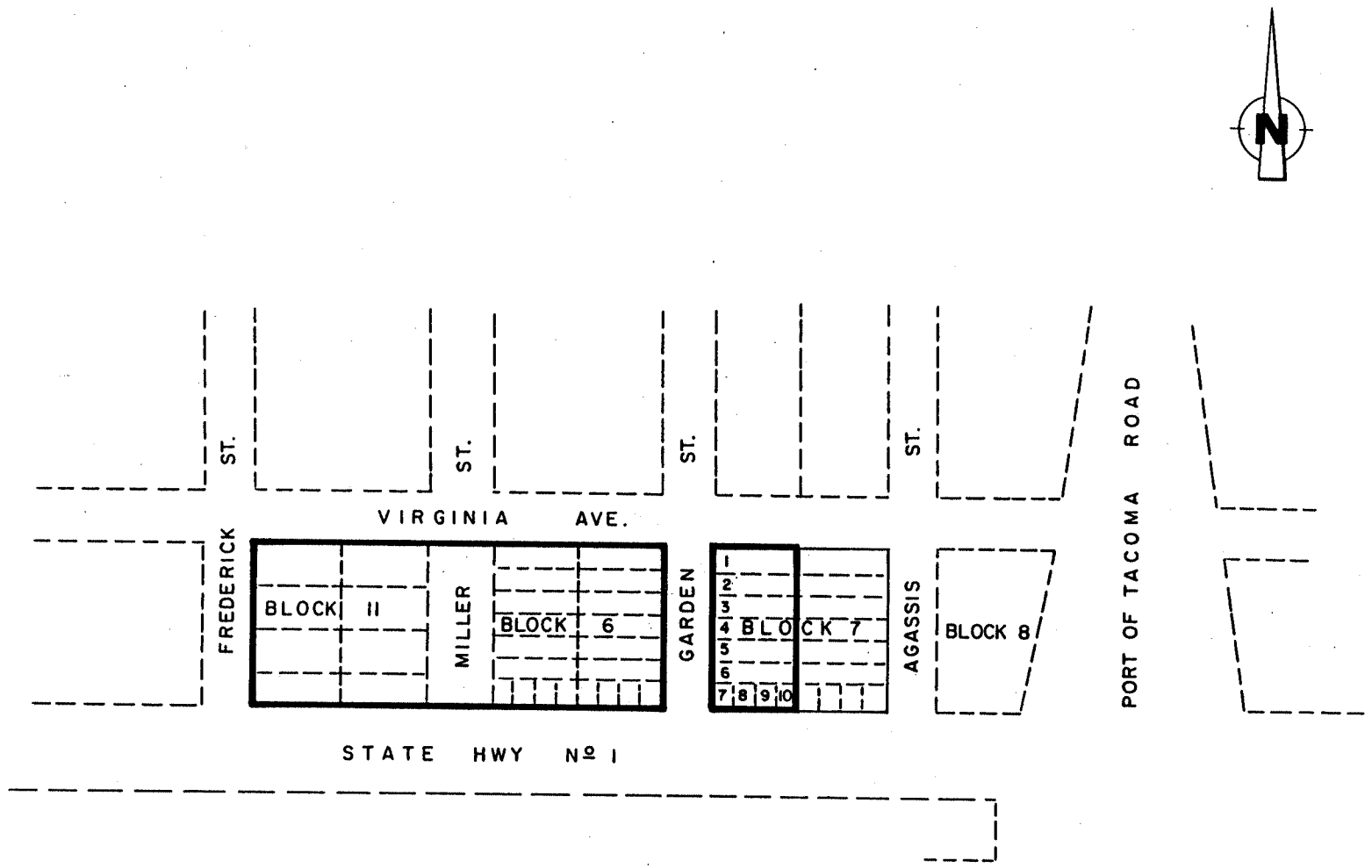


EXHIBIT - B

OWNERSHIP
DAUPHIN SITE

OWNERSHIP - MARINE VIEW DRIVE SITE

The outlined area of Exhibit C represents the property owned by Donald and Alba Oline (acquired in 1971 from Dillingham Corporation).

$_{2}\underline{49}$ - Property acquired by present owners, Rose and Sussman in 1975.

$_{2}\underline{52}$ - Property acquired by present owners, Woodworth & Co. in 1975.

$_{2}\underline{51}$ - Property acquired by present owners, Jones Chemical, Inc. in 1973.

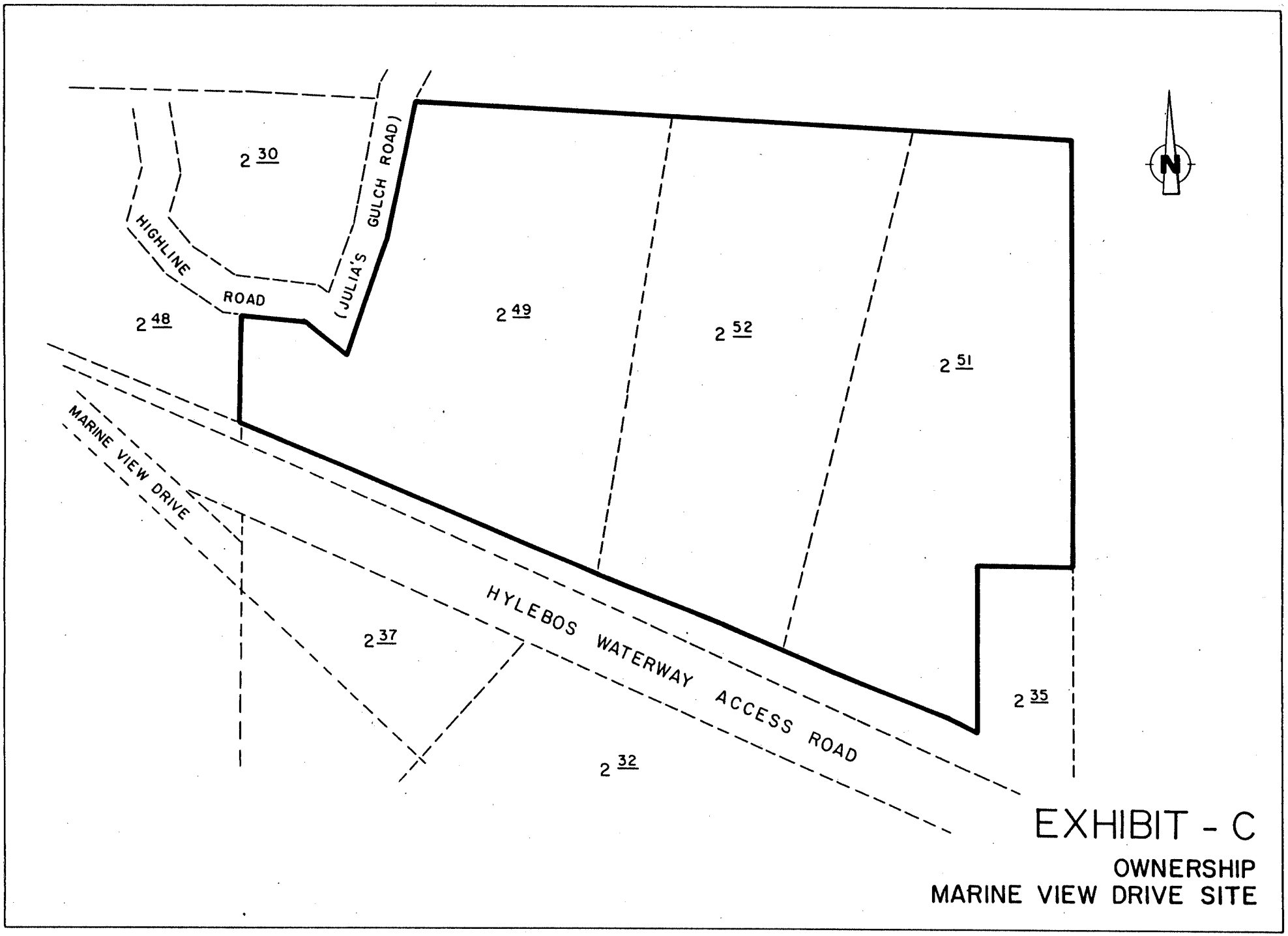


EXHIBIT - C

OWNERSHIP
MARINE VIEW DRIVE SITE

OWNERSHIP - PETARCIK SITE

The outlined area of Exhibit D represents the property owned by Joe and Anna Petarcik (acquired 1941 - 1943).

Blocks 2,3,4,5 and North 1/2 Blocks 6, 7,8 and 9	- Property acquired by Buchalskis (1977); and sold to present owner, Port of Tacoma, in 1981.
Blocks 12,13,14,15 and South 1/2 Blocks 6, 7,8 and 9	- Property acquired by Sabotkas and Tallmans (1981); and sold to present owner, Fife Industrial Park, in 1982.
Blocks 10,1 and West 1/2 Block 2	- Property acquired by Adams (1977 - 1978); and sold to present owner, Charles and Lona Woodke in 1981.

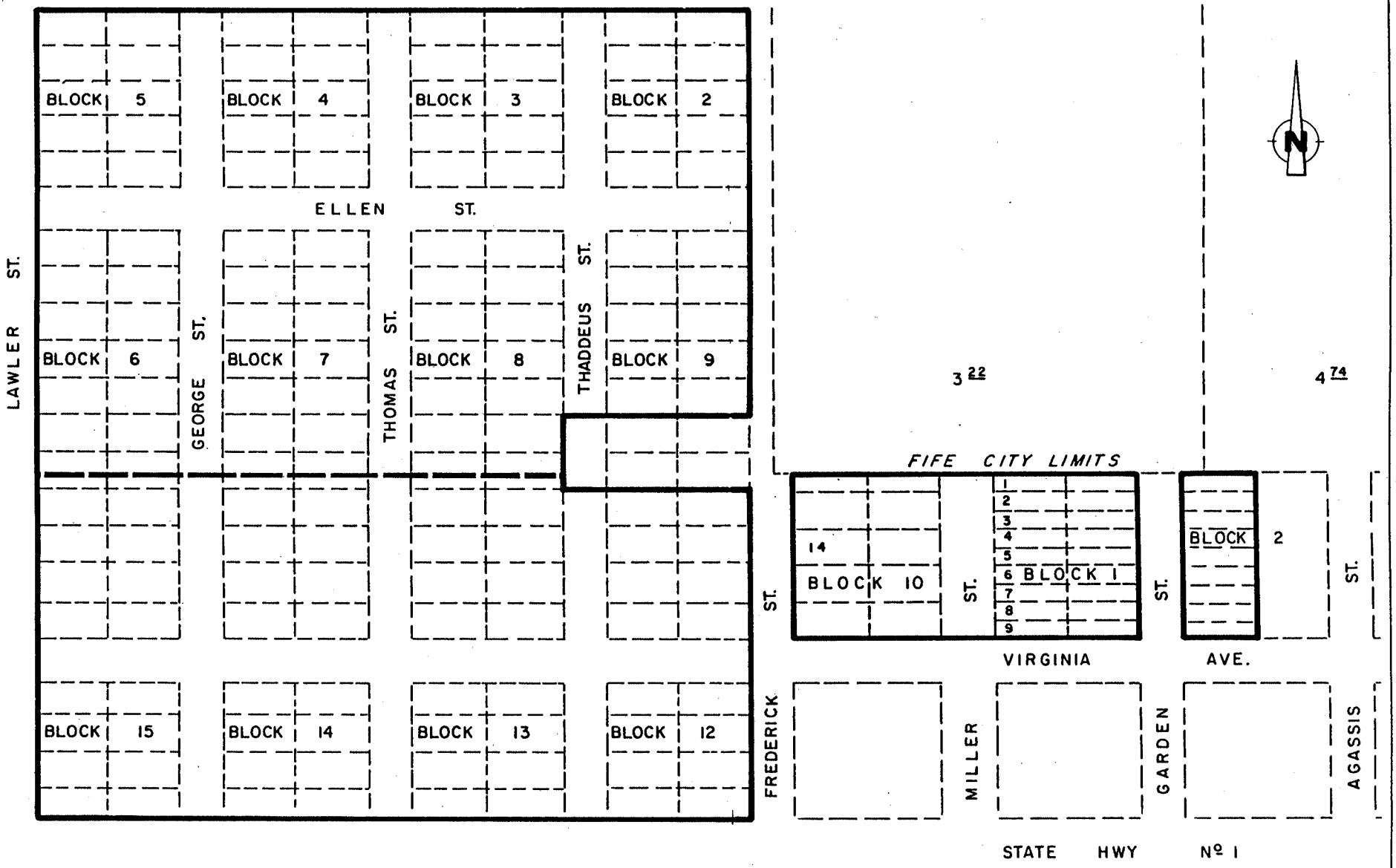


EXHIBIT - D

OWNERSHIP
PETARCIK SITE

APPENDIX B

STUDY PROTOCOLS

PROTOCOL FOR MONITORING WELL INSTALLATION

1.0 General

Each overburden groundwater monitoring well will be installed using a drill rig equipped with hollow stem augers. The drilling and well installation procedures will be as follows:

1. Collect continuous split spoon samples of overburden material in advance of the augering operation. The augers are to be 8 inch diameter.

2. Continue to the depth specified by the OCC site representative. (typically 10 feet into the defined water bearing interval).

3. Install a 2" diameter well consisting of:

- well screen - stainless steel
  - #10 slot
  - 2" diameter
  - 5' length
- well pipe - black steel
  - 2" diameter
  - coupled connectors
- lockable cap & lock (Common Key)

4. Backfill each well installation with a measured quartzite sand pack #4 silica sand (uniformly graded) around the well screen over the wetted interval or as directed by the OCC field representative, a measured bentonite pellet plug over the sand pack, and cement - bentonite grout, by positive placement, the remaining portion of the borehole.

5. Each well shall have approximately 3 feet of stickup above the existing ground elevation. In the event that the well stickup interferes with existing land usage, the well top will be set 3 inches below ground surface grade and an 8 inch diameter valve box casing (24 inch minimum length) and cover will be grouted in place around the well for protection.

6. Where appropriate, protective casing/bumper posts shall be installed around the well. Figure B-1 presents a typical well installation.

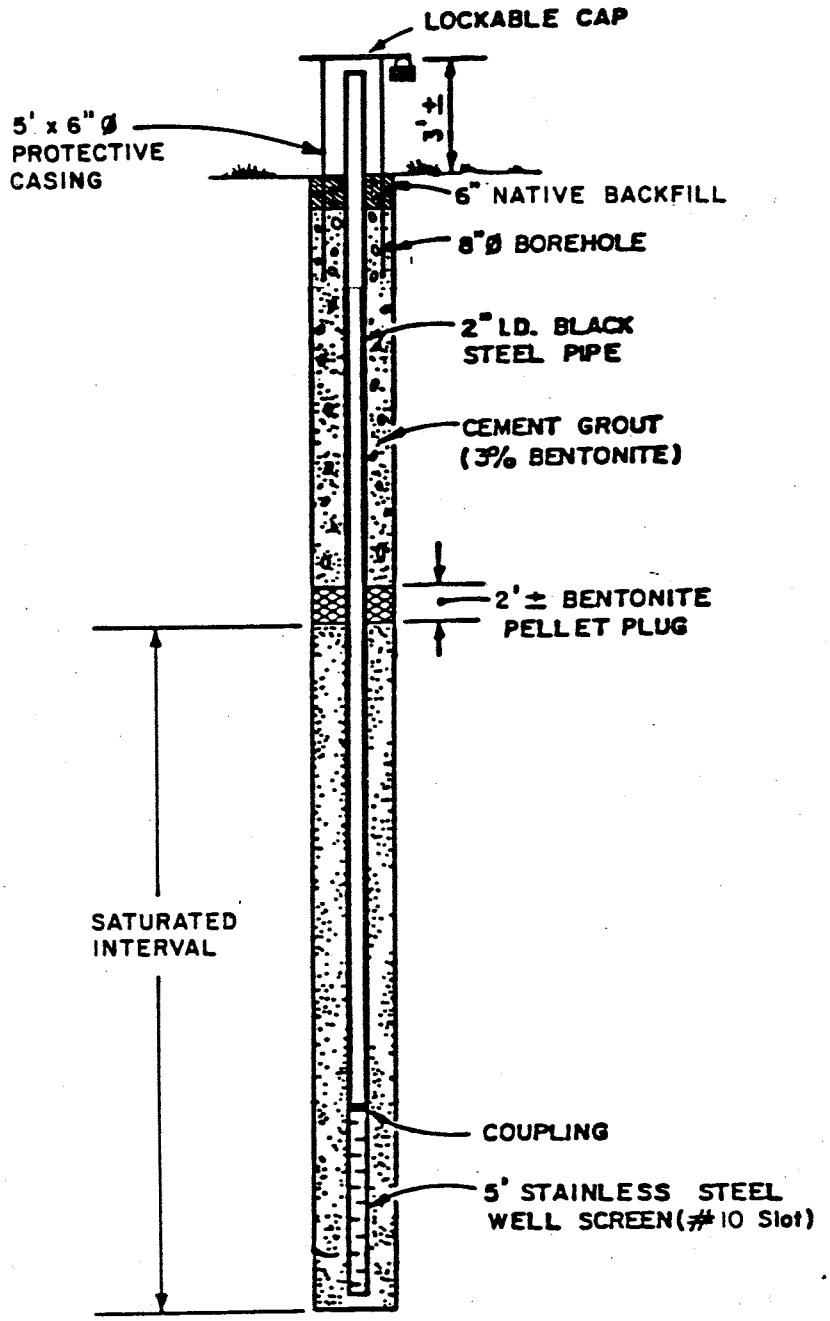


figure B-1

TYPICAL MONITORING WELL INSTALLATION

Tacoma, Wa.

CRA

2.0 Equipment Cleaning

All drilling equipment used during the drilling and well installations will be cleaned prior to each well. The cleaning shall consist of the following:

1) Water wash equipment used during well drilling.
2) Wire brush equipment to remove visible soils adhering to the equipment.
3) Rinse equipment with clean water.
4) Steam clean equipment (inside and outside).

Where necessary acetone and/or hexane will be used to augment the cleaning operation. The well materials shall be similarly cleansed prior to use to remove all coating materials.

All wastewater generated from the cleaning of equipment must be collected in a waste container and tranferred into securable 55 gallon steel drums for disposal.

3.0 Waste Material Handling

All cuttings brought to the surface under the monitoring well installation program will be immediately placed by the Contractor in 55 gallon steel drums supplied by the Contractor. Other waste material generated from the program, such as tyvec coveralls and gloves will be similarly placed in 55 gallon steel drums. Any surface soils affected as a result of the drilling operations will also be placed in the steel drums by the Contractor as directed by the OCC Field Representative.

The drill site will be cleaned up and restored at the completion of work. At the end of every day, all steel drums will be securely capped and transferred to the designated storage area.

PROTOCOL FOR SOIL SAMPLING

1.0 Geologic Identification

Every borehole undertaken shall be accurately logged as to geologic conditions encountered including soil classification, percent recovered, stratigraphy, blow counts, moisture and water conditions, well installation details, augering conditions, and any unusual occurrences.

2.0 Soil Handling

All soil collected for geologic record will be placed in Soil Record Container jars supplied and labelled by the Contractor.

PROTOCOL FOR WELL DEVELOPMENT

Following groundwater stabilization, each installed well will be developed as follows:

1) Using a clean stainless steel or teflon bailer, each well will be bailed a total of three well volumes (or until dry). The bailer will be cleaned with rinses of acetone, hexane and acetone prior to use at each well. The bailer wire used to raise and lower the bailer shall be stainless steel and subject to the identical cleaning procedures outlined for the bailer.

2) The water within the well will be agitated throughout bailing to develop the sandpack around the well screen.

3) After 3 volumes (or after recharge has occurred) the water will be tested for conductivity.

4) Bailing will continue.

5) After each well volume, the water quality will be tested for conductivity.

6) Development will be considered complete after 3 stable conductivity measurements.

All wastewater will be placed into 55 gallon securable drums for disposal.

PROTOCOL FOR WATER SAMPLING

After development the wells will be allowed to stabilize for seven days. Periodic water level measurements will be recorded.

The following week, the wells will be prebailed in preparation for sampling. Depending on the recovery rate of water into the wells, up to three (3) well casing volumes of water will be removed. In cases where insufficient recovery rates exist, the wells will be bailed dry.

The water samples for chemical analysis shall be collected with a cleaned bailer as soon as the measured volume of water in the well has sufficiently recovered to provide the entire sample volume required.

The water samples shall be placed in prepared glass containers provided by OCC. If required, samples will be split with the State Officials.

SAFETY PROTOCOLS FOR WELL INSTALLATION AND SAMPLING

Each worker at the site will undergo a brief indoctrination session describing safety precautions and hygiene considerations.

While working at the site, each worker shall be required to wear the following:

- hard hat
- safety glasses
- rubber gloves
- protective boots
- tyvec coveralls
- respiratory protection (Scott 64 OAF or approved equivalent to be carried by each project person and be available for emergency).

In addition, the Contractor shall supply the following:

- portable emergency eye wash
- first aid kit
- fire extinguisher

OCC will supply a Scott Air Pak.

OCC/DW #2D

Occidental Chemical Corporation

HISTORICAL PHOTOGRAPHY

- Tacoma Plant
- Alexander Avenue
- Dauphin
- Marine View Drive
- Petarcik

February, 1984

Report filed in back of Dangerous Waste file
Report number
OCC/DW #2D

Ref. No. 1002

Prepared by:
CONESTOGA-ROVERS & ASSOCIATES LIMITED

INHOUSE MEMO

TO: Dick Cunningham
FROM: Frank Monahan
DATE: March 1, 1984
SUBJECT: Request for Assistance on Hazardous Wast Investigation

IN INHOUSE FILE

Jan Wentworth
Box 393

Occidental Chemical Corporation

March 28, 1984

Mr. Donald W. Moos
Director
State of Washington Department of Ecology
Mail Stop PV-11
Olympia, Washington 89504

RECEIVED
JUN 29 1984
Department of Ecology
Southwest Regional Office

Dear Mr. Moos:

Subject: Financial Responsibility for Dangerous Waste
TSD Facility WAD009242314, Tacoma, Washington

Pursuant to Subpart H of 40 CFR Parts 264 and 265, Occidental Chemical Holding Corporation hereby provides documentation regarding:

1. Its use of the financial test to demonstrate financial assurance for closure for the subject Occidental Chemical Corporation Dangerous Waste Management facility, and

2. Liability insurance coverage for sudden accidental occurrences for the subject facility.

The attached Chief Financial Officer's letter, Corporate Guarantee document, copy of the independent certified public accountant's document regarding the financial statement, and the certificates of liability insurance, are being provided to the Washington State Department of Ecology by April 1, 1984, or within 90 days after the close of our latest fiscal year.

Sincerely yours,

Norman Alpert

N. Alpert
Vice President
Corporate Environmental Affairs
Occidental Chemical Corporation

4796E-1

Called Jan 12/3/84. She said she would get me a memo per the fact that Occidental met self assurance guidelines. I am reviewing closure costs
-J Chance
12/5/84

Environment, Health & Safety
Hooker Chemical Center, 360 Rainbow Boulevard South, Box 728, Niagara Falls, New York 14302 716/286-3000

March 28, 1984

Director
Washington State Department of Ecology

Dear Sir:

I am the chief financial officer of Occidental Chemical Holding Corporation 10889 Wilshire Boulevard, Los Angeles, California 90024. This letter is in support of the use of the financial test to demonstrate financial responsibility for closure and/or post-closure care as specified in Subpart H of 40 CFR Parts 264 and 265.

1. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: None.

2. This firm guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure and post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility:

	Financial Assurance Required	
	Closure	Post-Closure
WAD009242314 Tacoma, WA Plant Site Hooker Industrial & Specialty Chemicals P. O. Box 2157 Tacoma, Washington 98401	$ 486,856	Not Required

3. In States where Washington State Department of Ecology is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm as owner or operator or guarantor is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility:

REGION 2

	Financial Assurance Required	
	Closure	Post-Closure
NYD000824482 Niagara Falls Plant Site Hooker Industrial & Specialty Chemicals Buffalo Avenue & 47th Street P. O. Box 344 Niagara Falls, New York 14302	$ 1,449,391	Not Required
NYD000831644 Hyde Park Lagoons Hooker Industrial & Specialty Chemicals Buffalo Avenue & 47th Street P. O. Box 344 Niagara Falls, New York 14302	375,000	Not Required
NYD980648281 HCl Neutralization Ponds (at Newco) Hooker Industrial & Specialty Chemicals Buffalo Avenue & 47th Street P. O. Box 344 Niagara Falls, New York 14302	15,249	Not Required
NJD043973122 Burlington, New Jersey Plant Site PVC Fabricated Products River Road P. O. Box 456 Burlington, New Jersey 08016	8,472	Not Required
NJD044654978* Nutley, New Jersey Plant Site Sel-Rex Plating Systems 75 River Road Nutley, New Jersey 07110	17,173	Not Required
NJD056709421** Wayne (Mt. View), New Jersey Plant Site Parker Surface Treatment Products P. O. Box 188 Wayne, New Jersey 07470	11,366	Not Required
	$ 1,876,651	$----------

REGION 4

	Financial Assurance Required	
	Closure	Post-Closure
MSD004000568 Columbus, Mississippi Plant Site Hooker Industrial & Specialty Chemicals P. O. Box 2208 Columbus, Mississippi 39701	$ 79,128	Not Required
	$ 79,128	----------

REGION 5

IND006371173 Jeffersonville, Indiana Plant Site Hooker Industrial & Specialty Chemicals 1008 State Highway 131 East Jeffersonville, Indiana 47130	$ 31,703	Not Required
MID006014906 Montague, Michigan Plant Site Hooker Industrial & Specialty Chemicals P. O. Box 295 Montague, Michigan 49437	54,500	$ 906,200
OHD990747859 Kenton, Ohio Plant Site Durez Resins & Molding Materials P. O. Box 265 Kenton, Ohio 43326	$ 256,645	Not Required
MID056717747* Warren, Michigan Plant Site Udylite Plating Systems 21441 Hoover Road Warren, Michigan 48089	37,931	Not Required
MID057676124** Madison Heights, Michigan Plant Site Parker Surface Treatment Products 32100 Stephenson Highway Madison Heights, Michigan 48071	26,494	Not Required
MID058723867** Morenci, Michigan Plant Site Parker Surface Treatment Products 322 West Main Street Morenci, Michigan 49256	39,633	Not Required
	$ 446,906	$ 906,200

REGION 6

	Financial Assurance Required	
	Closure	Post-Closure
TXD007325111 Dallas, Texas Plant Site Hooker Industrial & Specialty Chemicals 8800 South Central Expressway P. O. Box 15727 Dallas, Texas 75215	$ 110,985	Not Required
	$ 110,985	$----------

REGION 7

MOD057748063** St. Louis, Missouri Plant Site Parker Surface Treatment Products 10800 Baur Boulevard St. Louis, Missouri 63132	$ 12,501	Not Required
	$ 12,501	$----------
	$ 2,526,171	$ 906,200

* Ownership and operation of this facility was sold to OMI International Corporation, 21441 Hoover Road, Warren, Michigan 48089 on October 1, 1983 and alternate financial assurance coverage for closure will be provided by the new owner.

** Ownership and operation of this facility was sold to Parker Chemical Company, 32100 Stephenson Highway, Madison Heights, Michigan 48071 on October 1, 1983 and alternate financial assurance coverage for closure will be provided by the new owner.

4. This firm is the owner or operator of the following dangerous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a state through the financial test or any other financial assurance mechanism specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility:

   None

   This firm is not required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended December 31, 1982.

Alternative 1

1.	Sum of current closure and post-closure cost estimates (total of all cost estimates shown in the four paragraphs above)	$ 3,919,227
*2.	Total liabilities (If any portion of the closure or post-closure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4).	679,278,000
*3.	Tangible net worth	1,131,969,000
*4.	Net worth	1,142,544,000
*5.	Current assets	520,845,000
*6.	Current liabilities	324,507,000
7.	Net working capital (line 5 minus line 6)	196,338,000
*8.	The sum of net income plus depreciation, depletion and amortization	218,816,000
*9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	1,378,517,000

Alternative 1 (Con't)

		YES	NO
10.	Is line 3 at least $10 million?	X	
11.	Is line 3 at least 6 times line 1?	X	
12.	Is line 7 at least 6 times line 1?	X	
*13.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 14.		X
14.	Is line 9 at least 6 times line 1?	X	
15.	Is line 2 divided by line 4 less than 2.0?	X	
16.	Is line 8 divided by line 2 greater than 0.1?	X	
17.	Is line 5 divided by line 6 greater than 1.5?	X	

Corporate Guarantee for Closure or
Post-Closure Care

Guarantee made this March 28, 1984 by Occidental Chemical Holding Corporation, a business corporation organized under the laws of the State of California, herein referred to as guarantor, to the Washington State Department of Ecology, obligee, on behalf of our subsidiary Occidental Chemical Corporation of River Park, 800 Connecticut Ave., Norwalk, Connecticut 06850.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in 40CFR 264.143(f), 264.145(f), 265.143(e), and 265.145(e).

2. Occidental Chemical Corporation owns or operates the following dangerous waste management facility covered by this guarantee:

WAD009242314
Tacoma, WA Plant Site
Hooker Industrial & Specialty Chemicals
P. O. Box 2157
Tacoma, Washington 98401

The guarantee applies to the closure of this facility.

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by Subpart G of 40CFR Parts 264 and 265 for the closure and post-closure care of facilities as identified above.

4. For value received from Occidental Chemical Corporation, guarantor guarantees to Washington State Department of Ecology that in the event that Occidental Chemical Corporation fails to perform closure of the above facility in accordance with the closure or post-closure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in Subpart H of 40CFR Parts 264 or 265, as applicable, in the name of Occidental Chemical Corporation in the amount of the current closure or post-closure cost estimates as specified in Subpart H of 40CFR Parts 264 and 265.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the Director of the Washington State Department of Ecology and to Occidental Chemical Corporation that he intends to provide alternate financial assurance as specified in Subpart H of 40CFR Parts 264 or 265, as applicable, in the name of Occidental Chemical Corporation. Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless Occidental Chemical Corporation has done so.

6. The guarantor agrees to notify the Director of the Washington State Department of Ecology by certified mail, of the voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the Director of the Washington State Department of Ecology of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure or post-closure care, he shall establish alternate financial assurance as specified in Subpart H of 40CFR Parts 264 or 265, as applicable, in the name of Occidental Chemical Corporation unless Occidental Chemical Corporation has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure or post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or post-closure, or any other modification or alteration of an obligation of the owner or operator pursuant to 40CFR Parts 264 or 265.

9. Guarantor agrees to remain bound under this guarantee for so long as Occidental Chemical Corporation must comply with the applicable financial assurance requirements of Subpart H of 40CFR Parts 264 and 265 for the above-listed facilities, except that guarantor may cancel this guarantee by sending notice by certified mail to the Director of the Washington State Department of Ecology and to Occidental Chemical Corporation, such cancellation to become effective no earlier than 120 days after receipt of such notice by both Washington State Department of Ecology and Occidental Chemical Corporation as evidenced by the return receipts.

10. Guarantor agrees that if Occidental Chemical Corporation fails to provide alternate financial assurance as specified in Subpart H of 40CFR Parts 264 or 265, as applicable, and obtain written approval of such assurance from the Director of the Washington State Department of Ecology within 90 days after a notice of cancellation by the guarantor is received by the Director of the Washington State Department of Ecology from guarantor, guarantor shall provide such alternate financial assurance in the name of Occidental Chemical Corporation.

11. Guarantor expressly waives notice of acceptance of this guarantee by the Washington State Department of Ecology or by Occidental Chemical Corporation. Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plan and of amendments or modifications of the facility permit(s).

I hereby certify that the wording of this guarantee is identical to the wording specified in 40CFR 264.151(h) as such regulations were constituted on the date first above written.

Effective Date:
March 28, 1984

Occidental Chemical Holding Corporation

R. Rajaji
Vice-President & Controller

Signature of Witness: Linda Hays

4756E-9/AK/cm

DANGEROUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

March 28, 1984

National Union Fire Insurance Company of Pittsburgh, Pa. (the "Insurer") of 70 Pine Street, New York, New York 10270 (address) hereby certifies that it has issued liability insurance covering bodily injury and property damage to Occidental Chemical Corporation, (the "insured"), of River Park 800 Connecticut Avenue, Norwalk, Connecticut 06850 in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at:

WAD009242314

Tacoma, WA Plant Site

Hooker Industrial & Specialty Chemicals

P. O. Box 2157

Tacoma, Washington 98401

for "sudden accidental occurrences". The limits of liability are $1,000,000 "each occurrence" and "annual aggregate", exclusive of legal defense costs. The coverage is provided under policy number GLA 956-7634 issued on June 17, 1982. The effective date of said policy is April 1, 1982.

The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147 (f) or 265.147 (f).

(c) Whenever requested by the Washington State Department of Ecology, the Insurer agrees to furnish to the Department a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Department.

(e) Any other term ation of the insurance w l be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Department.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

John F. Fallon
(Signature)

Regional Vice President Authorized Representative
(TITLE)

of National Union Fire Insurance Company of Pittsburgh, Pa.
(Name of Insurance Company)

70 Pine Street
New York, New York 10270
(Address of Insurance Company)

DANGEROUS WASTE FA LITY CERTIFICATE OF LIAB ITY INSURANCE

March 28, 1984

1. The Protective National Insurance Company of Omaha (the "Insurer") of 3325 Wilshire Boulevard, Los Angeles, California 90010 (address) hereby certifies that it has issued liability insurance covering bodily injury and property damage to Occidental Chemical Corporation, (the "insured"), of River Park 800 Connecticut Avenue, Norwalk, Connecticut 06850 in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at:

WAD009242314

Tacoma, WA Plant Site

Hooker Industrial & Specialty Chemicals

P. O. Box 2157

Tacoma, Washington 98401

for "sudden accidental occurrences". The limits of liability are $1,000,000 excess of $1,000,000 "each occurrence" and "annual aggregate", exclusive of legal defense costs. The coverage is provided under policy number UB 3877499, issued on April 1, 1984. The effective date of said policy is April 1, 1984.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147 (f) or 265.147 (f).

(c) Whenever requested by the Washington State Department of Ecology, the Insurer agrees to furnish to the Department a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Department.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Department.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151 (j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

David R. Hartoch

(Signature)

Sr. Vice President Authorized Representative

(TITLE)

of The Protective National Insurance Company of Omaha

(Name of Insurance Company)

3325 Wilshire Boulevard
Los Angeles, California 90010

(Address of Insurance Company)

ARTHUR ANDERSEN & CO.

ROCHESTER, NEW YORK

To Occidental Chemical Holding Corporation:

We have examined the consolidated balance sheet of OCCIDENTAL PETROLEUM CORPORATION (a California corporation) and consolidated subsidiaries (the "Company") as of December 31, 1983, and the related consolidated statements of operations, redeemable and nonredeemable preferred stocks, common shares, and other shareholders' equity, changes in financial position and industry segments and geographic areas for the year then ended and have expressed an unqualified opinion on those financial statements in our report dated February 2, 1984 (except with respect to the matter discussed in Note 20, as to which the date is March 2, 1984). We have not performed any auditing procedures since that date. Such financial statements include the consolidated financial statements of Occidental Chemical Holding Corporation (a California corporation and wholly-owned subsidiary of the Company). Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

At your request, we have read the letters dated March 28, 1984, from your chief financial officer to the U.S. Environmental Protection Agency ("EPA") and to various environmental agencies for the states of Mississippi, Indiana, Ohio, Texas and Washington to demonstrate financial assurance and guaranteeing the closure and post-closure care required by EPA regulations. As further required by such regulations, we have compared the data, which the letters from the chief financial officer specifies as having been derived from the independently audited consolidated financial statements as of and for the year ended December 31, 1983 referred to above, with the corresponding amounts in such consolidated financial statements. In connection with this procedure, no matters came to our attention which caused us to believe that the specified data should be adjusted.

This report relates only to the data specified above and does not extend to the consolidated financial statements of the Company or Occidental Chemical Holding Corporation, taken as a whole, for the year ended December 31, 1983. It is furnished solely for the use of the Company and the Company's distribution to the U.S. Environmental Protection Agency and to various environmental agencies for the states of Mississippi, Indiana, Ohio, Texas and Washington and is not to be used for any other purpose.

Arthur Andersen & Co.

Rochester, New York,

March 29, 1984.

Rick

Occidental Chemical Corporation

April 12, 1984

Mr. Frank Monahan
Hazardous/Solid Waste Section Chief
State of Washington
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Monahan:

Attached is a report from the Occidental Chemical Corporation Tacoma Plant Laboratory which presents analytical data from the program of sampling groundwater wells on March 27, 1984. This responds to instructions in your Order, Docket Number DE-81-53, First Amendment, dated May 12, 1982.

The data presented for each well is the average of the analytical results obtained from two of three samples taken at each well location.

Very truly yours,

Lyle Feller

Lyle Feller
Environmental Specialist

LF/bch

Attachment

OXY
HOOKER Industrial & Specialty Chemicals
605 Alexander Avenue, Box 2157, Tacoma, Washington 98401

Occidental Chemical

TLT-8411

April 6, 1984

TO: D. J. Beardsley

FROM: C. G. Candler

SUBJECT: GROUNDWATER ANALYSIS

Occidental Chemical Corp., Tacoma laboratory conducted the quarterly groundwater sampling of monitoring wells number 1, 4, and 7 on March 27, 1984. The samples were analyzed for methylene chloride, chloroform, trichloroethylene and perchloroethylene following the EPA method 601 purge and trap technique.

Three samples were taken from each well. However, two samples from each well were analyzed for the above chlorinated hydrocarbons. The results from the two tests for each well site were averaged and are presented in the attached table.

Duplicate analysis checked within 10%.

C. G. Candler
Sr. Analytical Chemist

CGC/blh

Attachment

cc: RJL, RWH, LDF

GROUNDWATER ANALYSIS

SAMPLED MARCH 27, 1984

mg/liter (ppm)

-Purgeables

WELL #	METHYLENE CHLORIDE	CHLOROFORM	TRICHLOROETHYLENE	PERCHLOROETHYLENE	TOTAL
1	23	353	182	24	582
4	14	921	273	79	1287
7	2	N.D.	85	10	97

N.D. - Non-Detected

Detection Limits - 1.5 ppm

INHOUSE MEMO

TO: Frank Monahan
FROM: Tom Eaton
DATE: April 16, 1984
SUBJECT: Dredging Project for Occidental Chemical Corporation

IN INHOUSE FILE

Occidental Chemical Corporation

HOOKER Industrial & Specialty Chemicals

per 6/13/84

MEMO

To D. J. Beardsley **Date** April 16, 1984

From C. G. Candler TLT: 8444, 8445

Subject Soil Sample Analysis cc: RJL, RWH, LDF, JWP, CGC, File

Several samples of soil were submitted for analysis by J. W. Phillips to establish disposal methods. These samples were analyzed for chlorinated hydrocarbons according to the WAC-173 procedure, below are the results of these tests.

All tests were run in duplicate. The chloride content was determined by using the Parr oxygen bomb and testing with standardized mecuric nitrate solution. These tests indicate that the organic chloride content is below the 100 ppm maximum allowed on all samples other than sample number 12 which was very high.

C. G. Candler
Sr. Analytical Chemist

CGC/blh

Attachment

SOIL SAMPLE ANALYSIS

Method WAC-173 for Chlorinated Hydrocarbons

Sample	PPM Extractables	PPM* Chloride
Soil under Gunk cars	700	23
Soil under Brine Sludge tanks	632	18
Soil sample Area 10	13,610	23
Soil Sample Area 12	14,845	2,728

*Detection Limit = 2 ppm Cl

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

MEMORANDUM
July 23, 1984

To: Frank Monahan

From: Art Johnson AJ

Subject: Results of Priority Pollutant Analysis on Water and Sediment Samples at the Occidental and Pennwalt facilities, Hylebos Waterway, April 1984

Data on the following samples collected by Dale Norton and me are attached:

Sample Number	Media	Collection Site (see Figure 1)	Collection Date
J3476	Water	Bank seepage #1, Occidental	April 18, 1984
J3465	Intertidal Sediment	" " " "	April 19, 1984
J3477	Water	Bank seepage #2, Occidental	April 18, 1984
J3482	" (duplicate)	" " " "	" " "
J3466	Intertidal Sediment	" " " "	April 19, 1984
J3478	Water	Bank seepage #3, Occidental	April 18, 1984
J3467	Intertidal sediment	" " " "	April 19, 1984
J3479	Water	E. property line ditch, Pennwalt	April 18, 1984
J4511	"	" " " " "	May 17, 1984
J3480	"	Bank seepage, Pennwalt	April 19, 1984

The water samples were one-gallon grabs. The sediment samples are composites of several samples of the top 2 cm surface layer of intertidal sediment near the indicated discharges. Analysis was by Cal Analytical Labs, Inc., Sacramento, California.

Seep #1 at Occidental (see photo in Figure 2) had 400 ug/L tetrachloroethane and lesser amounts of several other chlorinated hydrocarbons. Traces of aldrin, DDT, DDD, and b-endosulfan were also detected. Neither tetrachloroethane nor pesticide was detected in the intertidal sediment at this site, but hexachloroethane and tetrachloroethene concentrations were extremely high; 640 mg/Kg and 350 mg/Kg, respectively. Low concentrations of volatiles were found in the other two Occidental seeps sampled. A trace of aldrin was also detected in seep #3.

The following chlorinated butadiene concentrations were measured in the Occidental sediment samples:

Seep #1 Sediment (J3465)	hexachlorobutadiene	20 mg/Kg
	tetrachlorobutadiene (unspecified isomer)	0.6 mg/Kg
	pentachlorobutadiene (unspecified isomer)	0.6 mg/Kg
	pentachlorobutadiene (unspecified isomer)	1.3 mg/Kg
Seep #2 Sediment (J3466)	none detected	
Seep #3 Sediment (J3467)	hexachlorobutadiene	2.6 mg/Kg
	tetrachlorobutadiene (unspecified isomer)	1.0 mg/Kg
	tetrachlorobutadiene (unspecified isomer)	0.3 mg/Kg
	pentachlorobutadiene (unspecified isomer)	1.2 mg/Kg
	pentachlorobutadiene (unspecified isomer)	0.3 mg/Kg

The 20 mg/Kg of hexachlorobutadiene found in the sediment below seep #1 is the highest concentration so far reported for Commencement Bay sediment. 2 ug/L trichlorobutadiene and 3 ug/L tetrachlorobutadiene were detected in seep #1. The raw data for the lower chlorinated butadienes are not in the attached tables, but were reported to us separately in a cover letter.

Bank seepage at Pennwalt (about 200 feet west of the east property line) had 5.6 ug/L hexachlorobutadiene, 110 ug/L hexachloroethane, 120 ug/L chloroform, and 340 ug/L tetrachloroethene. Little was found in the two Pennwalt east property line ditch samples. No sediment was collected here.

AJ:cp

Attachments

cc: Dale Norton
Bill Yake
Jim Krull

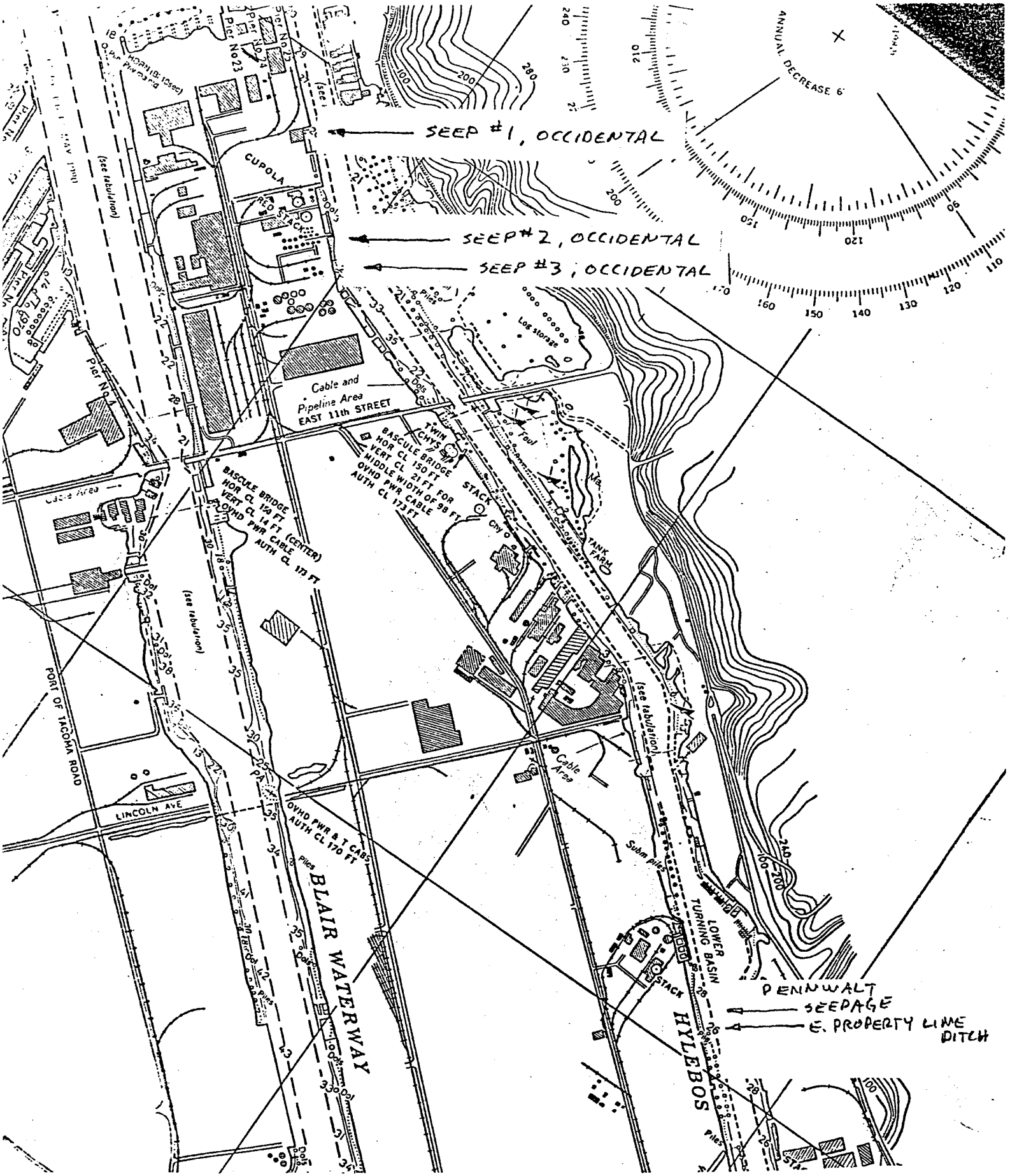


Figure 1. Locations of water and sediment samples collected by WDOE at Occidental and Pennwalt seeps, April 18-19, 1984.

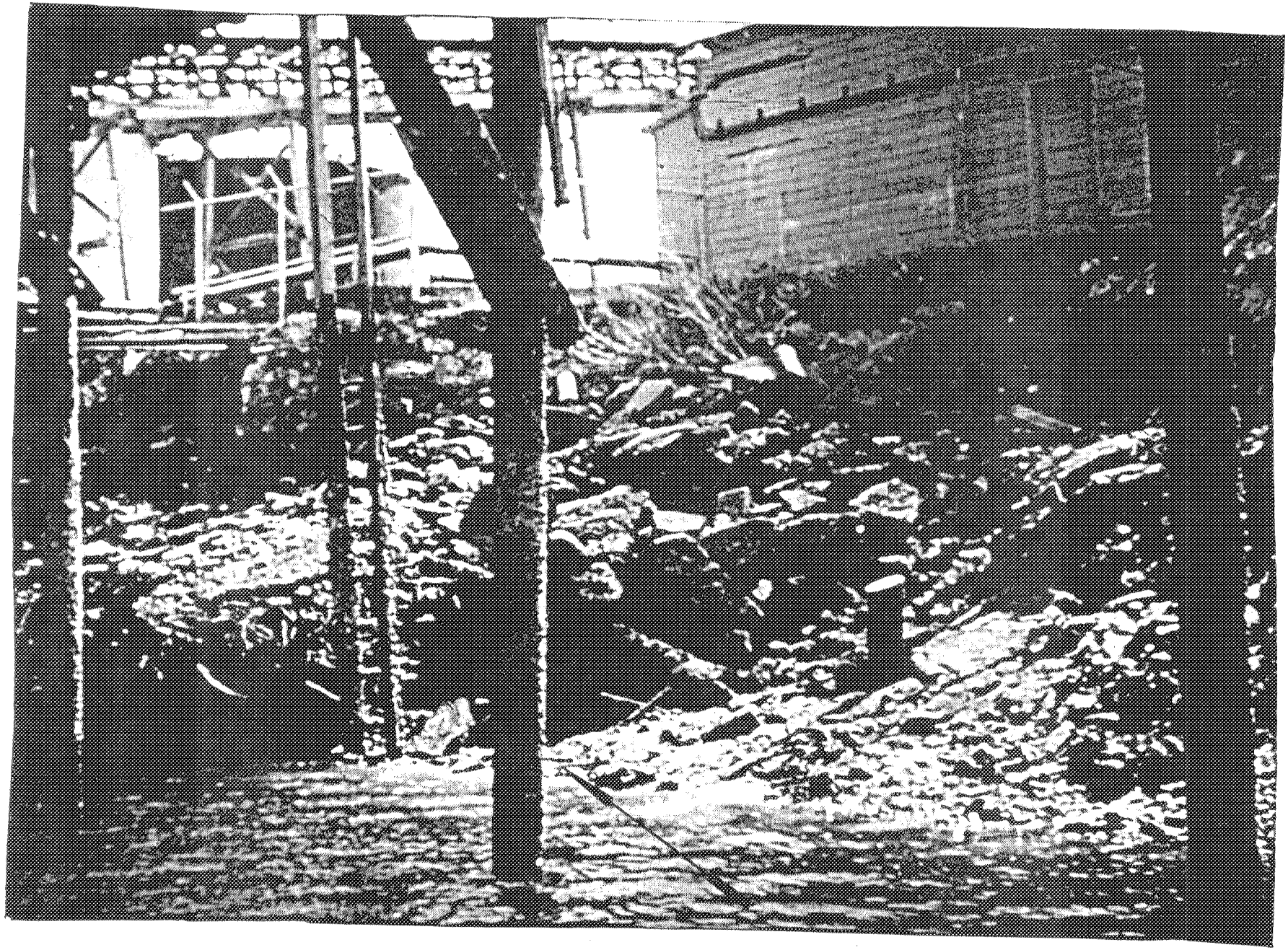


Figure 2. Seep #1 at Occidental sampled by WDOE April 18, 1984.

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

TA PREP/RELEASE BY: Kij / [illegible]

SAMPLE NO:J 3476 SEEP #1
OCCIDENTAL
APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO:S4292

CASE NO:2622/730J
QC REPORT NO:RED 730J-5
CONTRACT NO:68-01-6763

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

PP#	CAS #		ug/L	PP#	CAS #		ug/L
1A	88-06-2	2,4,6-trichlorophenol	1.0 U	52B	87-68-3	hexachlorobutadiene	1.0 U
2A	59-50-7	p-chloro-m-cresol	1.0 U	53B	77-47-4	hexachlorocyclopentadiene	1.0 U
4A	95-57-8	2-chlorophenol	1.0 U	54B	78-59-1	isophorone	1.0 U
1A	120-83-2	2,4-dichlorophenol	1.0 U	55B	91-20-3	naphthalene	1.0 U
4A	105-67-9	2,4-dimethylphenol	1.0 U	56B	98-95-3	nitrobenzene	1.0 U
7A	88-75-5	2-nitrophenol	1.0 U	61B	62-75-9	N-nitrosodimethylamine	1.0 U
	100-02-7	4-nitrophenol	1.0 U	62B	86-30-6	N-nitrosodiphenylamine	1.0 U
9A	51-28-5	2,4-dinitrophenol	1.0 U	63B	621-64-7	N-nitrosodipropylamine	1.0 U
0A	534-52-1	4,6-dinitro-o-cresol	1.0 U	65B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
4A	87-86-5	pentachlorophenol	1.0 U	67B	85-68-7	benzyl butyl phthalate	1.0 U
5A	108-95-2	phenol	1.0 U	68B	84-74-2	di-n-butyl phthalate	1.0 U
L1	65-85-0	benzoic acid	1.0 U	69B	117-84-0	di-n-octyl phthalate	1.0 U
L2	95-48-7	2-methylphenol	1.0 U	70B	84-66-2	diethyl phthalate	1.0 U
L3	108-39-4	4-methylphenol	1.0 U	71B	131-11-3	dimethyl phthalate	1.0 U
L4	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.1 U
1B	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.1 U
5B	92-87-5	benzidine	1.0 U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
6B	120-82-1	1,2,4-trichlorobenzene	1.0 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
8B	118-74-1	hexachlorobenzene	1.0 U	76B	218-01-9	chrysene	0.1 U
2B	67-72-1	hexachloroethane	3.6 J	77B	208-96-8	acenaphthylene	0.1 U
3B	111-44-4	bis(2-chloroethyl)ether	1.0 U	78B	120-12-7	anthracene	0.1 U
0B	91-58-7	2-chloronaphthalene	1.0 U	79B	191-24-2	benzo(ghi)perylene	0.1 U
5B	95-50-1	1,2-dichlorobenzene	1.0 U	80B	86-73-7	fluorene	0.1 U
6B	541-73-1	1,3-dichlorobenzene	1.0 U	81B	85-01-8	phenanthrene	0.1 U
7B	106-46-7	1,4-dichlorobenzene	1.0 U	82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
3B	91-94-1	3,3'-dichlorobenzidine	1.0 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
5B	121-14-2	2,4-dinitrotoluene	1.0 U	84B	129-00-0	pyrene	0.1 U
6B	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	1.0 U
7B	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	1.0 U
9B	206-44-0	fluoranthene	0.1 U	CL7	106-47-8	4-chloroaniline	1.0 U
	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
1B	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
2B	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	1.0 U
3B	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	1.0 U
				CL12	100-01-6	4-nitroaniline	1.0 U

BN COMPOUNDS - FS
OR DATA REPORTING QUALIFIERS SEE COVER LETTER

7/2/84

01

ıRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
ɔx 818, Alexandria, Virginia 22313 - 703/557-2490

A PREP/RELEASE BY: Kj ac / MAM

SAMPLE NO: J 3476 SEEP #1 OCCIDENTAL APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4292
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763
DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE ANALYZED: 4/24/84

PP#	CAS #		ug/L
2V	107-02-8	acrolein	10 U
3V	107-13-1	acrylonitrile	10 U
4V	71-43-2	benzene	1 U
6V	56-23-5	carbon tetrachloride	1 U
7V	108-90-7	chlorobenzene	1 U
10V	107-06-2	1,2-dichloroethane	1 U
11V	71-55-6	1,1,1-trichloroethane	1 U
13V	75-34-3	1,1-dichloroethane	1 U
14V	79-00-5	1,1,2-trichloroethane	1 U
·V	79-34-5	1,1,2,2-tetrachloroethane	(400)
·6V	75-00-3	chloroethane	1 U
19V	110-75-8	2-chloroethylvinyl ether	10 U
23V	67-66-3	chloroform	(1.7M)
29V	75-35-4	1,1-dichloroethene	1 U
30V	156-60-5	trans-1,2-dichloroethene	(58)
32V	78-87-5	1,2-dichloropropane	1 U
33V	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
38V	100-41-4	ethylbenzene	1 U
44V	75-09-2	methylene cnloride	1 U
45V	74-87-3	chloromethane	1 U
46V	74-83-9	bromomethane	1 U
47V	75-25-2	bromoform	1 U
48V	75-27-4	bromodichloromethane	1 U
49V	75-69-4	fluorotrichloromethane	1 U
50V	75-71-8	dichlorodifluoromethane	1 U
51V	124-48-1	chlorodibromomethane	1 U
85V	127-18-4	tetrachloroethene	(44)
86V	108-88-3	toluene	1 U
87V	79-01-6	trichloroethene	(39)
88V	75-01-4	vinyl chloride	(10)
CL13	67-64-1	acetone	5 U
CL14	78-93-3	2-butanone	5 U
CL15	75-15-0	carbondisulfide	1 U
ɔ	519-78-6	2-hexanone	5 U
CL17	108-10-1	4-methyl-2-pentanone	5 U
CL18	100-42-5	styrene	1 U
CL19	108-05-4	vinyl acetate	5 U
CL20	95-47-6	total xylenes	1 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/09/84
CONC FACTOR: 1000ml/5ml

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05M ~~0.05 K **~~
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10M ~~0.10 K **~~
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10M ~~0.10 K **~~
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05M ~~0.05 K **~~
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

7/2/84

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

A PREP/RELEASE BY: KY / MOM

SAMPLE NO: J 3465 INTERTIDAL SEDIMENT NEAR SEEP #1 OCCIDENTAL - APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO: ~~S4326~~ 4324 KY

CASE NO: 2622/730J
QC REPORT NO: REO 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE: 25%

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/25/84
CONC. FACTOR: 22.5g/3ml

P#	CAS #		ug/g	PP#	CAS #		ug/g
IA	88-06-2	2,4,6-trichlorophenol	0.1 U	52B	87-68-3	hexachlorobutadiene	20
2A	59-50-7	p-chloro-m-cresol	0.2 U	53B	77-47-4	hexachlorocyclopentadiene	0.1 U
4A	95-57-8	2-chlorophenol	0.1 U	54B	78-59-1	isophorone	0.1 U
IA	120-83-2	2,4-dichlorophenol	0.1 U	55B	91-28-5	naphthalene	0.1 U
4A	105-67-9	2,4-dimethylphenol	0.1 U	56B	98-95-3	nitrobenzene	0.1 U
	88-75-5	2-nitrophenol	0.1 U	61B	62-75-9	N-nitrosodimethylamine	0.2 U
5A	100-02-7	4-nitrophenol	0.9 U	62B	86-30-6	N-nitrosodiphenylamine	0.1 U
3A	51-28-5	2,4-dinitrophenol	0.4 U	63B	621-64-7	N-nitrosodipropylamine	0.1 U
0A	534-52-1	4,6-dinitro-o-cresol	0.2 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	~~0.81~~ → 0.81
4A	87-86-5	pentachlorophenol	0.25U	67B	85-68-7	benzyl butyl phthalate	0.1 U
5A	108-95-2	phenol	0.1 U	68B	84-74-2	di-n-butyl phthalate	0.1 U
1	65-85-0	benzoic acid	0.9 U	69B	117-84-0	di-n-octyl phthalate	0.1 U
2	95-48-7	2-methylphenol	0.1 U	70B	84-66-2	diethyl phthalate	0.1 U
3	108-39-4	4-methylphenol	0.1 U	71B	131-11-3	dimethyl phthalate	0.1 U
4	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.21 M
1B	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.20 M
5B	92-87-5	benzidine	0.25U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
9B	120-82-1	1,2,4-trichlorobenzene	0.1 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
8B	118-74-1	hexachlorobenzene	0.20 M	76B	218-01-9	chrysene	0.27 M
2B	67-72-1	hexachloroethane	640	77B	208-96-8	acenaphthylene	0.1 U
3B	111-44-4	bis(2-chloroethyl)ether	0.1 U	78B	120-12-7	anthracene	0.1 U
8B	91-58-7	2-chloronaphthalene	0.1 U	79B	191-24-2	benzo(ghi)perylene	0.12 M
5B	95-50-1	1,2-dichlorobenzene	0.1 U	80B	86-73-7	fluorene	0.1 U
0B	541-73-1	1,3-dichlorobenzene	0.1 U	81B	85-01-8	phenanthrene	0.19 M
7B	106-46-7	1,4-dichlorobenzene	0.1 U	82B	53-70-3	dibenzo(a,h)anthracene	0.25U
3B	91-94-1	3,3'-dichlorobenzidine	0.1 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	~~0.25~~ 0.25 M
1B	121-14-2	2,4-dinitrotoluene	0.1 U	84B	129-00-0	pyrene	0.25 M
2B	606-20-2	2,6-dinitrotoluene	0.1 U	CL5	62-53-3	aniline	0.1 U
7B	122-66-7	1,2-diphenylhydrazine	0.1 U	CL6	100-51-6	benzyl alcohol	0.1 U
8B	206-44-0	fluoranthene	0.31 M	CL7	106-47-8	4-chloroaniline	0.5 U
	7005-72-3	4-chlorophenyl phenyl ether	0.1 U	CL8	132-64-9	dibenzofuran	0.05U
6	101-55-3	4-bromophenyl phenyl ether	0.1 U	CL9	91-57-6	2-methylnaphthalene	0.1 U
2B	39638-32-9	bis(2-chloroisopropyl) ether	0.1 U	CL10	88-74-4	2-nitroaniline	0.9 U
5B	111-91-1	bis(2-chloroethoxy) methane	0.1 U	CL11	99-09-2	3-nitroaniline	0.7 U
				CL12	100-01-6	4-nitroaniline	1.0 U

ON COMPOUNDS - FS

SULTS REPORTED IN DRY WEIGHT

5/26/84

. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: _____ / MADM

SAMPLE NO: J 3465 INTERTIDAL SEDIMENT NEAR SEEP #1 OCCIDENTAL APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4324
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763
DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE: 25%

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE ANALYZED: 5/ 4/84

PP#	CAS #		ug/g	
2V	107-02-8	acrolein	5.0	U
3V	107-13-1	acrylonitrile	5.0	U
4V	71-43-2	benzene	0.10	U
5V	56-23-5	carbon tetrachloride	0.10	U
7V	108-90-7	chlorobenzene	0.10	U
0V	107-06-2	1,2-dichloroethane	0.10	U
1V	71-55-6	1,1,1-trichloroethane	0.10	U
3V	75-34-3	1,1-dichloroethane	0.10	U
4V	79-00-5	1,1,2-trichloroethane	0.10	U
	79-34-5	1,1,2,2-tetrachloroethane	0.10	U
6V	75-00-3	chloroethane	0.10	U
2V	110-75-8	2-chloroethylvinyl ether	5.0	U
6V	67-66-3	chloroform	0.11 M	
8V	75-35-4	1,1 dichloroethene	0.10	U
9V	156-60-5	trans-1,2-dichloroethene	0.10	U
0V	78-87-5	1,2-dichloropropane	0.10	U
1V	10061-02-6	trans-1,3-dichloropropene	0.10	U
	10061-01-5	cis-1,3-dichloropropene	0.10	U
V	100-41-4	ethylbenzene	0.10	U
V	75-09-2	methylene chloride 9.97 ~~8.8~~		
V	74-87-3	chloromethane	0.10	U
V	74-83-9	bromomethane	0.10	U
V	75-25-2	bromoform	0.10	U
V	75-27-4	bromodichloromethane	0.10	U
V	75-69-4	fluorotrichloromethane	0.10	U
V	75-71-8	dichlorodifluoromethane	0.10	U
V	124-48-1	chlorodibromomethane	0.10	U
V	127-18-4	tetrachloroethene 350		
V	108-88-3	toluene	0.10	U
V	79-01-6	trichloroethene	0.10	U
V	75-01-4	vinyl chloride	0.10	U
13	67-64-1	acetone	1.0	U
14	78-93-3	2 butanone	1.0	U
15	75-15-0	carbondisulfide	0.10	U
	519-78-6	2-hexanone	1.0	U
17	108-10-1	4-methyl-2-pentanone	1.0	U
18	100-42-5	styrene	0.10	U
19	108-05-4	vinyl acetate	2.0	U
20	95-47-6	total xylenes	0.10	U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/23/84
CONC FACTOR: 7.5g/ml

PP#	CAS #		ug/g	
89P	309-00-2	aldrin	0.025	U
90P	60-57-1	dieldrin	0.050	U
91P	57-74-9	chlordane	0.25	U
92P	50-29-3	4,4' DDT	0.010	U
93P	72-55-9	4,4'-DDE	0.050	U
94P	72-54-8	4,4'-DDD	0.10	U
95P	115-29-7	a-endosulfan	0.050	U
96P	115-29-7	b-endosulfan	0.050	U
97P	1031-07-8	endosulfan sulfate	0.010	U
98P	72-20-8	endrin	0.050	U
99P	7421-93-4	endrin aldehyde	0.010	U
100P	76-44-8	heptachlor	0.025	U
101P	1024-57-3	heptachlor epoxide	0.025	U
102P	319-84-6	a-BHC	0.025	U
103P	319-85-7	b-BHC	0.025	U
104P	319-86-8	d-BHC	0.025	U
105P	58-89-9	g-BHC (lindane)	0.025	U
106P	53469-21-9	PCB-1242	1.0	U
107P	11097-69-1	PCB-1254	1.0	U
108P	11104-28-2	PCB-1221	1.0	U
109P	11141-16-5	PCB-1232	1.0	U
110P	12672-29-6	PCB-1248	1.0	U
111P	11096-82-5	PCB-1260	1.0	U
112P	12674-11-2	PCB-1016	1.0	U
113P	8001-35-2	toxaphene	2.5	U

7/9/84

DIOXINS

CONC FACTOR: 7.5g/0.5ml
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/31/84

PP#	CAS #		ug/g
129B	1746-01-6	2,3,7,8-tetrachloro-dibenzo-p-dioxin	0.025 U ~~0.002 U~~

DIOXINS-FS
RESULTS REPORTED IN DRY WEIGHT

lym

S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

TA PREP/RELEASE BY: Kf / [illegible]

SAMPLE NO: J 3477 SEEP #2 OCCIDENTAL APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

BORATORY: California Analytical Labs, Inc.
B SAMPLE NO: S4293

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6783

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

VER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

#	CAS #		ug/L	PP#	CAS #		ug/L
	88-06-2	2,4,6-trichlorophenol	1.0 U	52B	87-68-3	hexachlorobutadiene	1.0 U
	59-50-7	p-chloro-m-cresol	1.0 U	53B	77-47-4	hexachlorocyclopentadiene	1.0 U
	95-57-8	2-chlorophenol	1.0 U	54B	78-59-1	isophorone	1.0 U
	120-83-2	2,4-dichlorophenol	1.0 U	55B	91-20-3	naphthalene	1.0 U
	105-67-9	2,4-dimethylphenol	1.0 U	56B	98-95-3	nitrobenzene	1.0 U
	88-75-5	2-nitrophenol	1.0 U	61B	62-75-9	N-nitrosodimethylamine	1.0 U
	100-02-7	4-nitrophenol	1.0 U	62B	86-30-6	N-nitrosodiphenylamine	1.0 U
	51-28-5	2,4-dinitrophenol	1.0 U	63B	621-64-7	N-nitrosodipropylamine	1.0 U
	534-52-1	4,6-dinitro-o-cresol	1.0 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
	87-86-5	pentachlorophenol	1.0 U	67B	85-68-7	benzyl butyl phthalate	1.0 U
	108-95-2	phenol	1.0 U	68B	84-74-2	di-n-butyl phthalate	1.0 U
	65-85-0	benzoic acid	1.0 U	69B	117-84-0	di-n-octyl phthalate	1.0 U
	95-48-7	2-methylphenol	1.0 U	70B	84-66-2	diethyl phthalate	1.0 U
	108-39-4	4-methylphenol	1.0 U	71B	131-11-3	dimethyl phthalate	1.0 U
	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.1 U
	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.1 U
	92-87-5	benzidine	1.0 U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
	120-82-1	1,2,4-trichlorobenzene	1.0 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
	118-74-1	hexachlorobenzene	1.0 U	76B	218-01-9	chrysene	0.1 U
	67-72-1	hexachloroethane	1.0 U	77B	208-96-8	acenaphthylene	0.1 U
	111-44-4	bis(2-chloroethyl)ether	1.0 U	78B	120-12-7	anthracene	0.1 U
	91-58-7	2-chloronaphthalene	1.0 U	79B	191-24-2	benzo(ghi)perylene	0.1 U
	95-50-1	1,2-dichlorobenzene	1.0 U	80B	86-73-7	fluorene	0.1 U
	541-73-1	1,3-dichlorobenzene	1.0 U	81B	85-01-8	phenanthrene	0.1 U
	106-46-7	1,4-dichlorobenzene	1.0 U	82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
	91-94-1	3,3'-dichlorobenzidine	1.0 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
	121-14-2	2,4-dinitrotoluene	1.0 U	84B	129-00-0	pyrene	0.1 U
	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	1.0 U
	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	1.0 U
	206-44-0	fluoranthene	0.1 U	CL7	106-47-8	4-chloroaniline	1.0 U
	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	1.0 U
	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	1.0 U
				CL12	100-01-6	4-nitroaniline	1.0 U

COMPOUNDS - FS
DATA REPORTING QUALIFIERS SEE COVER LETTER

01

,IRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
,ox 818, Alexandria, Virginia 22313 - 703/557-2490

.TA PREP/RELEASE BY: Ky cc/ [illegible]

SAMPLE NO: J 3477 SEEP #2 OCCIDENTAL APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY NAME: California Analytical Labs, Inc.
AB SAMPLE NO: 54293
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763
DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

ONCENTRATION: (LOW) MEDIUM HIGH (circle one)
ATE ANALYZED: 4/26/84

)#	CAS #		ug/L
J	107-02-8	acrolein	10 U
J	107-13-1	acrylonitrile	10 U
J	71-43-2	benzene	1 U
J	56-23-5	carbon tetrachloride	1 U
J	108-90-7	chlorobenzene	1 U
J	107-06-2	1,2-dichloroethane	1 U
J	71-55-6	1,1,1-trichloroethane	1 U
J	75-34-3	1,1-dichloroethane	1 U
J	79-00-5	1,1,2-trichloroethane	1 U
	79-34-5	1,1,2,2-tetrachloroethane	1 U
J	75-00-3	chloroethane	1 U
J	110-75-8	2-chloroethylvinyl ether	10 U
J	67-66-3	chloroform	(11)
J	75-35-4	1,1-dichloroethene	1 U
J	156-60-5	trans-1,2-dichloroethene	(1.6 M)
J	78-87-5	1,2-dichloropropane	1 U
J	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
J	100-41-4	ethylbenzene	1 U
J	75-09-2	methylene chloride	1 U
J	74-87-3	chloromethane	1 U
J	74-83-9	bromomethane	1 U
J	75-25-2	bromoform	1 U
J	75-27-4	bromodichloromethane	1 U
J	75-69-4	fluorotrichloromethane	1 U
J	75-71-8	dichlorodifluoromethane	1 U
J	124-48-1	chlorodibromomethane	1 U
J	127-18-4	tetrachloroethene	1 U
	108-88-3	toluene	1 U
J	79-01-6	trichloroethene	(3.2M)
	75-01-4	vinyl chloride	1 U
3	67-64-1	acetone	5 U
4	78-93-3	2-butanone	5 U
F	75-15-0	carbondisulfide	1 U
6	519-78-6	2-hexanone	5 U
7	108-10-1	4-methyl-2-pentanone	5 U
8	100-42-5	styrene	1 U
9	108-05-4	vinyl acetate	5 U
0	95-47-6	total xylenes	1 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/09/84
CONC FACTOR: 1000ml/5ml

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05 U
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

7/2/84

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: _____ / _____

SAMPLE NO: J 3482 SEEP #2 (duplicate)
OCCIDENTAL
APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO: S4297

CASE NO: 2622/7300
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6733

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

PP#	CAS #		ug/L	PP#	CAS #		ug/L
1A	88-06-2	2,4,6-trichlorophenol	1.0 U	52B	87-68-3	hexachlorobutadiene	1.0 U
2A	59-50-7	p-chloro-m-cresol	1.0 U	53B	77-47-4	hexachlorocyclopentadiene	1.0 U
3A	95-57-8	2-chlorophenol	1.0 U	54B	78-59-1	isophorone	1.0 U
4A	120-83-2	2,4-dichlorophenol	1.0 U	55B	91-28-5	naphthalene	1.0 U
5A	105-67-9	2,4-dimethylphenol	1.0 U	56B	98-95-3	nitrobenzene	1.0 U
6A	88-75-5	2-nitrophenol	1.0 U	61B	62-75-9	N-nitrosodimethylamine	1.0 U
	100-02-7	4-nitrophenol	1.0 U	62B	86-30-6	N-nitrosodiphenylamine	1.0 U
8A	51-28-5	2,4-dinitrophenol	1.0 U	63B	621-64-7	N-nitrosodipropylamine	1.0 U
9A	534-52-1	4,6-dinitro-o-cresol	1.0 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
10A	87-86-5	pentachlorophenol	1.0 U	67B	85-68-7	benzyl butyl phthalate	1.0 U
11A	108-95-2	phenol	1.0 U	68B	84-74-2	di-n-butyl phthalate	1.0 U
1	65-85-0	benzoic acid	1.0 U	69B	117-84-0	di-n-octyl phthalate	1.0 U
2	95-48-7	2-methylphenol	1.0 U	70B	84-66-2	diethyl phthalate	1.0 U
3	108-39-4	4-methylphenol	1.0 U	71B	131-11-3	dimethyl phthalate	1.0 U
4	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.1 U
5	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.1 U
6	92-87-5	benzidine	1.0 U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
7	120-82-1	1,2,4-trichlorobenzene	1.0 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
8	118-74-1	hexachlorobenzene	1.0 U	76B	218-01-9	chrysene	0.1 U
9	67-72-1	hexachloroethane	1.0 U	77B	208-96-8	acenaphthylene	0.1 U
10	111-44-4	bis(2-chloroethyl)ether	1.0 U	78B	120-12-7	anthracene	0.1 U
11	91-58-7	2-chloronaphthalene	1.0 U	79B	191-24-2	benzo(ghi)perylene	0.1 U
12	95-50-1	1,2-dichlorobenzene	1.0 U	80B	86-73-7	fluorene	0.1 U
13	541-73-1	1,3-dichlorobenzene	1.0 U	81B	85-01-8	phenanthrene	0.1 U
14	106-46-7	1,4-dichlorobenzene	1.0 U	82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
15	91-94-1	3,3'-dichlorobenzidine	1.0 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
16	121-14-2	2,4-dinitrotoluene	1.0 U	84B	129-00-0	pyrene	0.1 U
17	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	1.0 U
18	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	1.0 U
19	206-44-0	fluoranthene	0.1 U	CL7	106-47-8	4-chloroaniline	1.0 U
20	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
21	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
22	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	1.0 U
23	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	1.0 U
				CL12	100-01-6	4-nitroaniline	1.0 U

COMPOUNDS - FS
DATA REPORTING QUALIFIERS SEE COVER LETTER

01

ENTAL PROTECTION AGENCY - CLP Sample Management Office
d, Alexandria, Virginia 22313 - 703/557-2490

LP/RELEASE BY: Ky / cc. [illegible]

SAMPLE NO: J 3432 SEEP #2 (duplicate)
OCCIDENTAL
APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

BORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4297
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763
DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE ANALYZED: 4/26/84

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/10/84
CONC FACTOR: 1000ml/5ml

PP#	CAS #		ug/L
V	107-02-8	acrolein	10 U
V	107-13-1	acrylonitrile	10 U
V	71-43-2	benzene	1 U
V	56-23-5	carbon tetrachloride	1 U
V	108-90-7	chlorobenzene	1 U
V	107-06-2	1,2-dichloroethane	1 U
V	71-55-6	1,1,1-trichloroethane	1 U
V	75-34-3	1,1-dichloroethane	1 U
	79-00-5	1,1,2-trichloroethane	1 U
V	79-34-5	1,1,2,2-tetrachloroethane	1 U
V	75-00-3	chloroethane	1 U
V	110-75-8	2-chloroethylvinyl ether	10 U
V	67-66-3	chloroform	(11)
V	75-35-4	1,1-dichloroethene	1 U
V	156-60-5	trans-1,2-dichloroethene	(1.3M)
V	78-87-5	1,2-dichloropropane	1 U
V	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
V	100-41-4	ethylbenzene	1 U
V	75-09-2	methylene chloride	1 U
V	74-87-3	chloromethane	1 U
V	74-83-9	bromomethane	1 U
V	75-25-2	bromoform	1 U
V	75-27-4	bromodichloromethane	1 U
V	75-69-4	fluorotrichloromethane	1 U
V	75-71-8	dichlorodifluoromethane	1 U
V	124-48-1	chlorodibromomethane	1 U
V	127-18-4	tetrachloroethene	1 U
V	108-88-3	toluene	1 U
V	79-01-6	trichloroethene	(3.0M)
V	75-01-4	vinyl chloride	1 U
13	67-64-1	acetone	~~31~~ aj 20 July 84
14	78-93-3	2-butanone	5 U
	75-15-0	carbondisulfide	1 U
16	519-78-6	2-hexanone	5 U
17	108-10-1	4-methyl-2-pentanone	5 U
18	100-42-5	styrene	1 U
19	108-05-4	vinyl acetate	5 U
20	95-47-6	total xylenes	1 U

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05 U
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

7/2/84

,IRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
JX 818, Alexandria, Virginia 22313 - 703/557-2490

A PREP/RELEASE BY: L.Cy / MDM

SAMPLE NO:J 3466 INTERTIDAL SEDIMENT NEAR SEEP #2 OCCIDENTAL APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY: California Analytical Labs, Inc.
AB SAMPLE NO:S4325

CASE NO:2622/730J
QC REPORT NO:RED 730J-S
CONTRACT NO:68-01-6763

DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE:18%

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/25/84
CONC. FACTOR: 24.6g/3ml

P#	CAS #		ug/g	PP#	CAS #		ug/g
A	88-06-2	2,4,6-trichlorophenol	0.1 U	528	87-68-3	hexachlorobutadiene	0.1 U
A	59-50-7	p-chloro-m-cresol	0.2 U	538	77-47-4	hexachlorocyclopentadiene	0.1 U
A	95-57-8	2-chlorophenol	0.1 U	548	78-59-1	isophorone	0.1 U
A	120-83-2	2,4-dichlorophenol	0.1 U	558	91-28-5	naphthalene	0.1 U
A	105-67-9	2,4-dimethylphenol	0.1 U	568	98-95-3	nitrobenzene	0.1 U
A	88-75-5	2-nitrophenol	0.1 U	618	62-75-9	N-nitrosodimethylamine	0.2 U
A	100-02-7	4-nitrophenol	0.9 U	628	86-30-6	N-nitrosodiphenylamine	0.1 U
	51-28-5	2,4-dinitrophenol	0.4 U	638	621-64-7	N-nitrosodipropylamine	0.1 U
IA	534-52-1	4,6-dinitro-o-cresol	0.2 U	668	117-81-7	bis(2-ethylhexyl)phthalate	0.13 M
A	87-86-5	pentachlorophenol	0.25U	678	85-68-7	benzyl butyl phthalate	0.1 U
A	108-95-2	phenol	0.1 U	688	84-74-2	di-n-butyl phthalate	0.1 U
.1	65-85-0	benzoic acid	0.9 U	698	117-84-0	di-n-octyl phthalate	0.1 U
.2	95-48-7	2-methylphenol	0.1 U	708	84-66-2	diethyl phthalate	0.1 U
.3	108-39-4	4-methylphenol	0.1 U	718	131-11-3	dimethyl phthalate	0.1 U
.4	95-95-4	2,4,5-trichlorophenol	1.0 U	728	56-55-3	benzo(a)anthracene	0.88
8	83-32-9	acenaphthene	0.1 U	738	50-32-8	benzo(a)pyrene	1.1
8	92-87-5	benzidine	0.25U	748	205-99-2	benzo(b)fluoranthene	0.59
8	120-82-1	1,2,4-trichlorobenzene	0.1 U	758	207-08-9	benzo(k)fluoranthene	0.59
8	118-74-1	hexachlorobenzene	0.1 U	768	218-01-9	chrysene	1.1
8	67-72-1	hexachloroethane	1.1	778	208-96-8	acenaphthylene	0.1 U
8	111-44-4	bis(2-chloroethyl)ether	0.1 U	788	120-12-7	anthracene	0.21 M
8	91-58-7	2-chloronaphthalene	0.1 U	798	191-24-2	benzo(ghi)perylene	0.50 M
8	95-50-1	1,2-dichlorobenzene	0.1 U	808	86-73-7	fluorene	0.1 U
8	541-73-1	1,3-dichlorobenzene	0.1 U	818	85-01-8	phenanthrene	0.70 M
8	106-46-7	1,4-dichlorobenzene	0.1 U	828	53-70-3	dibenzo(a,h)anthracene	0.25 M
8	91-94-1	3,3'-dichlorobenzidine	0.1 U	838	193-39-5	indeno(1,2,3-cd)pyrene	0.56
8	121-14-2	2,4-dinitrotoluene	0.1 U	848	129-00-0	pyrene	1.3
8	606-20-2	2,6-dinitrotoluene	0.1 U	CL5	62-53-3	aniline	0.1 U
8	122-66-7	1,2-diphenylhydrazine	0.1 U	CL6	100-51-6	benzyl alcohol	0.1 U
8	206-44-0	fluoranthene	1.1	CL7	106-47-8	4-chloroaniline	0.5 U
8	7005-72-3	4-chlorophenyl phenyl ether	0.1 U	CL8	132-64-9	dibenzofuran	0.05U
8	101-55-3	4-bromophenyl phenyl ether	0.1 U	CL9	91-57-6	2-methylnaphthalene	0.1 U
	39638-32-9	bis(2-chloroisopropyl) ether	0.1 U	CL10	88-74-4	2-nitroaniline	0.9 U
8	111-91-1	bis(2-chloroethoxy) methane	0.1 U	CL11	99-09-2	3-nitroaniline	0.7 U
				CL12	100-01-6	4-nitroaniline	1.0 U

ON COMPOUNDS - FS
ESULTS REPORTED IN DRY WEIGHT
OR DATA REPORTING QUAILIFIERS SEE COVER LETTER

7/9/84

11

U.S. EPA CLP Data Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: (illegible) / MDH

SAMPLE NO: J 3466 INTERTIDAL SEDIMENT NEAR SEEP #2 OCCIDENTAL APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4325

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE: 18%

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: LOW / MEDIUM / HIGH (circle one)
DATE ANALYZED: 5/ 4/84

PP#	CAS #		ug/g
2V	107-02-8	acrolein	0.050 U
3V	107-13-1	acrylonitrile	0.050 U
4V	71-43-2	benzene	0.001 U
6V	56-23-5	carbon tetrachloride	0.001 U
7V	108-90-7	chlorobenzene	0.001 U
0V	107-06-2	1,2-dichloroethane	0.001 U
1V	71-55-6	1,1,1-trichloroethane	0.001 U
3V	75-34-3	1,1-dichloroethane	0.001 U
4V	79-00-5	1,1,2-trichloroethane	0.001 U
5V	79-34-5	1,1,2,2-tetrachloroethane	0.001 U
	75-00-3	chloroethane	0.001 U
	110-75-8	2-chloroethylvinyl ether	0.050 U
8V	67-66-3	chloroform	0.0034 M
9V	75-35-4	1,1-dichloroethene	0.001 U
0V	156-60-5	trans-1,2-dichloroethene	0.001 U
2V	78-87-5	1,2-dichloropropane	0.001 U
3V	10061-02-6	trans-1,3-dichloropropene	0.001 U
	10061-01-5	cis-1,3-dichloropropene	0.001 U
0V	100-41-4	ethylbenzene	0.001 U
5V	75-09-2	methylene chloride	0.040
6V	74-87-3	chloromethane	0.001 U
6V	74-83-9	bromomethane	0.001 U
7V	75-25-2	bromoform	0.001 U
8V	75-27-4	bromodichloromethane	0.001 U
9V	75-69-4	fluorotrichloromethane	0.001 U
0V	75-71-8	dichlorodifluoromethane	0.001 U
1V	124-48-1	chlorodibromomethane	0.001 U
2V	127-18-4	tetrachloroethene	0.005 U
4V	108-88-3	toluene	0.001 U
5V	79-01-6	trichloroethene	0.001 U
6V	75-01-4	vinyl chloride	0.001 U
13	67-64-1	acetone	0.010 U
14	78-93-3	2-butanone	0.010 U
15	75-15-0	carbondisulfide	0.001 U
16	519-78-6	2-hexanone	0.010 U
	108-10-1	4-methyl-2-pentanone	0.010 U
18	100-42-5	styrene	0.001 U
19	108-05-4	vinyl acetate	0.020 U
20	95-47-6	total xylenes	0.001 U

PESTICIDES

CONCENTRATION: LOW / MEDIUM / HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/24/84
CONC FACTOR: 8.2g/ml

PP#	CAS #		ug/g
89P	309-00-2	aldrin	0.25 U
90P	60-57-1	dieldrin	0.50 U
91P	57-74-9	chlordane	2.5 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.50 U
94P	72-54-8	4,4'-DDD	1.0 U
95P	115-29-7	a-endosulfan	0.50 U
96P	115-29-7	b-endosulfan	0.50 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.50 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.25 U
101P	1024-57-3	heptachlor epoxide	0.25 U
102P	319-84-6	a-BHC	0.25 U
103P	319-85-7	b-BHC	0.25 U
104P	319-86-8	d-BHC	0.25 U
105P	58-89-9	g-BHC (Lindane)	0.25 U
106P	53469-21-9	PCB-1242	10 U
107P	11097-69-1	PCB-1254	10 U
108P	11104-28-2	PCB-1221	10 U
109P	11141-16-5	PCB-1232	10 U
110P	12672-29-6	PCB-1248	10 U
111P	11096-82-5	PCB-1260	10 U
112P	12674-11-2	PCB-1016	10 U
113P	8001-35-2	toxaphene	25 U

DIOXINS

CONC FACTOR: 8.2g/0.5ml
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 6/4/84

PP#	CAS #		ug/g
1298	1746-01-6	2,3,7,8-tetrachloro-dibenzo-p-dioxin	0.25 U ~~0.892 U~~

DIOXINS-FS
RESULTS REPORTED IN DRY WEIGHT

bjm

(illegible) 7/9/84

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: Ky / [illegible]

SAMPLE NO:J 3478 SEEP #3 OCCIDENTAL APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO:S4294

CASE NO:2622/730J
QC REPORT NO:RED 730J-5
CONTRACT NO:68-01-6763

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

PP#	CAS #		ug/L	PP#	CAS #		ug/L
1A	88-06-2	2,4,6-trichlorophenol	1.0 U	52B	87-68-3	hexachlorobutadiene	1.0 U
2A	59-50-7	p-chloro-m-cresol	1.0 U	53B	77-47-4	hexachlorocyclopentadiene	1.0 U
4A	95-57-8	2-chlorophenol	1.0 U	54B	78-59-1	isophorone	1.0 U
1A	120-83-2	2,4-dichlorophenol	1.0 U	55B	91-20-3	naphthalene	1.0 U
4A	105-67-9	2,4-dimethylphenol	1.0 U	56B	98-95-3	nitrobenzene	1.0 U
7A	88-75-5	2-nitrophenol	1.0 U	61B	62-75-9	N-nitrosodimethylamine	1.0 U
[illegible]	100-02-7	4-nitrophenol	1.0 U	62B	86-30-6	N-nitrosodiphenylamine	1.0 U
[illegible]	51-28-5	2,4-dinitrophenol	1.0 U	63B	621-64-7	N-nitrosodipropylamine	1.0 U
0A	534-52-1	4,6-dinitro-o-cresol	1.0 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
4A	87-86-5	pentachlorophenol	1.0 U	67B	85-68-7	benzyl butyl phthalate	1.0 U
5A	108-95-2	phenol	1.0 U	68B	84-74-2	di-n-butyl phthalate	1.0 U
L1	65-85-0	benzoic acid	1.0 U	69B	117-84-0	di-n-octyl phthalate	1.0 U
L2	95-48-7	2-methylphenol	1.0 U	70B	84-66-2	diethyl phthalate	1.0 U
L3	108-39-4	4-methylphenol	1.0 U	71B	131-11-3	dimethyl phthalate	1.0 U
L4	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.1 U
1B	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.1 U
5B	92-87-5	benzidine	1.0 U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
8B	120-82-1	1,2,4-trichlorobenzene	1.0 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
9B	118-74-1	hexachlorobenzene	1.0 U	76B	218-01-9	chrysene	0.1 U
2B	67-72-1	hexachloroethane	1.0 U	77B	208-96-8	acenaphthylene	0.1 U
3B	111-44-4	bis(2-chloroethyl)ether	1.0 U	78B	120-12-7	anthracene	0.1 U
0B	91-58-7	2-chloronaphthalene	1.0 U	79B	191-24-2	benzo(ghi)perylene	0.1 U
3B	95-50-1	1,2-dichlorobenzene	1.0 U	80B	86-73-7	fluorene	0.1 U
6B	541-73-1	1,3-dichlorobenzene	1.0 U	81B	85-01-8	phenanthrene	0.1 U
7B	106-46-7	1,4-dichlorobenzene	1.0 U	82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
3B	91-94-1	3,3'-dichlorobenzidine	1.0 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
5B	121-14-2	2,4-dinitrotoluene	1.0 U	84B	129-00-0	pyrene	0.1 U
6B	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	1.0 U
7B	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	1.0 U
3B	206-44-0	fluoranthene	0.1 U	CL7	106-47-8	4-chloroaniline	1.0 U
0B	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
2B	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	1.0 U
3B	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	1.0 U
				CL12	100-01-6	4-nitroaniline	1.0 U

3N COMPOUNDS - FS

)R DATA REPORTING QUALIFIERS SEE COVER LETTER

DR 7/2/84

01

MENTAL PROTECTION AGENCY - CLP Sample Management Office
18, Alexandria, Virginia 22313 - 703/557-2490

EP/RELEASE BY: Ky cc/ [illegible]

SAMPLE NO: J 3473 SEEP #3 OCCIDENTAL APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY NAME: California Analytical Labs, Inc.
AB SAMPLE NO: S4294

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

ONCENTRATION: (LOW) MEDIUM HIGH (circle one)
ATE ANALYZED: 4/25/84

P#	CAS #		ug/L
V	107-02-8	acrolein	10 U
V	107-13-1	acrylonitrile	10 U
V	71-43-2	benzene	1 U
V	56-23-5	carbon tetrachloride	1 U
V	108-90-7	chlorobenzene	1 U
V	107-06-2	1,2-dichloroethane	1 U
V	71-55-6	1,1,1-trichloroethane	(1.2M)
V	75-34-3	1,1-dichloroethane	1 U
	79-00-5	1,1,2-trichloroethane	1 U
V	79-34-5	1,1,2,2-tetrachloroethane	1 U
V	75-00-3	chloroethane	1 U
V	110-75-8	2-chloroethylvinyl ether	10 U
V	67-66-3	chloroform	(4.0M)
V	75-35-4	1,1-dichloroethene	1 U
V	156-60-5	trans-1,2-dichloroethene	1 U
V	78-87-5	1,2-dichloropropane	1 U
V	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
V	100-41-4	ethylbenzene	1 U
V	75-09-2	methylene chloride	1 U
V	74-87-3	chloromethane	1 U
V	74-83-9	bromomethane	1 U
V	75-25-2	bromoform	1 U
V	75-27-4	bromodichloromethane	1 U
V	75-69-4	fluorotrichloromethane	1 U
V	75-71-8	dichlorodifluoromethane	1 U
V	124-48-1	chlorodibromomethane	1 U
V	127-18-4	tetrachloroethene	(1.5M)
V	108-88-3	toluene	1 U
V	79-01-6	trichloroethene	(1.6M)
V	75-01-4	vinyl chloride	1 U
13	67-64-1	acetone	5 U
14	78-93-3	2-butanone	5 U
	75-15-0	carbondisulfide	1 U
15	519-78-6	2-hexanone	5 U
17	108-10-1	4-methyl-2-pentanone	5 U
18	100-42-5	styrene	1 U
19	108-05-4	vinyl acetate	5 U
20	95-47-6	total xylenes	1 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/10/84
CONC FACTOR: 1000ml/5ml

PP#	CAS #		ug/L
89P	309-00-2	aldrin 0.05M	~~0.05 K **~~
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

RD 7/2/84

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: LL / MBM

SAMPLE NO: J 3467 INTERTIDAL SEDIMENT NEAR SEEP #3 OCCIDENTAL APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO: S4326

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE: 16%

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/26/84
CONC. FACTOR: 25.2g/6ml

PP#	CAS #		ug/g	PP#	CAS #		ug/g
21A	88-06-2	2,4,6-trichlorophenol	0.2 U	52B	87-68-3	hexachlorobutadiene	2.6
22A	59-50-7	p-chloro-m-cresol	0.4 U	53B	77-47-4	hexachlorocyclopentadiene	0.50 M
24A	95-57-8	2-chlorophenol	0.2 U	54B	78-59-1	isophorone	0.2 U
31A	120-83-2	2,4-dichlorophenol	0.2 U	55B	91-28-5	naphthalene	0.2 U
34A	105-67-9	2,4-dimethylphenol	0.2 U	56B	98-95-3	nitrobenzene	0.2 U
57A	88-75-5	2-nitrophenol	0.2 U	61B	62-75-9	N-nitrosodimethylamine	0.4 U
	100-02-7	4-nitrophenol	1.8 U	62B	86-30-6	N-nitrosodiphenylamine	0.2 U
59A	51-28-5	2,4-dinitrophenol	0.8 U	63B	621-64-7	N-nitrosodipropylamine	0.2 U
60A	534-52-1	4,6-dinitro-o-cresol	0.4 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	0.2 U
64A	87-86-5	pentachlorophenol	0.60 M	67B	85-68-7	benzyl butyl phthalate	0.2 U
65A	108-95-2	phenol	0.2 U	68B	84-74-2	di-n-butyl phthalate	0.2 U
CL1	65-85-0	benzoic acid	1.8 U	69B	117-84-0	di-n-octyl phthalate	0.2 U
CL2	95-48-7	2-methylphenol	0.2 U	70B	84-66-2	diethyl phthalate	0.2 U
CL3	108-39-4	4-methylphenol	0.2 U	71B	131-11-3	dimethyl phthalate	0.2 U
CL4	95-95-4	2,4,5-trichlorophenol	2.0 U	72B	56-55-3	benzo(a)anthracene	0.43 M
1B	83-32-9	acenaphthene	0.2 U	73B	50-32-8	benzo(a)pyrene	0.38 M
5B	92-87-5	benzidine	0.5 U	74B	205-99-2	benzo(b)fluoranthene	0.33 M
8B	120-82-1	1,2,4-trichlorobenzene	0.36 M	75B	207-08-9	benzo(k)fluoranthene	0.33 M
9B	118-74-1	hexachlorobenzene	1.4	76B	218-01-9	chrysene	0.40 M
10B	67-72-1	hexachloroethane	6.7	77B	208-96-8	acenaphthylene	0.2 U
11B	111-44-4	bis(2-chloroethyl)ether	0.2 U	78B	120-12-7	anthracene	0.2 U
20B	91-58-7	2-chloronaphthalene	0.2 U	79B	191-24-2	benzo(ghi)perylene	0.5 U
25B	95-50-1	1,2-dichlorobenzene	0.2 U	80B	86-73-7	fluorene	0.2 U
26B	541-73-1	1,3-dichlorobenzene	0.2 U	81B	85-01-8	phenanthrene	0.36 M
27B	106-46-7	1,4-dichlorobenzene	0.2 U	82B	53-70-3	dibenzo(a,h)anthracene	0.5 U
28B	91-94-1	3,3'-dichlorobenzidine	0.2 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.5 U
35B	121-14-2	2,4-dinitrotoluene	0.2 U	84B	129-00-0	pyrene	0.64 M
36B	606-20-2	2,6-dinitrotoluene	0.2 U	CL5	62-53-3	aniline	0.2 U
37B	122-66-7	1,2-diphenylhydrazine	0.2 U	CL6	100-51-6	benzyl alcohol	0.2 U
39B	206-44-0	fluoranthene	0.67 M	CL7	106-47-8	4-chloroaniline	1.0 U
40B	7005-72-3	4-chlorophenyl phenyl ether	0.2 U	CL8	132-64-9	dibenzofuran	0.1 U
	101-55-3	4-bromophenyl phenyl ether	0.2 U	CL9	91-57-6	2-methylnaphthalene	0.2 U
41B	39638-32-9	bis(2-chloroisopropyl) ether	0.2 U	CL10	88-74-4	2-nitroaniline	1.8 U
42B	111-91-1	bis(2-chloroethoxy) methane	0.2 U	CL11	99-09-2	3-nitroaniline	1.4 U
				CL12	100-01-6	4-nitroaniline	2.0 U

GN COMPOUNDS - FS
ESULTS REPORTED IN DRY WEIGHT
D DATA REPORTING QUALIFIERS SEE COVER LETTER

5/9/84

11

ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
Box 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: [illegible] / [illegible]

SAMPLE NO: J 3467 INTERTIDAL SEDIMENT NEAR SEEP #3 OCCIDENTAL APRIL 19, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4326
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763
DATE SAMPLE REC'D: 4/20/84
SAMPLE MATRIX: SOIL
PERCENT MOISTURE: 16%

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE ANALYZED: 5/ 4/84

PP#	CAS #		ug/g
2V	107-02-8	acrolein	0.050 U
3V	107-13-1	acrylonitrile	0.050 U
4V	71-43-2	benzene	0.001 U
5V	56-23-5	carbon tetrachloride	0.001 U
6V	108-90-7	chlorobenzene	0.001 U
7V	107-06-2	1,2-dichloroethane	0.001 U
8V	71-55-6	1,1,1-trichloroethane	0.001 U
9V	75-34-3	1,1-dichloroethane	0.001 U
10V	79-00-5	1,1,2-trichloroethane	0.001 U
	79-34-5	1,1,2,2-tetrachloroethane	0.001 U
12V	75-00-3	chloroethane	0.001 U
13V	110-75-8	2-chloroethylvinyl ether	0.050 U
14V	67-66-3	chloroform	0.0082
15V	75-35-4	1,1-dichloroethene	0.001 U
16V	156-60-5	trans-1,2-dichloroethene	0.001 U
17V	78-87-5	1,2-dichloropropane	0.001 U
18V	10061-02-6	trans-1,3-dichloropropene	0.001 U
	10061-01-5	cis-1,3-dichloropropene	0.001 U
20V	100-41-4	ethylbenzene	0.001 U
21V	75-09-2	methylene chloride	0.005 U
22V	74-87-3	chloromethane	0.001 U
23V	74-83-9	bromomethane	0.001 U
24V	75-25-2	bromoform	0.001 U
25V	75-27-4	bromodichloromethane	0.001 U
26V	75-69-4	fluorotrichloromethane	0.001 U
27V	75-71-8	dichlorodifluoromethane	0.001 U
28V	124-48-1	chlorodibromomethane	0.001 U
29V	127-18-4	tetrachloroethene	0.051
30V	108-88-3	toluene	0.001 U
31V	79-01-6	trichloroethene	0.001 U
32V	75-01-4	vinyl chloride	0.001 U
13	67-64-1	acetone	0.010 U
14	78-93-3	2-butanone	0.010 U
15	75-15-0	carbondisulfide	0.001 U
	519-78-6	2-hexanone	0.010 U
17	108-10-1	4-methyl-2-pentanone	0.010 U
18	100-42-5	styrene	0.001 U
19	108-05-4	vinyl acetate	0.020 U
20	95-47-6	total xylenes	0.001 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 5/25/84
CONC FACTOR: 8.4g/ml

PP#	CAS #		ug/g
89P	309-00-2	aldrin	2.5 U
90P	60-57-1	dieldrin	5.0 U
91P	57-74-9	chlordane	25 U
92P	50-29-3	4,4'-DDT	1.0 U
93P	72-55-9	4,4'-DDE	5.0 U
94P	72-54-8	4,4'-DDD	10 U
95P	115-29-7	a-endosulfan	5.0 U
96P	115-29-7	b-endosulfan	5.0 U
97P	1031-07-8	endosulfan sulfate	1.0 U
98P	72-20-8	endrin	5.0 U
99P	7421-93-4	endrin aldehyde	1.0 U
100P	76-44-8	heptachlor	2.5 U
101P	1024-57-3	heptachlor epoxide	2.5 U
102P	319-84-6	a-BHC	2.5 U
103P	319-85-7	b-BHC	2.5 U
104P	319-86-8	d-BHC	2.5 U
105P	58-89-9	g-BHC (lindane)	2.5 U
106P	53469-21-9	PCB-1242	100 U
107P	11097-69-1	PCB-1254	100 U
108P	11104-28-2	PCB-1221	100 U
109P	11141-16-5	PCB-1232	100 U
110P	12672-29-6	PCB-1248	100 U
111P	11096-82-5	PCB-1260	100 U
112P	12674-11-2	PCB-1016	100 U
113P	8001-35-2	toxaphene	250 U

7/9/84

DIOXINS

CONC FACTOR: 8.4g / 0.5ml
DATE EXTRACTED/PREPARED: 4/24/84
DATE ANALYZED: 6/1/84

PP#	CAS #		ug/g
129B	1746-01-6	2,3,7,8-tetrachloro-dibenzo-p-dioxin	2.5 U ~~0.002 U~~

DIOXINS-FS
RESULTS REPORTED IN DRY WEIGHT

ajm

.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

PREP/RELEASE BY: [signature] / [signature]

SAMPLE NO: J 3479 E. PROPERTY LINE DITCH
PENNWALT
APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY: California Analytical Labs, Inc.
AB SAMPLE NO: 54295

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

P#	CAS #		ug/L	PP#	CAS #		ug/L
A	88-06-2	2,4,6-trichlorophenol	1.0 U	52B	87-68-3	hexachlorobutadiene	1.0 U
'A	59-50-7	p-chloro-m-cresol	1.0 U	53B	77-47-4	hexachlorocyclopentadiene	1.0 U
A	95-57-8	2-chlorophenol	1.0 U	54B	78-59-1	isophorone	1.0 U
A	120-83-2	2,4-dichlorophenol	1.0 U	55B	91-20-5	naphthalene	1.0 U
A	105-67-9	2,4-dimethylphenol	1.0 U	56B	98-95-3	nitrobenzene	1.0 U
'	88-75-5	2-nitrophenol	1.0 U	61B	62-75-9	N-nitrosodimethylamine	1.0 U
A	100-02-7	4-nitrophenol	1.0 U	62B	86-30-6	N-nitrosodiphenylamine	1.0 U
A	51-28-5	2,4-dinitrophenol	1.0 U	63B	621-64-7	N-nitrosodipropylamine	1.0 U
A	534-52-1	4,6-dinitro-o-cresol	1.0 U	66B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
A	87-86-5	pentachlorophenol	1.0 U	67B	85-68-7	benzyl butyl phthalate	1.0 U
A	108-95-2	phenol	(3.0 M)	68B	84-74-2	di-n-butyl phthalate	1.0 U
.1	65-85-0	benzoic acid	1.0 U	69B	117-84-0	di-n-octyl phthalate	1.0 U
.2	95-48-7	2-methylphenol	1.0 U	70B	84-66-2	diethyl phthalate	1.0 U
.3	108-39-4	4-methylphenol	1.0 U	71B	131-11-3	dimethyl phthalate	1.0 U
.4	95-95-4	2,4,5-trichlorophenol	1.0 U	72B	56-55-3	benzo(a)anthracene	0.1 U
B	83-32-9	acenaphthene	0.1 U	73B	50-32-8	benzo(a)pyrene	0.1 U
B	92-87-5	benzidine	1.0 U	74B	205-99-2	benzo(b)fluoranthene	0.1 U
B	120-82-1	1,2,4-trichlorobenzene	1.0 U	75B	207-08-9	benzo(k)fluoranthene	0.1 U
B	118-74-1	hexachlorobenzene	1.0 U	76B	218-01-9	chrysene	0.1 U
B	67-72-1	hexachloroethane	1.0 U	77B	208-96-8	acenaphthylene	0.1 U
B	111-44-4	bis(2-chloroethyl)ether	1.0 U	78B	120-12-7	anthracene	0.1 U
B	91-58-7	2-chloronaphthalene	1.0 U	79B	191-24-2	benzo(ghi)perylene	0.1 U
B	95-50-1	1,2-dichlorobenzene	1.0 U	80B	86-73-7	fluorene	0.1 U
B	541-73-1	1,3-dichlorobenzene	1.0 U	81B	85-01-8	phenanthrene	(0.3 M)
B	106-46-7	1,4-dichlorobenzene	1.0 U	82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
B	91-94-1	3,3'-dichlorobenzidine	1.0 U	83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
B	121-14-2	2,4-dinitrotoluene	1.0 U	84B	129-00-0	pyrene	(0.2 M)
B	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	1.0 U
B	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	1.0 U
B	206-44-0	fluoranthene	(0.4 M)	CL7	106-47-8	4-chloroaniline	1.0 U
'	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
B	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
B	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	1.0 U
B	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	1.0 U
				CL12	100-01-6	4-nitroaniline	1.0 U

IN COMPOUNDS - FS

[initials] 7/5/84

01

...RONMENTAL PROTECTION AGENCY - CLP Sample Management Office
... 818, Alexandria, Virginia 22313 - 703/557-2490

... PREP/RELEASE BY: Ky cc/ [illegible]

SAMPLE NO: J 3473 E. PROPERTY LINE DITCH PENNWALT APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY NAME: California Analytical Labs, Inc.
LAB SAMPLE NO: S4295
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6783
DATE SAMPLE REC'D: 4/18/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE ANALYZED: 4/25/84

PP#	CAS #		ug/L
2V	107-02-8	acrolein	10 U
3V	107-13-1	acrylonitrile	10 U
4V	71-43-2	benzene	1 U
6V	56-23-5	carbon tetrachloride	1 U
7V	108-90-7	chlorobenzene	1 U
0V	107-06-2	1,2-dichloroethane	1 U
1V	71-55-6	1,1,1-trichloroethane	1 U
3V	75-34-3	1,1-dichloroethane	1 U
	79-00-5	1,1,2-trichloroethane	1 U
5V	79-34-5	1,1,2,2-tetrachloroethane	1 U
6V	75-00-3	chloroethane	1 U
9V	110-75-8	2-chloroethylvinyl ether	10 U
3V	67-66-3	chloroform	(24)
9V	75-35-4	1,1-dichloroethene	1 U
0V	156-60-5	trans-1,2-dichloroethene	1 U
2V	78-87-5	1,2-dichloropropane	1 U
3V	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
8V	100-41-4	ethylbenzene	1 U
4V	75-09-2	methylene chloride	1 U
5V	74-87-3	chloromethane	1 U
6V	74-83-9	bromomethane	1 U
7V	75-25-2	bromoform	(1.0M)
8V	75-27-4	bromodichloromethane	(1M) ~~1K~~
9V	75-69-4	fluorotrichloromethane	1 U
0V	75-71-8	dichlorodifluoromethane	1 U
1V	124-48-1	chlorodibromomethane	(1M) ~~1K~~
5V	127-18-4	tetrachloroethene	(1.3M)
6V	108-88-3	toluene	1 U
7V	79-01-6	trichloroethene	1 U
8V	75-01-4	vinyl chloride	1 U
L13	67-64-1	acetone	5 U
L14	78-93-3	2-butanone	5 U
	75-15-0	carbondisulfide	1 U
L16	519-78-6	2-hexanone	5 U
L17	108-10-1	4-methyl-2-pentanone	5 U
L18	100-42-5	styrene	1 U
L19	108-05-4	vinyl acetate	5 U
L20	95-47-6	total xylenes	1 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/10/84
CONC FACTOR: 1000ml/5ml

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05 U
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

7/2/84

S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

TA PREP/RELEASE BY: _____ / _____

SAMPLE NO: J 4511 E. PROPERTY LINE DITCH
PENNWALT
MAY 17, 1984

ORGANICS ANALYSIS DATA SHEET

BORATORY: California Analytical Labs, Inc.
B SAMPLE NO: S4397

CASE NO: 2790/730J
QC REPORT NO: RED 730J-6
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 5/18/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

VER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 5/22/84
DATE ANALYZED: 6/14/84
CONC. FACTOR: 1L/2ml

#	CAS #		ug/L	PP#	CAS #		ug/L
1	88-06-2	2,4,6-trichlorophenol	5.0 U	528	87-68-3	hexachlorobutadiene	1.0 U
1	59-50-7	p-chloro-m-cresol	2.0 U	538	77-47-4	hexachlorocyclopentadiene	5.0 U
1	95-57-8	2-chlorophenol	1.0 U	548	78-59-1	isophorone	1.0 U
1	120-83-2	2,4-dichlorophenol	1.0 U	558	91-28-5	naphthalene	1.0 U
1	105-67-9	2,4-dimethylphenol	1.0 U	568	98-95-3	nitrobenzene	1.0 U
1	88-75-5	2-nitrophenol	2.0 U	618	62-75-9	N-nitrosodimethylamine	2.0 U
	100-02-7	4-nitrophenol	10 U	628	86-30-6	N-nitrosodiphenylamine	1.0 U
1	51-28-5	2,4-dinitrophenol	5.0 U	638	621-64-7	N-nitrosodipropylamine	5.0 U
1	534-52-1	4,6-dinitro-o-cresol	5.0 U	668	117-81-7	bis(2-ethylhexyl)phthalate	2.0 U
1	87-86-5	pentachlorophenol	5.0 U	678	85-68-7	benzyl butyl phthalate	2.0 U
1	108-95-2	phenol	1.0 U	688	84-74-2	di-n-butyl phthalate	2.0 U
	65-85-0	benzoic acid	5.0 U	698	117-84-0	di-n-octyl phthalate	2.0 U
2	95-48-7	2-methylphenol	1.0 U	708	84-66-2	diethyl phthalate	2.0 U
5	108-39-4	4-methylphenol	1.0 U	718	131-11-3	dimethyl phthalate	2.0 U
4	95-95-4	2,4,5-trichlorophenol	5.0 U	728	56-55-3	benzo(a)anthracene	0.1 U
3	83-32-9	acenaphthene	0.1 U	738	50-32-8	benzo(a)pyrene	0.1 U
3	92-87-5	benzidine	20 U	748	205-99-2	benzo(b)fluoranthene	0.1 U
3	120-82-1	1,2,4-trichlorobenzene	1.0 U	758	207-08-9	benzo(k)fluoranthene	0.1 U
3	118-74-1	hexachlorobenzene	1.0 U	768	218-01-9	chrysene	0.1 U
3	67-72-1	hexachloroethane	1.0 U	778	208-96-8	acenaphthylene	0.1 U
3	111-44-4	bis(2-chloroethyl)ether	1.0 U	788	120-12-7	anthracene	0.1 U
3	91-58-7	2-chloronaphthalene	1.0 U	798	191-24-2	benzo(ghi)perylene	0.1 U
3	95-50-1	1,2-dichlorobenzene	1.0 U	808	86-73-7	fluorene	0.1 U
3	541-73-1	1,3-dichlorobenzene	1.0 U	818	85-01-8	phenanthrene	0.1 U
3	106-46-7	1,4-dichlorobenzene	1.0 U	828	53-70-3	dibenzo(a,h)anthracene	0.2 U
3	91-94-1	3,3'-dichlorobenzidine	10 U	838	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
3	121-14-2	2,4-dinitrotoluene	1.0 U	848	129-00-0	pyrene	0.1 M
3	606-20-2	2,6-dinitrotoluene	1.0 U	CL5	62-53-3	aniline	10 U
3	122-66-7	1,2-diphenylhydrazine	1.0 U	CL6	100-51-6	benzyl alcohol	5.0 U
3	206-44-0	fluoranthene	0.1 M	CL7	106-47-8	4-chloroaniline	5.0 U
3	7005-72-3	4-chlorophenyl phenyl ether	1.0 U	CL8	132-64-9	dibenzofuran	0.1 U
	101-55-3	4-bromophenyl phenyl ether	1.0 U	CL9	91-57-6	2-methylnaphthalene	1.0 U
3	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U	CL10	88-74-4	2-nitroaniline	10 U
3	111-91-1	bis(2-chloroethoxy) methane	1.0 U	CL11	99-09-2	3-nitroaniline	10 U
				CL12	100-01-6	4-nitroaniline	10 U

I COMPOUNDS - FS
I DATA REPORTING QUALIFIERS SEE COVER LETTER

7/5/84

...ONMENTAL PROTECTION AGENCY - CLP Sample Management Office
... 818, Alexandria, Virginia 22313 - 703/557-2490

A PREP/RELEASE BY: Ky / [illegible]

SAMPLE NO: J 4511 E. PROPERTY LINE DITCH
PENNWALT
MAY 17, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY NAME: California Analytical Labs, Inc.
AB SAMPLE NO: S4397

CASE NO: 2790/730J
QC REPORT NO: REO 730J-6
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 5/18/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

ONCENTRATION: (LOW) MEDIUM HIGH (circle one)
ATE ANALYZED: 5/22/84

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 5/21/84
DATE ANALYZED: 6/21/84
CONC FACTOR: 1L/5ml

P#	CAS #		ug/L
V	107-02-8	acrolein	50 U
V	107-13-1	acrylonitrile	50 U
V	71-43-2	benzene	1 U
V	56-23-5	carbon tetrachloride	1 U
V	108-90-7	chlorobenzene	1 U
V	107-06-2	1,2-dichloroethane	1 U
V	71-55-6	1,1,1-trichloroethane	1 U
V	75-34-3	1,1-dichloroethane	1 U
V	79-00-5	1,1,2-trichloroethane	1 U
V	79-34-5	1,1,2,2-tetrachloroethane	1 U
	75-00-3	chloroethane	1 U
V	110-75-8	2-chloroethylvinyl ether	20 U
V	67-66-3	chloroform	(9.1)
V	75-35-4	1,1-dichloroethene	1 U
V	156-60-5	trans-1,2-dichloroethene	1 U
V	78-87-5	1,2-dichloropropane	1 U
V	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
V	100-41-4	ethylbenzene	1 U
V	75-09-2	methylene chloride	5 U
V	74-87-3	chloromethane	1 U
V	74-83-9	bromomethane	1 U
V	75-25-2	bromoform	1 U
V	75-27-4	bromodichloromethane	1 U
V	75-69-4	fluorotrichloromethane	1 U
V	75-71-8	dichlorodifluoromethane	1 U
V	124-48-1	chlorodibromomethane	1 U
V	127-18-4	tetrachloroethene	(3.5M)
V	108-88-3	toluene	1 U
V	79-01-6	trichloroethene	1 U
V	75-01-4	vinyl chloride	1 U
13	67-64-1	acetone (6)	14
14	78-93-3	2-butanone	5 U
15	75-15-0	carbondisulfide	1 U
1[illegible]	519-78-6	2-hexanone	5 U
1[illegible]	108-10-1	4-methyl-2-pentanone	5 U
18	100-42-5	styrene	1 U
19	108-05-4	vinyl acetate	5 U
20	95-47-6	total xylenes	1 U

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05 U
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

89 7/5/84

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. BOX 818, Alexandria, Virginia 22313 - 703/557-2490

DATA PREP/RELEASE BY: _____ / _____

SAMPLE NO: J 3480 BANK SEEPAGE
PENNWALT
APRIL 16, 1984

ORGANICS ANALYSIS DATA SHEET

LABORATORY: California Analytical Labs, Inc.
LAB SAMPLE NO: S4296

CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-6763

DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

COVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/20/84
DATE ANALYZED: 5/24/84
CONC. FACTOR: 1L/2ml

PP#	CAS #		ug/L
1A	88-06-2	2,4,6-trichlorophenol	1.0 U
2A	59-50-7	p-chloro-m-cresol	1.0 U
4A	95-57-8	2-chlorophenol	1.0 U
1A	120-83-2	2,4-dichlorophenol	1.0 U
4A	105-67-9	2,4-dimethylphenol	1.0 U
7A	88-75-5	2-nitrophenol	1.0 U
P*	100-02-7	4-nitrophenol	1.0 U
_	51-28-5	2,4-dinitrophenol	1.0 U
DA	534-52-1	4,6-dinitro-o-cresol	1.0 U
4A	87-86-5	pentachlorophenol	1.0 U
5A	108-95-2	phenol	1.0 U
L1	65-85-0	benzoic acid	1.0 U
L2	95-48-7	2-methylphenol	1.0 U
L3	108-39-4	4-methylphenol	1.0 U
_4	95-95-4	2,4,5-trichlorophenol	1.0 U
1B	83-32-9	acenaphthene	0.1 U
5B	92-87-5	benzidine	1.0 U
3B	120-82-1	1,2,4-trichlorobenzene	1.0 U
9B	118-74-1	hexachlorobenzene	1.0 U
2B	67-72-1	hexachloroethane	110
3B	111-44-4	bis(2-chloroethyl)ether	1.0 U
0B	91-58-7	2-chloronaphthalene	1.0 U
2B	95-50-1	1,2-dichlorobenzene	1.0 U
6B	541-73-1	1,3-dichlorobenzene	1.0 U
7B	106-46-7	1,4-dichlorobenzene	1.0 U
3B	91-94-1	3,3'-dichlorobenzidine	1.0 U
5B	121-14-2	2,4-dinitrotoluene	1.0 U
5B	606-20-2	2,6-dinitrotoluene	1.0 U
7B	122-66-7	1,2-diphenylhydrazine	1.0 U
9B	206-44-0	fluoranthene	0.2 M
8	7005-72-3	4-chlorophenyl phenyl ether	1.0 U
	101-55-3	4-bromophenyl phenyl ether	1.0 U
5B	39638-32-9	bis(2-chloroisopropyl) ether	1.0 U
6B	111-91-1	bis(2-chloroethoxy) methane	1.0 U

PP#	CAS #		ug/L
52B	87-68-3	hexachlorobutadiene	5.6
53B	77-47-4	hexachlorocyclopentadiene	1.0 U
54B	78-59-1	isophorone	1.0 U
55B	91-20-5	naphthalene	1.0 U
56B	98-95-3	nitrobenzene	1.0 U
61B	62-75-9	N-nitrosodimethylamine	1.0 U
62B	86-30-6	N-nitrosodiphenylamine	1.0 U
63B	621-64-7	N-nitrosodipropylamine	1.0 U
66B	117-81-7	bis(2-ethylhexyl)phthalate	1.0 U
67B	85-68-7	benzyl butyl phthalate	1.0 U
68B	84-74-2	di-n-butyl phthalate	1.0 U
59B	117-84-0	di-n-octyl phthalate	1.0 U
70B	84-66-2	diethyl phthalate	1.0 U
71B	131-11-3	dimethyl phthalate	1.0 U
72B	56-55-3	benzo(a)anthracene	0.1 U
73B	50-32-8	benzo(a)pyrene	0.1 U
74B	205-99-2	benzo(b)fluoranthene	0.1 U
75B	207-08-9	benzo(k)fluoranthene	0.1 U
76B	218-01-9	chrysene	0.1 M
77B	208-96-8	acenaphthylene	0.1 U
78B	120-12-7	anthracene	0.1 U
79B	191-24-2	benzo(ghi)perylene	0.1 U
80B	86-73-7	fluorene	0.1 U
81B	85-01-8	phenanthrene	0.2 M
82B	53-70-3	dibenzo(a,h)anthracene	0.1 U
83B	193-39-5	indeno(1,2,3-cd)pyrene	0.1 U
84B	129-00-0	pyrene	0.1 M
CL5	62-53-3	aniline	1.0 U
CL6	100-51-6	benzyl alcohol	1.0 U
CL7	106-47-8	4-chloroaniline	1.0 U
CL8	132-64-9	dibenzofuran	0.1 U
CL9	91-57-6	2-methylnaphthalene	1.0 U
CL10	88-74-4	2-nitroaniline	1.0 U
CL11	99-09-2	3-nitroaniline	1.0 U
CL12	100-01-6	4-nitroaniline	1.0 U

IN COMPOUNDS - FS
R DATA REPORTING QUALIFIERS SEE COVER LETTER

01

- IS HELD FOR A MINIMUM OF 90 DAYS THEN SENT TO NEIC FOR EVIDENCE AUDITING

RONMENTAL PROTECTION AGENCY - CLP Sample Management Office
x 818, Alexandria, Virginia 22313 - 703/557-2490

A PREP/RELEASE BY: Kyl cc l

SAMPLE NO: J 3430 BANK SEEPAGE PENNWALT APRIL 18, 1984

ORGANICS ANALYSIS DATA SHEET

ABORATORY NAME: California Analytical Labs, Inc.
AB SAMPLE NO: S4296
CASE NO: 2622/730J
QC REPORT NO: RED 730J-5
CONTRACT NO: 68-01-5753
DATE SAMPLE REC'D: 4/19/84
SAMPLE MATRIX: WATER
PERCENT MOISTURE:

OVER LETTER IS AN INTEGRAL PART OF THIS REPORT - PLEASE READ

VOLATILES

ONCENTRATION: (LOW) MEDIUM HIGH (circle one)
ATE ANALYZED: 4/26/84

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 4/19/84
DATE ANALYZED: 5/13/84
CONC FACTOR: 1000ml/5ml

P#	CAS #		ug/L
U	107-02-8	acrolein	10 U
U	107-13-1	acrylonitrile	10 U
U	71-43-2	benzene	1 U
U	56-23-5	carbon tetrachloride	(1.1M)
U	108-90-7	chlorobenzene	1 U
U	107-06-2	1,2-dichloroethane	1 U
U	71-55-6	1,1,1-trichloroethane	1 U
U	75-34-3	1,1-dichloroethane	1 U
U	79-00-5	1,1,2-trichloroethane	1 U
	79-34-5	1,1,2,2-tetrachloroethane	1 U
U	75-00-3	chloroethane	1 U
U	110-75-8	2-chloroethylvinyl ether	10 U
U	67-66-3	chloroform	(120)
U	75-35-4	1,1-dichloroethene	1 U
U	156-60-5	trans-1,2-dichloroethene	1 U
U	78-87-5	1,2-dichloropropane	1 U
U	10061-02-6	trans-1,3-dichloropropene	1 U
	10061-01-5	cis-1,3-dichloropropene	1 U
U	100-41-4	ethylbenzene	1 U
U	75-09-2	methylene chloride	1 U
U	74-87-3	chloromethane	1 U
U	74-83-9	bromomethane	1 U
U	75-25-2	bromoform	1 U
U	75-27-4	bromodichloromethane	(1.6M)
U	75-69-4	fluorotrichloromethane	1 U
U	75-71-8	dichlorodifluoromethane	1 U
U	124-48-1	chlorodibromomethane	1 U
U	127-18-4	tetrachloroethene	(340)
U	108-88-3	toluene	1 U
U	79-01-6	trichloroethene	1 U
U	75-01-4	vinyl chloride	1 U
13	67-64-1	acetone	(4M) 11
14	78-93-3	2-butanone	5 U
15	75-15-0	carbondisulfide	1 U
	519-78-6	2-hexanone	5 U
17	108-10-1	4-methyl-2-pentanone	5 U
18	100-42-5	styrene	1 U
19	108-05-4	vinyl acetate	5 U
20	95-47-6	total xylenes	1 U

PP#	CAS #		ug/L
89P	309-00-2	aldrin	0.05 U
90P	60-57-1	dieldrin	0.05 U
91P	57-74-9	chlordane	0.50 U
92P	50-29-3	4,4'-DDT	0.10 U
93P	72-55-9	4,4'-DDE	0.05 U
94P	72-54-8	4,4'-DDD	0.10 U
95P	115-29-7	a-endosulfan	0.05 U
96P	115-29-7	b-endosulfan	0.05 U
97P	1031-07-8	endosulfan sulfate	0.10 U
98P	72-20-8	endrin	0.05 U
99P	7421-93-4	endrin aldehyde	0.10 U
100P	76-44-8	heptachlor	0.05 U
101P	1024-57-3	heptachlor epoxide	0.05 U
102P	319-84-6	a-BHC	0.05 U
103P	319-85-7	b-BHC	0.05 U
104P	319-86-8	d-BHC	0.05 U
105P	58-89-9	g-BHC (lindane)	0.05 U
106P	53469-21-9	PCB-1242	0.50 U
107P	11097-69-1	PCB-1254	1.0 U
108P	11104-28-2	PCB-1221	1.0 U
109P	11141-16-5	PCB-1232	1.0 U
110P	12672-29-6	PCB-1248	1.0 U
111P	11096-82-5	PCB-1260	2.0 U
112P	12674-11-2	PCB-1016	0.50 U
113P	8001-35-2	toxaphene	10 U

aq. 20 5/4 84

(BS) 7/2/84

OCC '81-'84
HW/RCRA

Occidental Chemical Corporation

July 30, 1984

Mr. Richard Pierce
State of Washington
Department of Ecology
7272 Cleanwater Lane, LU-11
Olympia, Washington 98504

Dear Mr. Pierce:

On July 26, 1984 D. Scholes, L. Feller, and R. Hartman of Occidental Chemical Corporation met with you and Mr. Frank Monahan of DOE to discuss the Occidental Chemical Corporation, RCRA/Dangerous Waste (DW) Inspection on ID# WAD009242314, Tacoma Industry Report dated July 11, 1984. One item discussed during this meeting was Item 1 on Page 3 of the cover letter under the compliance schedule concerning run-off from the lead waste pile. OCC stated that the lead waste pile would be covered in accordance with WAC 173-303-660(1)(C). Therefore, OCC would not analyze and designate the run-off from this pile by July 31, 1984 which you agreed with.

Sincerely,

Bob Hartman

R. W. Hartman
Superintendent of Environmental Control

RWH/bch

OXY
HOOKER Industrial & Specialty Chemicals
605 Alexander Avenue, Box 2157, Tacoma, Washington 98401

10/11/84

I. EPA/STATE Hazardous Waste I.D.#

A . [illegible] 6 6 3 9 7

II. Waste Designated By:
____ RCRA/State ____ SQ
____ State Only
____ Non-Regulated/Non-Handler/Protective Filing

III. Exemption Status:
____ RCRA Exempt Recycler
____ State Exempt Recycler
____ Below OEL
____ Other ____

IV. Handling
____ Emergency
____ Remedial Action
____ One-Time-Only
____ Other ____

DEPARTMENT USE ONLY

FORM 2

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

(send to) Attn: DW Notifications
Washington State Department of Ecology
M/S PV-11 Olympia, WA. 98504-8711
(206) 459-6314/6305/6306

DATE IN TO DEPARTMENT

Init.: DEL Date: 10/16/84 Region: SW
EPA: ____ Date: ____ Copy: ____
Input: ____ Update: ____ Ack.: ____

DEPARTMENT USE ONLY

1. [X] A. FIRST NOTIFICATION
[ ] B. REVISED NOTIFICATION (enter current I.D.# in upper left)
revisions effective: ____ / ____ / ____ (MO. DAY YR.)
[ ] C. WE REQUEST TO HAVE OUR I.D.# WITHDRAWN (enter current I.D.# assigned to you in section 99 in upper left)
[ ] D. REACTIVATE OUR NOTIFICATION (complete all sections)

2.A. WASHINGTON STATE DEPARTMENT OF REVENUE REGISTRATION (TAX) NUMBER
278-030-532

2.B. SIC CODE(S)
PRIMARY: 5093
SECONDARY:
OTHER:

3. NAME OF COMPANY
GENERAL METALS OF TACOMA INC.

4. MAILING ADDRESS
STREET, P.O. BOX, OR RURAL ROUTE & BOX NO.: 1902 MARINE VIEW DRIVE
CITY OR TOWN: TACOMA
STATE: WN
ZIP CODE: 98422

5. LOCATION OF WASTE ACTIVITIES (Installation)
DESCRIPTION OF PHYSICAL LOCATION (Follow Instructions Carefully): 1902 MARINE VIEW DR.
CITY OR TOWN: TACOMA
STATE: WN
ZIP CODE: 98422

6. COUNTY WHERE THIS INSTALLATION IS LOCATED
PIERCE

7. DANGEROUS WASTE ACTIVITIES YOUR BUSINESS IS CONDUCTING
(Read & Follow Instructions Carefully—Enter an "X" in appropriate box(es))

A. [X] GENERATOR
B. [ ] UNDERGROUND INJECTION
C. [X] WASTE MANAGEMENT FACILITY (TSD) (refer to definitions in instructions)
(1) [ ] TREATMENT
(2) [X] STORAGE
(3) [ ] DISPOSAL
(4) [ ] WE ACCEPT OFF-SITE WASTES
D. [X] TRANSPORTER (complete this section only if YOU are transporting waste for hire or your own waste to an off-site facility)
(1) Mode(s) of Transport YOU Operate
(a) [X] HIGHWAY (b) [ ] AIR (c) [ ] RAIL
(d) [ ] WATER (e) [ ] OTHER ____

8. CONTACT PERSON
NAME (last): VAIL (first): ROBERT
TITLE: YARD MANAGER
PHONE NO (area code & number): 206-572-4000

9.A. OWNERSHIP
(Legal Owner(s) of this Installation)
ACME TRADING & SUPPLY
PORTLAND, OREGON

10. TYPE OF OWNERSHIP
(enter letter code in box)
P

ECY 030-5 (3/84)

B. Less Sussman

1. WASTE IDENTIFICATION

NUMBER	B. Description of Waste(s)	C. Dangerous Waste Number (refer to WAC 173-303)	D. Estimated or Actual Annual Waste Quantity	E. WEIGHT CODE
	SCRAP LEAD-ACID BATTERIES	D002	100000	P

2. ESTIMATED MAXIMUM QUANTITY of all wastes listed above to be produced in any given month (consecutive 30 days) or per processing batch.

A. ☐ Batch Frequency _____ QUANTITY _____ WEIGHT _____ CODE

B. ☒ PER MONTH QUANTITY 20000 WEIGHT P CODE

3. COMMENTS (Enter Information by Section & Line Number—See Instructions)

4. FORMS AND INFORMATION REQUEST
(Check the box(es) of those items desired and indicate how many)

A. 20 ☒ NOTIFICATION FORM
B. _____ ☐ PART A PERMIT FORM FOR TSD FACILITIES
C. _____ ☐ BIOLOGICAL TEST PROCED.
D. _____ ☐ GENERATOR ANNUAL REPORT FORM
E. _____ ☐ CHEMICAL TEST PROCED.
F. _____ ☐ TSD FACILITY ANNUAL REPORT/UNMANIFESTED WASTE REPORT
G. _____ ☐ DANGEROUS WASTE LEGISLATION (RCW 70.105) AND REGULATIONS (WAC 173-303)
H. _____ ☐ DANGEROUS WASTE FEES LEGISLATION (RCW 70.105A) & REGULATION (WAC 173-305)
I. _____ ☐ OTHER (specify) _____

5. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE: [signature] | OFFICIAL TITLE (Print): Plant Manager | DATE SIGNED: 11 Oct '84

PRINTED NAME: Robert B. Vail

FCL-812 ECY 030-5 (8/84)

Off-sites

Occidental Chemical Corporation

November 12, 1984

Mr. Richard Pierce
State of Washington
Department of Ecology
Southwest Regional Office
7272 Cleanwater Lane
Olympia, Washington 98504

Dear Mr. Pierce:

This letter is to confirm our November 9, 1984, telephone conversation in which Occidental Chemical Corporation (OCC) requested a meeting with you and Frank Monahan. The agreed upon meeting date was set for December 13, 1984, at 10:00 a.m. at your offices in Olympia. At this time, OCC will present the results of past waste disposal investigations conducted at the Petarcik, Dauphin, Marine View Drive, and Bonneville Power Authority sites. I am planning to provide you with copies of OCC's reports on these sites by December 7, 1984.

The OCC representatives to be present at this meeting will be the same as those present at the February 1984 meeting.

Sincerely,

Bob Hartman

Robert Hartman
Superintendent of Environmental Control

RWH/blb

Copies to Art Rheingold
Chuck Blumenfeld
Frank Rovers
D. A. Scholes
L. D. Feller

OXY
HOOKER Industrial & specialty Chemicals
605 Alexander Avenue, Box 2157, Tacoma, Washington 98401

InspectionReport

Commencement Bay
Controlled Sites

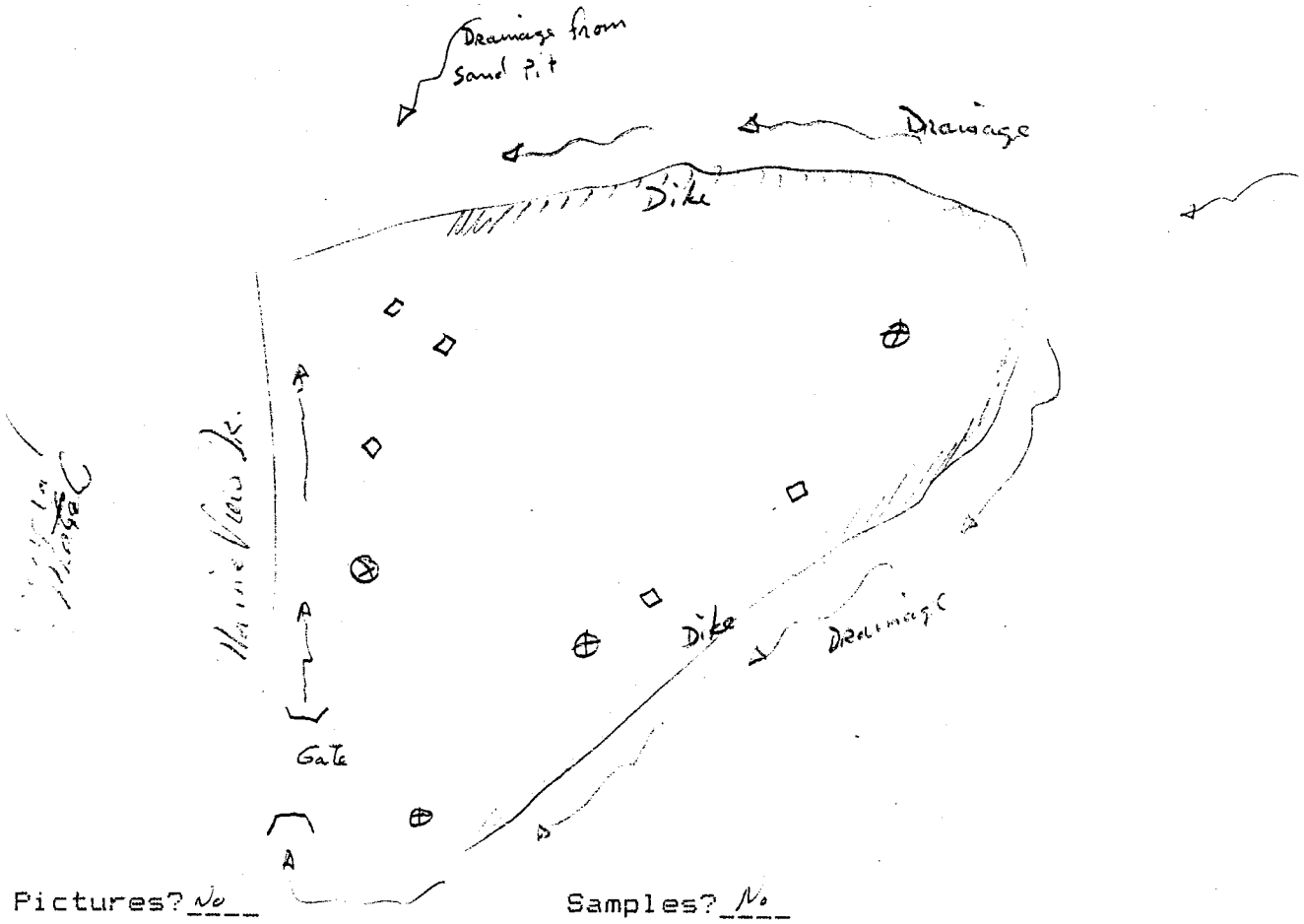
1 Name Occidental Chemical
2 Project OffsiteSludgeDisposl
3 Location MarineViewDr
4 City/Cty Tacoma/ PierceCo
5 Contact ~~Bob Hartman~~ Nobody contacted
8 ProbEffect Cl-Organics in high conc. in soils and GW
9 ProbPollutn Cl-Org
10 ProbSource Sludges from old Solvent Plant disposed as fill
11 WaterBody GW

Inspector - R.Pierce
InspectDate - 11/27/84
Record No. 5
6 Tele# (206)593-1359

0910

Current Status - Viewed site for first time. Test pits and wells installed and marked. Wells locked (casing painted orange)

Notes - sketch below: ⊗ wells
□ Test Pit markers



Pictures? No

Samples? No

InspectionReport

Commencement Bay
Controlled Sites

1 Name GeneralMetals
2 Project SitContamination
3 Location MarineViewDr
4 City/Cty Tacoma/ PierceCo
5 Contact ?
8 ProbEffect Unknown
9 ProbPollutn Unknown
10 ProbSource Past Practices
11 WaterBody GW and HylabosWW

Inspector - R.Pierce/J. Krull/C. Haberm.
InspectDate - 12/~~20~~15/84
Record No. 28

Current Status - no change

Notes - Boat tour of Hylebos WW. From water site looked very messy. Noted several large transformers/capacitors next to WW. Noted oil sheen near this site, though could not I.d. source.

Pictures? No

Samples? No

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504-6811 • (206) 753-2353

Occidental Pierce Co DW

Box 394

December 31, 1984

Mr. Robert W. Hartman
Superintendent of Environmental Control
Occidental Chemical Corporation
605 Alexander Avenue
P. O. Box 2157
Tacoma, Washington 98401

Dear Mr. Hartman:

Dangerous Waste (DW) Regulations (Chapter 173-303 WAC)
Compliance Inspection Conducted on November 27, 1984;
EPA/State Identification Number WAD009242314; Pierce County

Thank you for your cooperation during the November 27, 1984 compliance inspection conducted at the Occidental Chemical Corporation's (Occidental) facility in Tacoma. This inspection consisted of completion of the DW compliance checklist questionnaire (completed copy enclosed); and a review of applicable plans and reports. Occidental has demonstrated notable effort in regards to compliance with Chapter 173-303 WAC and 40 CFR 265, parts F through R. My comments regarding the results of this inspection and review of applicable plans and reports are as follows.

Waste Pile

The covering of the waste pile with a tarp is a great aid in protecting it from precipitation per the requirements of 40 CFR 265.253. It is my understanding that the waste pile will be permanently covered with a plywood roof and shingles by March 1, 1985. Please submit written documentation of this construction, upon its completion by March 1, 1985 to the Washington State Department of Ecology (WDOE). Upon a satisfactory submittal and review of the information listed under "Additional Information Requested" in a succeeding section of this letter, the permanently covered waste pile would be in compliance with the requirements of 40 CFR 265.253 with the exception that reauthorization of the Federal Resource Conservation and Recovery Act (RCRA) could have future impacts upon the management of your waste pile. The WDOE has not yet fully assessed these potential impacts. We will provide you with this guidance in the future.

Waste Sulfuric Acid - Neutralization Process

The WDOE has some remaining, unresolved questions regarding the general issue of permit-by-rule (Chapter 173-303-802 WAC) for wastewater treatment systems. Thus, we will review with you, in the near future, our final determination regarding this issue as it relates to the discharge of your facility's waste sulfuric acid into the plant's effluent system where it is

neutralized in a concrete trench. The guidance provided by Lynda Brothers in her October 17, 1984 letter to you is still, of course, germane to the situation at your facility.

Additional Information Requested

The ensuing information is needed to further assess the status of Occidental in regards to the facility's waste pile.

1. Per 40 CFR 265.253(a)(2) Containment, please provide calculations to the WDOE by February 1, 1985 to demonstrate that run-off from a suggested 24-hour, 25-year storm event (0.18 inches/hour, based on Olympia's rainfall characteristics) will be adequately drained or pumped from the contiguous area so as not to overtop the front curb or raised sides of the waste pile.

2. Chapter 173-303-345(5) limits storage of wastes in piles to a maximum of five years unless an owner or operator of a waste pile can demonstrate that DW is removed from the pile at least four times a year for treatment, recycling, or disposal. In addition, the amount of waste removed during any five-year period must equal or exceed the amount of waste placed in the pile during that five-year period. Please provide this documentation to me by February 1, 1985. If this documentation is not possible, please comply with Chapter 173-303- 345(5) by February 1, 1985 regarding such requirements as the aging of the waste placed in the pile and developing a plan for meeting the five-year limitation.

Suggestions Related to Closure Plan

Occidental's Closure Plan appears to adequately address the basic requirements of 40 CFR 265.112; however, my suggestions and requests for clarifications are as follows:

1. Storage Pile

   a. I would suggest using 0.05 ppm total lead content (Chapter 173-303-645 WAC) as the criteria for discontinuing flushing since the disposition and ensuing use of the potentially scrapped pipe is unknown.

   b. I would suggest that soil sampling should continue down into the soil profile and at a distance from the pad until less than 0.05 ppm of total lead is measured in the soil extract.

   c. Occidental's hazardous waste manual states that the waste pile is composed of anode stubs and lead spot skimmings which are contaminated with lead and other solid hazardous wastes. What are the other solid hazardous wastes and should not Occidental's closure plan's soil analysis include these other parameters?

2. Drum Storage

a. Specify in more detail what DW are stored in the drums.

b. Soil sampling should continue with depth into the soil profile and at a distance from the pad until the parameters listed as hazardous are measured in concentration less than that specified in WAC 173-303.

c. If the pad is contaminated, it must be cleaned during closure. Your plan should state this and include an estimated closure cost.

d. Please clarify the statements regarding the criteria to be used to assess contamination. (Background levels do not equal the definition of DW as defined in WAC 173-303; and hence, it is not clear upon which criteria contaminants will be judged.)

e. Potential contamination from spent cleaning solvents do not seem to be adequately assessed with parameters listed. Please add more clarification.

f. The remaining three or four tank car/containers which store chlorinated hydrocarbon wastes from graphite cell chlorine production process should be closed out as containers per Chapter 173-303 WAC and described in the same section as drum storage. (Thus a renaming of this section to encompass all container types is appropriate).

3. Tank Storage

a. As mentioned in the preceding paragraphs, since tank car/containers which store chlorinated hydrocarbon wastes are containers (per Lynda Brothers, Assistant Director, WDOE October 17, 1984 letter), this description of the cleaning of the tank car/containers should be included under a renamed drum storage section.

b. Again, soil sampling in the area of the tank car/containers storage area should continue until the contamination criteria is not exceeded.

c. The persistent dangerous waste table per Chapter 173-303-102 should be the basis used by Occidental for its contamination criteria to assess the need for disposal at a controlled hazardous waste facility. That is, subtraction of "background concentration" would be difficult to apply since the WDOE has no basis for determining what that "background concentration" was at your facility.

4. Physical Treatment-Decantation - Could the vent scrubbers be contaminated with a waste other than chlorinated hydrocarbons (such as sulfuric acid or calcium hypochlorite)? If so, the analysis should reflect this potential contamination.

5. Chemical Treatment-Neutralization

   a. Is the inflow of waste sulfuric acid into the pH control system for the plant effluent controlled by an inflow stoppage control device per 40 CFR 265.401?

   b. What will transfer lines be flushed with (potable water)? If the transfer lines in the neutralization system possess potential contamination with chlorinated hydrocarbon or other DW, they should not be simply scrapped unless proven free of these contaminants.

The aforementioned RCRA reauthorization and management of your waste pile may well impact your closure plan (and closure cost estimate). Therefore, please delay revision and submittal to the WDOE of both the plan and estimate until April 30, 1985, at which time we should have further guidance to you. Please begin work on all areas that will not be impacted by reauthorization immediately in order to prevent delays in your submittal.

Closure Cost Estimate and Financial Requirements

I would suggest that Occidental address the following items in its closure cost estimate for April 30, 1985 (40 CFR 265, Subpart H, Financial Requirements):

1. Disposal costs at a secured landfill appear low. Chem-Security Systems, Inc. supplied prices of $45-50/drum for burial or pond disposal; and $95/ton of bulk solids for burial. Please correct or provide verification for your estimate of $30/drum or $50/ton.

2. Chem-Security Systems, Inc. will soon no longer accept liquids for disposal at the Arlington site. Unless acceptable disposal of the indicated contaminated water can be found elsewhere, your cost estimate should reflect treatment and subsequent disposal of all DW liquids generated during closure.

3. I would suggest that calculation of the potential volume of contaminated soils extend beyond the pads by at least five feet. (This would also reflect the described soil sampling for your drum storage area in your closure plan and represent a more conservative analysis of costs).

4. The closure cost estimate for tanks (storing chlorinated hydrocarbons) should be reduced to reflect the fact that only three or four tank car/containers will be on-site in the future. Update these costs to reflect your experienced tank car/container cleaning costs. List under container closure, not tanks.

In general, the closure plan and estimate represents a well thought out effort on the part of Occidental. In addition, Jan Whitworth has determined that Occidental appears to meet the financial requirements of 40 CFR 265, Subpart H as to financial assurance per your 1984 submittal, based on the assumption that your closure cost estimates were accurate. This will need to be reassessed after we agree in the adequacy of the closure plan.

I look forward to Occidental's submittal of the aforementioned items. If you have any questions or concerns, please contact me at (206) 753-8532.

Sincerely,

Joanne C. Chance

Joanne C. Chance
Hazardous and Solid Waste Engineer

JCC:si(2/7)

Enclosure

cc: Tom Cook

Box 344

Occidental Chemical Corporation

February 19, 1985

Mrs. Joanne C. Chance
Hazardous and Solid Waste Engineer
State of Washington
Department of Ecology
7272 Cleanwater Lane
Mail Stop Lu-11
Olympia, Washington 98504

Dear Mrs. Chance:

This letter is in response to the December 31, 1984 report on the Dangerous Waste (DW) Regulations (Chapter 173-303 WAC) Compliance Inspection, conducted on November 27, 1984; EPA/State Identification Number WAD 00924314; Pierce County. The item to be addressed is covering of the waste pile.

On February 14, 1985, the enclosure for the waste pile was completed. The attached sketch shows details of this enclosure. One change has been made in the enclosure from the information given to you in December 1984. The side walls are totally closed - they do not have the openings at the top of the wall as shown in the sketch given to you in December.

The other items stated in the December 31, 1984 inspection report will be addressed at a later date.

If you have any questions on this information, please call me at 593-1359.

Sincerely,

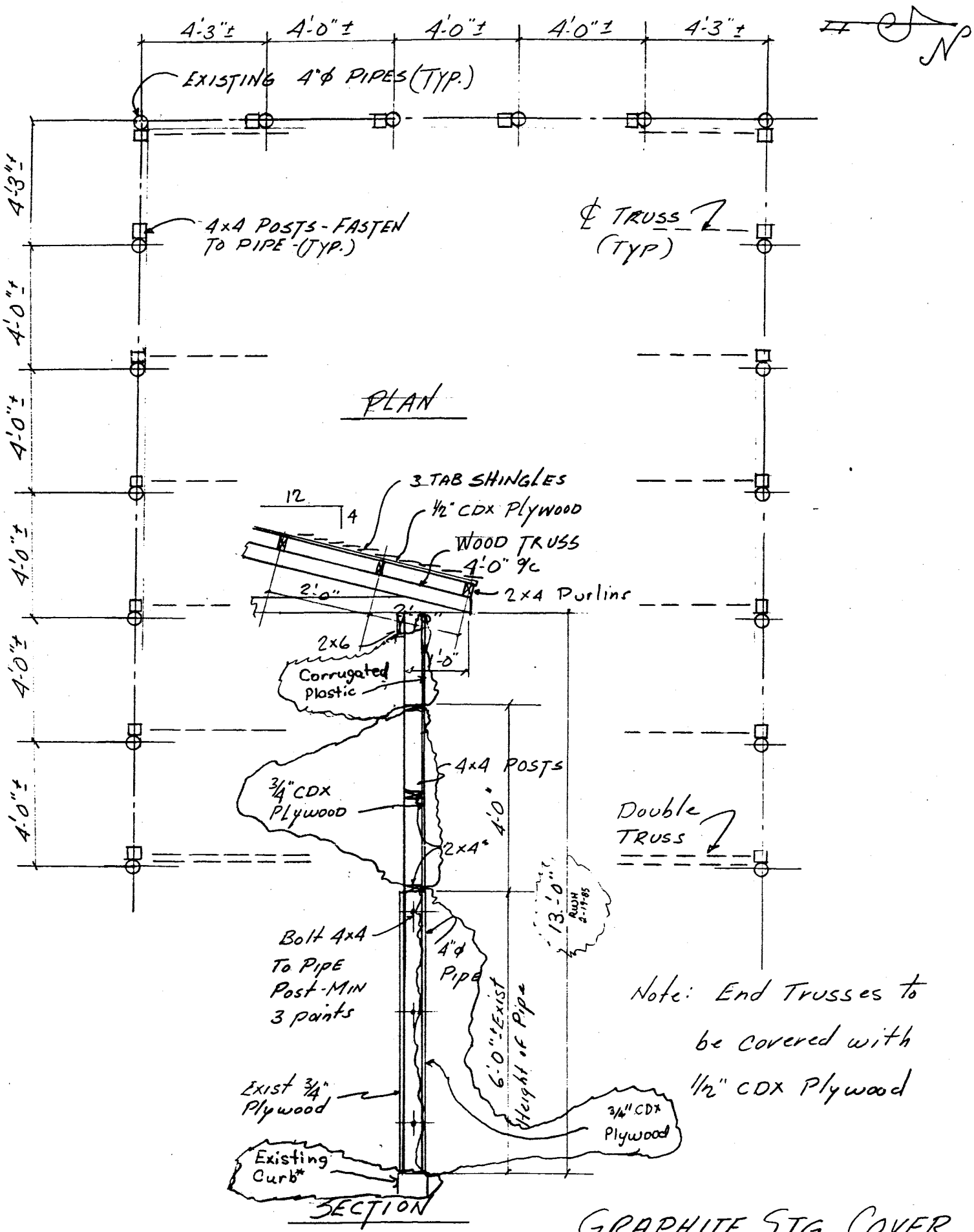
Bob Hartman
Robert Hartman
Superintendent of Environmental Control

Certified Mail No. 21-1888781

Attachment

RWH/klb

HOOKER Industrial & specialty Chemicals
605 Alexander Avenue, Box 2157, Tacoma, Washington 98401



Note: End Trusses to be covered with ½" CDX Plywood

* Installed in January 1985

GRAPHITE STG. COVER

SK - 19848 - IWP

I. EPA/STATE Hazardous Waste I.D.#

WAD067166 97

II. Waste Designated By:
- X RCRA/State
- ____ SQ
- ____ State Only
- ____ Non-Regulated/Non-Handler/Protective Filing

III. Exemption Status:
- ____ RCRA Exempt Recycler
- ____ State Exempt Recycler
- ____ Below QEL
- ____ Other ____

IV. Handling
- ____ Emergency
- ____ Remedial Action
- ____ One-Time-Only
- ____ Other ____

DEPARTMENT USE ONLY

FORM 2

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

(send to) Attn: DW Notifications
Washington State Department of Ecology
M/S PV-11 Olympia, WA. 98504-8711
(206) 459-6314/6305/6306

DATE IN TO DEPARTMENT

3/7/85

RECEIVED
85 MAR 14 P2:40
DEPT. OF ECOLOGY
OLYMPIA, WA

Unit: TSA Date: 3/85 Region: S
EPA: ____ Date: ____ Copy: ____
Input: ____ Update: ____ Ack.: ____
DEPARTMENT USE ONLY

1. ☐ A. FIRST NOTIFICATION
   (X) B. REVISED NOTIFICATION (enter current I.D.# in upper left)
   revisions effective: MO. 3 DAY 14 YR 85
   ☐ C. WE REQUEST TO HAVE OUR I.D.# WITHDRAWN (enter current I.D. assigned to you in section 99 in upper left)
   (X) D. REACTIVATE OUR NOTIFICATION (complete all sections)
   ☐ E. SITE CLOSED (We are no longer conducting business at this location and want our I.D. No. cancelled)

2.A. WASHINGTON STATE DEPARTMENT OF REVENUE REGISTRATION (TAX) NUMBER
278-030-532

2.B. SIC CODE(S) PRIMARY 5093 SECONDARY ____ OTHER ____

3. NAME OF COMPANY
GENERAL METALS OF TACOMA INC

4. MAILING ADDRESS STREET, P.O. BOX, OR RURAL ROUTE & BOX NO.
1902 MARINE VIEW DR

CITY OR TOWN: TACOMA STATE: WA ZIP CODE: 98422-

LOCATION OF WASTE ACTIVITIES (Installation)
DESCRIPTION OF PHYSICAL LOCATION (Follow Instructions Carefully)
SAME

6. COUNTY WHERE THIS INSTALLATION IS LOCATED
PIERCE

CITY OR TOWN: TACOMA STATE: WA ZIP CODE: 98422-

7. DANGEROUS WASTE ACTIVITIES YOUR BUSINESS IS CONDUCTING
(Read & Follow Instructions Carefully—Enter an "X" in appropriate box(es))

A. (✓) GENERATOR

B. (✓) TRANSPORTER (complete this section only if YOU are transporting waste for hire or your own waste to an off-site facility)
   (1) ☐ We Transport Waste For Hire
   (2) Modes of Transport YOU Operate
   (a) (X) HIGHWAY (b) ☐ AIR (c) ☐ RAIL
   (d) ☐ WATER (e) ☐ OTHER ____

C. ☐ WASTE MANAGEMENT FACILITY (TSD) (refer to definitions in instructions
   (1) ☐ TREATMENT
   (2) ☐ STORAGE
   (3) ☐ DISPOSAL
   (4) ☐ WE ACCEPT OFF-SITE WASTES

D. ☐ UNDERGROUND INJECTION

8. CONTACT PERSON
NAME (last), (first)
VAIL ROBERT

TITLE: PLANT MANAGER PHONE NO. (area code & number): 206-572-4000

9A. OWNERSHIP (Legal Owner(s) of this Company)
ACME TRADING & SUPPLY

9B. OWNERSHIP (Legal Owner(s) of site (Property))
Leslie SUSSMAN

10. TYPE OF OWNERSHI (enter letter code in bo
P

1. WASTE IDENTIFICATION

NUMBER	B. Description of Waste(s)	C. Dangerous Waste Number (refer to WAC 173-303)	D. Estimated or Actual Annual Waste Quantity	WEIGHT CODE
	Scrap Lead-acid batteries – NA-1786	D008		
	Foamite ± 0.1	D008	68000	P
		D007		

2. ESTIMATED MAXIMUM QUANTITY of all wastes, listed above, to be produced in any given month or per processing batch.

	QUANTITY	WEIGHT CODE
Line #2 ☑ Batch Frequency Once	68000	P
Line #1 B. ☑ PER MONTH	15000	P

3. COMMENTS (Enter Information by Section & Line Number—See Instructions)

Line #2 One time only disposal

4. FORMS AND INFORMATION REQUEST
(Check the box(es) of those items desired and indicate how many)

A.____ ☐ NOTIFICATION FORM
B.____ ☐ PART A PERMIT FORM FOR TSD FACILITIES
C.____ ☐ BIOLOGICAL TEST PROCED.
D.2 ☑ GENERATOR ANNUAL REPORT FORM
E.____ ☐ CHEMICAL TEST PROCED.
F.____ ☐ TSD FACILITY ANNUAL REPORT/UNMANIFESTED WASTE REPORT
G.____ ☐ DANGEROUS WASTE LEGISLATION (RCW 70.105) AND REGULATIONS (WAC 173-303)
H.____ ☐ DANGEROUS WASTE FEES LEGISLATION (RCW 70.105A) & REGULATION (WAC 173-305)
I.____ ☐ OTHER (specify)____

5. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE:	OFFICIAL TITLE (Print)	DATE SIGNED:
PRINTED NAME: Robert B. Vail	Plant Manager	27 Feb '85

FACILITY UNMANIFESTED DANGEROUS WASTE REPORT

Mail Original To:

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
H.W. Section R/6 M/S PV-11
Olympia, WA 98504-8711

FORM 6

2/27/85

DATE RECEIVED BY WDOE

RECEIVED
85 MAR 14 P2:40

DEPARTMENT USE ONLY
DEPT. OF ECOLOGY
OLYMPIA, WA.

I. RECEIVING FACILITY INFORMATION

EPA/State I.D. #: WAD067166397 Facility Name: General Metals of Tacoma
Facility Address (incl. City, State, Zip): 1902 Marine View Dr. Tacoma Wa. 98422
Facility Contact Person: Robert B. Vail Phone Number: (206) 572-4000

II. GENERATOR INFORMATION

EPA/State I.D. #: See Comments Generator Name:
Generator Address (incl. City, State, Zip):

III. TRANSPORTER INFORMATION

EPA/State I.D. #: Transporter Name: AMIX Salvage
Transporter Address (incl. City, State, Zip): Surrey, British Columbia
Driver's Name: Driver's License No.: via Tug State:
Vehicle License No: State: ICC or Other License Numbers:

IV. WASTE INFORMATION

Print or Type Please

A. Date This Waste Shipment Received By Your Facility:
B. Identification of Waste(s)

LINE NUMBER	1 Physical State S=solid L=liquid G=sludge	2 Chemical Nature O=Organic I=Inorganic	3 Description of Waste	4 Handling Method Code	5 Dangerous Waste Number	6 Amount of Waste	7 WEIGHT CODE
1.	G	OI	Foamite #0.1	502		68000	P
2.							
3.							

V. COMMENTS

Waste came from a ship which was scrapped in the Spring of 1984, the ship ("C.J. Service") came from Canada; the waste material is not believed to be hazardous but does require special disposal. It was in the bottom of the ship, presumably to prevent fire.

VI. CERTIFICATION

certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Robert B. Vail — PRINT OR TYPE NAME
SIGNATURE
27 Feb '85 — DATE SIGNED

James

FRED. S. JAMES & CO. OF WASHINGTON 1700 Fourth & Blanchard Building, Washington 98121 206 623-5900

Date: 3-21-85

From: Linda Jacobson

State of Washington
Dept. of Ecology
7272 Cleanwater Lane, LU-11
Olympia, Wa. 98504

- ☐ The attached endorsement effects the insurance change recently ordered.
- ☐ We enclose our invoice for the installment premium under the policy.
- ☐ Renewal policy enclosed continuing coverage.
- ☒ Certificate of insurance enclosed per your request.
- ☐ Amended certificate for Sol-Pro/ Lilyblad H.W.M.

F.S.J. - 2 REV. 84

CONFIDENTIAL INFORMATION
IN INHOUSE FILE
Dated March 21, 1985

Box 28

1984 TSD FACILITY ANNUAL DANGEROUS WASTE REPORT ✓ Form 5

RECEIVED 85 APR -1 P3:38 DEPT OF ECOLOGY OLYMPIA, WA 4/23/85 DATE INTO DEPT.

1. FACILITY NAME: CHEMICAL PROCESSORS INC

2. EPA/STATE IDENTIFICATION NUMBER: WAD020257945

3. FACILITY LOCATION ADDRESS
Street or Description (see instructions): 1700 ALEXANDER
City: TACOMA
State: WA
Zip: 98421-

4. LOCATION COUNTY: PIERCE

5. MAILING ADDRESS AND CONTACT PERSON FOR ANNUAL REPORT CORRESPONDENCE
Street or P.O. Box: 5501 AIRPORT WAY SO
City: SEATTLE
State: WA
Zip: 98108-
Contact: DENNIS STEFANI
Phone: 206-767-0350

6. MAILING ADDRESS AND CONTACT PERSON FOR FACILITY FEE CORRESPONDENCE
Street or P.O. Box: 5501 AIRPORT WAY SO
City: SEATTLE
State: WA
Zip: 98108-
Contact: RONALD S WEST
Phone: 206-767-0350

7. STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES
Primary: 4213
4212

8. CLOSURE COST ESTIMATE
$ 83,082.00

9. POST-CLOSURE COST ESTIMATE
$ N/A

SEND TO:
DEPARTMENT OF ECOLOGY
HAZARDOUS WASTE SECTION
ATTN. Annual Reports R/6
Mail Stop PV-11
Olympia, WA 98504-8711

Phone Numbers for Assistance:
(206) 459-6300
6306
6305

10. REGULATORY STATUS—If your facility meets any of the conditions below, you are exempt from completing page 2 of the report.
(Circle the appropriate number)

1. No Regulated Wastes where treated, stored, or disposed of at this site.
2. All Wastes managed were produced by small quantity generators.
3. All Waste managed at this site was delisted or a petition approved for exemption of the Waste pursuant to WAC 173-303-910.
4. The site has been closed (specify date: _____) and no waste management activities occurred during 1984.
5. Our Company no longer owns or operates a business at this site.
6. Other (include a cover letter detailing your basis for exemption from reporting.)

11. TOTAL WASTE IN STORAGE ON DEC. 31, 1984

STORAGE METHOD	AMOUNT WASTE	WEIGHT CODE
(SO1C) Container (barrel, drum, etc.)		
(SO2T) Tank, above ground	4,372,641	P
(SO2U) Tank, underground		
(SO3W) Waste Pile		
(SO4S) Surface Impoundment		
(SO5O) Other		

DUE DATE:
Postmarked No Later Than
MARCH 1, 1985

12. CERTIFICATION *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

DENNIS STEFANI
PRINT OR TYPE NAME

Dennis F. Stefani
SIGNATURE

3/29/85
DATE SIGNED

FORM ECY 070-12 (Rev. 12/84) -ECL12-984- 3

Please print or type with ELITE type (12 characters per inch).

State of Washington
Department of Ecology

FORM 5

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

PLEASE PLACE LABEL IN THIS SPACE

1. Type of Dangerous Waste Report (check one)

A [X] TSD FACILITY ANNUAL REPORT
THIS REPORT FOR YEAR ENDING DEC. 31, 1982

B [ ] UNMANIFESTED WASTE REPORT
THIS REPORT IS FOR A WASTE
RECEIVED (month, day & year) - - 19

RECEIVED

You may have received a preprinted label attached to the front of this pamphlet, affix it in the designated space above. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave Sections 2A, 3 and 4 below blank. However, be sure to complete Section 2B. If you did not receive a preprinted label, complete all sections. "Facility" means a single site where dangerous waste is transfered, treated, stored, or disposed.

2A. TSD FACILITY EPA/STATE I.D. NUMBER

WAD020257945

2B. TSD FACILITY SIC CODE(S)

2899 3471 2911

3. NAME OF TSD FACILITY

CHEMICAL PROCESSORS INC.

4. TSD FACILITY MAILING ADDRESS

Street or P.O. Box

5011 AIRPORT WAY SOUTH

City or Town: SEATTLE | State: WA | Zip Code: 98108

5A. LOCATION OF TSD FACILITY

Street or Route Number

7011 ALEXANDER AVE

City or Town: TACOMA | State: WA | Zip Code: 98421

5B. COUNTY IN WHICH TSD FACILITY IS LOCATED

County: PIERCE

6. TSD FACILITY CONTACT

Name (last and first): WING, PATRICK

Phone No. (area code & number): 206-767-0350

7. COST ESTIMATES FOR TSD FACILITIES

A. COST ESTIMATE FOR FACILITY CLOSURE (includes transfer, treatment, storage and disposal facilities)

$ 93,400

B. COST ESTIMATE FOR POST-CLOSURE MONITORING AND MAINTENANCE (disposal facilities only)

$ 006

8. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

PRINT OR TYPE NAME | SIGNATURE | DATE SIGNED

030-12

I -541-

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD000257945

GENERATOR'S IDENTIFICATION NUMBER: WAD000800896

12. GENERATOR NAME (specify): CHEMICAL PROCESSORS

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

1002 EAST D. STREET

TACOMA WA. 98421

14. WASTE IDENTIFICATION

LINE NUMBER	Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	L	I	WASTEWATER CONTAMINATED WITH HEAVY METALS	T 3	D007 D006	DW	2518000	P
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

15. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

AIRO SERVICE INC. WAD027528728

RESOURCE RECOVERY INC. WAD061672812

16. COMMENTS

USING THE STATE CRITERIA, THE MAJORITY OF THESE SHIPMENTS WERE OF A NON HAZARDOUS WASTE. ALL SHIPMENTS WERE PROCESSED AND HANDLED AS HAZARDOUS AND ARE THEREFORE INCLUDED IN THIS REPORT FOR THAT REASON ONLY.

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: AD0202579455

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: S24

12. GENERATOR NAME (specify): ROADWAY EXPRESS

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 1502 44TH AVE. E. TACOMA, WA. 98424

I. WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	CORROSIVE WASTE	T31	D002	DW	1100	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

5450 TACO TRK ALUMINUM 3-24

COMMENTS

NO GENERATOR ID NUMBER

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: AD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2): I. DATE RECEIVED; II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: SRG

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

2622 SOUTH TACOMA WAY
TACOMA

GENERATOR NAME (specify)

BENS TRUCK PARTS

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	ALKALINE LIQUID	T31	D002	DW	4000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

WR ### 4723274

COMMENTS

NO GENERATOR ID NUMBER

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: 9 D 0 2 0 2 5 7 9 4 5

GENERATOR'S IDENTIFICATION NUMBER: 9 0 0 0 9 2 4 7 1 0 7

GENERATOR NAME (specify): CAM INDUSTRIES

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 21318 103RD PLACE S.E. KENT, WA. 98031

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
G	I	PAINT SLUDGE	T31	D007	DW	9000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER	10. TYPE OF REPORT (Enter an "X")	FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)	I. DATE RECEIVED
WD020257945	☒ FACILITY ANNUAL REPORT ☐ UNMANIFESTED WASTE REPORT		II. RECEIVED BY
GENERATOR'S IDENTIFICATION NUMBER	13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)		
WD052586310	600 ANDOVER PARK EAST SEATTLE, WA. 98188		
GENERATOR NAME (specify)			
TRIWAY INDUSTRIES INC.			

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation D/W or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	PAINT SLUDGE	T31	D007	DW	16000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WA9214053465

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

GENERATOR NAME (specify): 7TH INFANTRY DIV. AND FT. LEWIS

ATTN. AFZH-FEQ
FORT LEWIS, WA. 98433

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	PAINT SLUDGE	T31	D007	DW	58050	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WD0007119944

GENERATOR NAME (specify): PUGET SOUND POWER AND LIGHT CO.

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): RT 1 BOX 69 ORTING, WA 98360

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	CORROSIVE WASTE	T31	D002	DW	2000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WD045326949

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 401 N. 4TH KENT, WA. 98031

GENERATOR NAME (specify): N.W. METAL PRODUCTS COMPANY

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
S/G	I	CORROSIVE WASTE	T31	D002	DW	9750	P
S/G	I	CHROME WASTE	T31	D007	DW	11500	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

1

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

ACILITY'S EPA/STATE IDENTIFICATION NUMBER: D 0 2 0 2 5 7 9 4 5

ERATOR'S IDENTIFICATION NUMBER: D 0 0 9 2 4 2 3 1 4

GENERATOR NAME (specify): OOKER CHEMICALS + PLASTICS

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

605 ALEXANDER AVE
TACOMA, WA. 98421

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	CAUSTIC	T31	D002	DW	18000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WA000834408

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 20500 RICHMOND BEACH DRIVE NW. RICHMOND BEACH, WA. 98177

GENERATOR NAME (specify): CHEVRON (POINT WELLS)

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	CORROSIVE WASTE	T31	D002	DW	44000	P
L/G	I	CHROME WASTE	T31	D007	EHW	100000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: A D 0 2 0 2 5 7 9 4 5

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: A D 0 7 6 6 5 1 1 7 3

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 655 S. ANDOVER STREET SEATTLE, WA. 98108

GENERATOR NAME (specify): SINCLAIR AND VALENTINE

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	CORROSIVE WASTE	T31	D002	DW	2100	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

ACILITY'S EPA/STATE IDENTIFICATION NUMBER: D 0 2 0 2 5 7 9 4 5

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

ERATOR'S IDENTIFICATION NUMBER: ~~WA~~ 9 8 0 5 4 0 9 4 1 / ~~T~~ 5 4 0 0 1 3 0 3 4

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

GENERATOR NAME (specify): ~~SEH AMERICA~~ SEH America

11800 NE 95TH ST. BLDG 260
VANCOUVER WA. 98662

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	HYDROFLUORIC ACID	T31	D002	DW	319460	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WD009265851

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 3800 WEST MARGINAL WAY S.W. SEATTLE, WA. 98106

GENERATOR NAME (specify): BETHLEHEM STEEL

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L	I	PICKLE LIQUOR	T31	D002	DW	3108900	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: AD0202579455

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

ENERATOR'S IDENTIFICATION NUMBER: A00008129177

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

PIER 91
SEATTLE, WA.

. GENERATOR NAME (specify)

CHEMICAL PROCESSORS PIER 91

. WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	CORROSIVE WASTE	T31	D002	DW	90000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

'SD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

ACILITY'S EPA/STATE IDENTIFICATION NUMBER: D 0 2 0 2 5 7 9 4 5

ERATOR'S IDENTIFICATION NUMBER: D 0 0 0 8 1 2 9 0 9

GENERATOR NAME (specify): EMICAL PROCESSORS - GEORGETOWN

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE)

734 S. LUCILLE ST.
SEATTLE, WA. 98108

WASTE IDENTIFICATION

Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	CORROSIVE WASTE	T31	D002	DW	11900	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: WD041337130

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 700 15TH ST. S.W. AUBURN WA.

GENERATOR NAME (specify): BOEING (AUBURN)

WASTE IDENTIFICATION

Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
L/G	I	CORROSIVE WASTE	T3i	D002	DW	1647160	P
L/G	I	CHROME WASTE	T3i	D007	EHW	2030000	P

TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

88

COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

GENERATOR'S IDENTIFICATION NUMBER: WAD009256819

12. GENERATOR NAME (specify): BOEING (PLANT 2)

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 7755 EAST MARGINAL WAY SO. SEATTLE, WA.

14. WASTE IDENTIFICATION

NUMBER	Physical State (S=Solid, L=Liquid, G=Sludge)	Chemical Nature (O=Organic, I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	4/G	I	CORROSIVE WASTE	T31	D002	DW	2568640	P
2	4/G	I	CHROME WASTE	T31	D007	EHW	2124600	P
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

53, 54

. COMMENTS

E -541- ECY 030-28 Reverse

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

GENERATOR'S IDENTIFICATION NUMBER: WAD041585464

12. GENERATOR NAME (specify): BOEING (EVERETT)

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 3303 CASINO ROAD SO. EVERETT, WA.

14. WASTE IDENTIFICATION

NUMBER	Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	L/G	I	CORROSIVE WASTE	T31	D002	DW	62550	P
2	L/G	I	CHROME WASTE	T31	D007	EHW	96150	P
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

26

. COMMENTS

E -541- ECY 030-28 Reverse

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

GENERATOR'S IDENTIFICATION NUMBER: WAD061670766

12. GENERATOR NAME (specify): BOEING (KENT SPACE CENTER)

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 20403 68TH AVE. SO. KENT, WA.

14. WASTE IDENTIFICATION

NUMBER	Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	4/G	I	CORROSIVE WASTE	T31	D002	DW	4849350	P
2	4/G	I	CHROME WASTE	T31	D007	EHW	789400	P
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

15. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

16. 43

17. COMMENTS

EE -541- ECY 030-28 Reverse

TSD FACILITY ANNUAL DANGERCUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2) — I. DATE RECEIVED — II. RECEIVED BY

GENERATOR'S IDENTIFICATION NUMBER: MAD009262171

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 8TH AND LOGAN AVE. NO. RENTON, WA.

12. GENERATOR NAME (specify): BOEING (RENTON)

14. WASTE IDENTIFICATION

NUMBER	Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGERCUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	L/G	I	CORROSIVE WASTE	T31	D002	DW	2531000	P
2	L/G	I	CHROME WASTE	T31	D007	EHW	2755900	P
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

15. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

16.78

16. COMMENTS

TSD FACILITY ANNUAL DANGEROUS WASTE REPORT/UNMANIFESTED WASTE REPORT

9. FACILITY'S EPA/STATE IDENTIFICATION NUMBER: WAD020257945

GENERATOR'S IDENTIFICATION NUMBER: WAD093639946

10. TYPE OF REPORT (Enter an "X"): [X] FACILITY ANNUAL REPORT [ ] UNMANIFESTED WASTE REPORT

FOR OFFICIAL USE ONLY (ITEMS 1 AND 2)

I. DATE RECEIVED

II. RECEIVED BY

12. GENERATOR NAME (specify): BOEING (DEVELOPMENTAL CENTER)

13 GENERATOR ADDRESS (STREET OR P.O. BOX, CITY, STATE & ZIP CODE): 9725 EAST MARGINAL WAY SO. SEATTLE, WA.

14. WASTE IDENTIFICATION

NUMBER	Physical State (S=Solid L=Liquid G=Sludge)	Chemical Nature (O=Organic I=Inorganic)	A. DESCRIPTION OF WASTE	B. HANDLING METHOD CODE	C. DANGEROUS WASTE NUMBER (see instructions)	D. Waste Designation DW or EHW	E. AMOUNT OF WASTE	F. WEIGHT CODE
1	4/G	I	CORROSIVE WASTE	T31	D002	DW	639250	P
2	4/G	I	CHROME WASTE	T31	D007	EHW	441000	P
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

15. TRANSPORTER USED. (UNMANIFESTED WASTE REPORT ONLY)

13,16

16. COMMENTS

EE -541- ECY 030-28 Reverse

CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY) 4-15-85

PRODUCER

FRED.S. JAMES & CO.
1700 Fourth & Blanchard Bldg.
Seattle, Wa. 98121

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

SOL-PRO/LILYBLAD H.W.M.
P.O. Box 1381
Tacoma, Wa. 98401

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	INDUSTRIAL INDEMNITY
COMPANY LETTER B	
COMPANY LETTER C	Box 401
COMPANY LETTER D	
COMPANY LETTER E	

COVERAGES

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH POLICIES.

TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIABILITY LIMITS IN THOUSANDS	EACH OCCURRENCE	AGGREGATE
GENERAL LIABILITY						
X COMPREHENSIVE FORM				BODILY INJURY	$	$
X PREMISES/OPERATIONS				PROPERTY DAMAGE	$	$
X UNDERGROUND EXPLOSION & COLLAPSE HAZARD						
X PRODUCTS/COMPLETED OPERATIONS				BI & PD COMBINED	$ 500	$ 500
X CONTRACTUAL	SP8890792	3-1-85	3-1-86			
X INDEPENDENT CONTRACTORS						
X BROAD FORM PROPERTY DAMAGE						
X PERSONAL INJURY				PERSONAL INJURY		$ 500
This policy excludes pollution liability						
AUTOMOBILE LIABILITY						
X ANY AUTO				BODILY INJURY (PER PERSON)	$	
ALL OWNED AUTOS (PRIV. PASS.)				BODILY INJURY (PER ACCIDENT)	$	
ALL OWNED AUTOS (OTHER THAN PRIV. PASS.)	SQ8890793	3-1-85	3-1-86	PROPERTY DAMAGE	$	
X HIRED AUTOS				BI & PD COMBINED	$ 500	
X NON-OWNED AUTOS						
GARAGE LIABILITY						
EXCESS LIABILITY						
X UMBRELLA FORM	LC8609237	3-1-85	3-1-86	BI & PD COMBINED	$ 5000	$ 5000
OTHER THAN UMBRELLA FORM	excludes pollution liability	-except automobile				
WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY		
				$	(EACH ACCIDENT)	
				$	(DISEASE-POLICY LIMIT)	
				$	(DISEASE-EACH EMPLOYEE)	
OTHER Pollution Liability Sudden/Accidental	T.B.A.	3-1-85	3-1-86	$3,000,000 Each claim 9,000,000 aggregate 10,000 Deductible		

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

OPERATIONS OF INSURED

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE Robert F Nelson

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

Summary Memorandum

Site ID: WA D980511653
County: Pierce
Priority Assessment: Medium
Backlog Red. Cat.:
Date/Revised: 06/14/85

Name and Location:

Marine View Drive Site - Occid. Chem.
1902 Marine View Drive
Tacoma, WA 98422

Contact:
Telephone: ( )
Site Status: ( ) Active (X) Inactive ( ) Unknown

Site Description/TSD Activities:

From 1972 to 1977 this site was used by Occidental Chemical Corp. for the landfilling of brine sludges & during 1972-1973 for wastes from tri- & tetrachloroethene production. General Metals, a scrap metal dealer has also disposed of shredded car interiors on the site. Site is presently fenced and inactive.

Waste Types/Quantities/Characteristics:

The Occidental sludges form a 5 ft. thick layer within an area of 75 x 150 ft. These sludges are known to be contaminated with up to 40,000 mg/kg chlorinated organics, particularly tri- & tetrachloroethene. They also contain copper (10 mg/kg), lead (2,000 mg/kg), asbestos (1,000 mg/kg) and strontium (15,000 mg/kg).

Physical/Social Environment:

Site is along the north bank of the Hylebos Waterway in an industrial area of Tacoma. Nearest residential area is 0.5 miles NW. There is one playground and one school within 1 mile. Hylebos Waterway is 0.3 miles SW of site and receives both surface and groundwater from the area.

Pollutant Mobilization/Pathways/Risk:

GW within the waste disposal area is contaminated with both tri- & tetrachloroethene, though wells surrounding the area have had little or no contamination. There is no downgradient use of GW. Surface runoff has been analyzed & found not to be contaminated with chlorinated hydrocarbons. There is no downgradient use of SW for drinking supply.

Priority Assessment/Backlog Reduction Category:

Medium.

Followup Recommendations:

Perimeter wells have shown little or no contamination by chlorinated organics ((3 ppb) despite the fact that a well within the disposal area has over 12,000 ppb chlorinated organics. In view of the solubility of tri- and tetrachloroethene, it is surprising that there is not more off-site migration. A second round of groundwater sampling is warranted.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 1 - Site Information and Assessment

I. IDENTIFICATION

01 State	02 Site Number
WA	D980511653

II. SITE NAME AND LOCATION

01 Site Name (legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier
Marine View Drive Site	Marine View Drive

03 City	04 State	05 Zip Code	06 County	07 County Code	08 Cong Dist
Tacoma	WA	98422	Pierce	053	06

09 Coordinates Latitude	Longitude	Section/Township/Range
471630.0	1222240.0	NW 1/4, Sec. 36, T21N, R3E, WM

10 Directions to Site (starting from nearest public road)

Site is located across Marine View Drive from General Metals (1902 Marine View Drive)

III. RESPONSIBLE PARTIES

01 Owner (if known)	02 Street (business, mailing, residential)
Jones Chemical	1919 Marine View Drive

03 City	04 State	05 Zip Code	06 Telephone Number
Tacoma	WA	98422	(206)5729030

07 Operator (if known and different from owner)	08 Street (business, mailing, residential)
Same	

09 City	10 State	11 Zip Code	12 Telephone Number
			( )

13 Type of Ownership (check one)

(X) A. Private ( ) B. Federal: ( ) C. State ( ) D. County ( ) E. Municipal
( ) F. Other: ( ) G. Unknown

14 Owner/Operator Notification on File (check all that apply)

( ) A. RCRA 3001, Date Rec'd: / / ( ) B. Uncontrolled Waste Site (CERCLA 103c), Date Rec'd: / / (X) C. None

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 On Site Inspection

(X) Yes, Date: 7/ -/ 84 ( ) No

By (check all that apply):

(X) A. EPA ( ) B. EPA Contractor (X) C. State ( ) D. Other Contractor
( ) E. Local Health Official ( ) F. Other:

Contractors Name(s):

02 Site Status (check one)

( ) A. Active (X) B. Inactive ( ) C. Unknown

03 Years of Operation

beginning year 1972 ending year 1977 ( ) Unknown

04 Description of Substances Possibly Present, Known, or Alleged

This site was used by Occidental Chemical Corp. for the disposal of brine sludges from 1972-1977. This material is composed of calcium carbonate, magnesium hydroxide, sodium chloride, 1.5% strontium and 0.2% lead. From 1972-73 Occidental disposed of sludges from a solvents plant. These sludges contain 0.4% chlorinated organics, 0.1% asbestos, 50 ppm lead & 10 ppm copper. General Metals has also used the site for disposal of shredded car interiors.

05 Description of Potential Hazard to Environment and/or Population

The greatest potential for migration of wastes is via groundwater. Groundwater within the disposal area contains up to 10 mg/l trichloroethene and 2.5 mg/l tetrachloroethene. Groundwater outside of the disposal area contains little or no chlorinated organics. There is no downgradient use of groundwater for drinking supply.

V. PRIORITY ASSESSMENT

01 Priority for Inspection (check one; if high or medium is checked, complete Part 2 and Part 3)

( ) A. High (inspection required promptly) (X) B. Medium (inspection required) ( ) C. Low (inspect on time available basis) ( ) D. None (no further action needed complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 Contact	02 Of (agency/organization)	03 Telephone Number
Ned Therien	WDOE	(206) 4596280

04 Person Responsible for Assessment	05 Agency	06 Organization	07 Telephone Number	08 Date
Donald Weston		SAIC	(206) 7477899	06/ 14/ 85

Modified (5/84) from EPA Form 2070-12 dated 7/81

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 2 - Waste Information

I. IDENTIFICATION

01 State	02 Site Number
WA	D980511653

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (check all that apply)
( ) A. Solid ( ) E. Slurry
( ) B. Powder, Fines ( ) F. Liquid
(X) C. Sludge ( ) G. Gas
( ) D. Other:

02 Waste Quantity at Site (measures of waste quantities must be independent)
Tons:
Cubic Yards: 2080
No. of Drums:

03 Waste Characteristics (check all that apply)
(X) A. Toxic (X) E. Soluble (X) I. Highly Volatile
( ) B. Corrosive ( ) F. Infectious ( ) J. Explosive
( ) C. Radioactive ( ) G. Flammable ( ) K. Reactive
( ) D. Persistent ( ) H. Ignitable ( ) L. Incompatible
( ) M. Not Applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge	Unknown	N/A	with chlorinated hydrocarbons
OLW	Oily Waste			
SOL	Solvents			
PSD	Pesticides			
OCC	Other Organic Chemicals			
IOC	Inorganic Chemicals			
ACD	Acids			
BAS	Bases			
MES	Heavy Metals	Unknown	N/A	in Occidental sludge

IV. HAZARDOUS SUBSTANCES (see Appendix for most frequently cited CAS numbers)

01 Cat.	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
SLU	Trichloroethene	79-01-6	Landfill	*	N/A
SLU	Tetrachloroethene	127184	Landfill	*	N/A
MES	Copper	7440508	Landfill	10	mg/kg
MES	Lead	7939921	Landfill	2000	mg/kg
SLU	Asbestos	1332214	Landfill	1000	mg/kg
SLU	Strontium			15000	mg/kg
****	********ENVIRONMENTAL	DATA****	**********		
SLU	Trichloroethene	79-01-6	Groundwater	10.2**	mg/l
SLU	Tetrachloroethene	127184	Groundwater	2.5**	mg/l

V. FEEDSTOCKS (see Appendix for CAS numbers

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (cite specific references, e.g., state files, etc.)

EPA ERRIS files; WDOE files; Tacoma Off-plant Disposal Site Investigation: Marine View Drive, Occidental Chemical Corp., 1984; P. Boys & J. Sceva, July 5, 1979, EPA memo regarding inspection of Occidental facilities.
Total chlorinated hydrocarbon concentration of 40,000 mg/kg in sludges.
**Highest detected value.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 3 - Description of Hazardous Conditions & Incidents

I. IDENTIFICATION

01 State	02 Site Number
WA	D980511653

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 (X) A. Groundwater Contamination — 02 (X) Observed (Date: 10/84) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

Groundwater beneath the site has been found to be contaminated with tri- & tetrachloroethene. Wells surrounding the site have little or no contamination. GW is at a depth of about 3 ft. Upper 7 ft. of overburden is permeable artificial fill. GW flow is to SW towards Hylebos Waterway.

01 (X) B. Surface Water Contamination — 02 ( ) Observed (Date:) (X) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

Surface runoff has been analyzed (9/84) for tri- & tetrachloroethene though none were detected (<0.002 mg/l). Nearest surface water is Hylebos Wtrwy., 0.3 mi to SW. Waterway used for industrial and recreational purposes. No use of SW for drinking supply.

01 (X) C. Contamination of Air — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

None known or suspected. There are 1500 residents and 5500 transients within 1 mile of site.

01 (X) D. Fire/Explosive Conditions — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

No known certified fire/explosion threat.

01 (X) E. Direct Contact — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

Contaminants are buried beneath seven feet of fill. Area is fenced. No known potential for direct contact.

01 (X) F. Contamination of Soil — 02 ( ) Observed (Date:) (X) Potential ( ) Alleged

03 Area Potentially Affected (acres): (5

04 Narrative Description

Beneath 7 ft. of fill there is a 5 ft. thick layer of sludge. Although no analyses have been done it is very likely that soils surrounding the sludge have become contaminated with chlorinated organics and/or heavy metals. The sludges themselves occupy a 75 x 150 ft. area.

01 (X) G. Drinking Water Contamination — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

Nearest well is located 0.3 mi N of site. This well is drilled to 800 ft and thus would not be affected by groundwater contamination at site. All wells are up-gradient of site. Over 60,000 people use GW for drinking supply within 3 miles. Potential for contamination considered very low.

01 (X) H. Worker Exposure/Injury — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Workers Potentially Affected: 0

04 Narrative Description

Site is inactive - no workers present.

01 (X) I. Population Exposure/Injury — 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description

There does not appear to be any direct threat to population. Only potential threat would be to shallow groundwater (not used for drinking).

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 3 - Description of Hazardous Conditions & Incidents

I. IDENTIFICATION

01 State	02 Site Number
WA	D980511653

II. HAZARDOUS CONDITIONS AND INCIDENTS (continued)

01 (X) J. Damage to Flora 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) K. Damage to Fauna 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description (include name[s] of species)
None known or suspected.

01 (X) L. Contamination of Food Chain 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) M. Unstable Containment of Wastes (spills/runoff/standing liquids/leaking drums) 02 (X) Observed (Date: 10/84) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 0

04 Narrative Description
Wastes were buried without any protection against leaching and migration of contaminants to groundwater. As a result shallow groundwater has become contaminated.

01 (X) N. Damage to Offsite Property 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) O. Contamination of Sewers, Storm Drains, WWTPs 02 ( ) Observed (Date:) (X) Potential ( ) Alleged

04 Narrative Description
Storm drains serving the area could potentially become contaminated though analysis of runoff to date has not shown the presence of contaminants.

01 (X) P. Illegal/Unauthorized Dumping 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

05 Description of Any Other Known, Potential, or Alleged Hazards
None known.

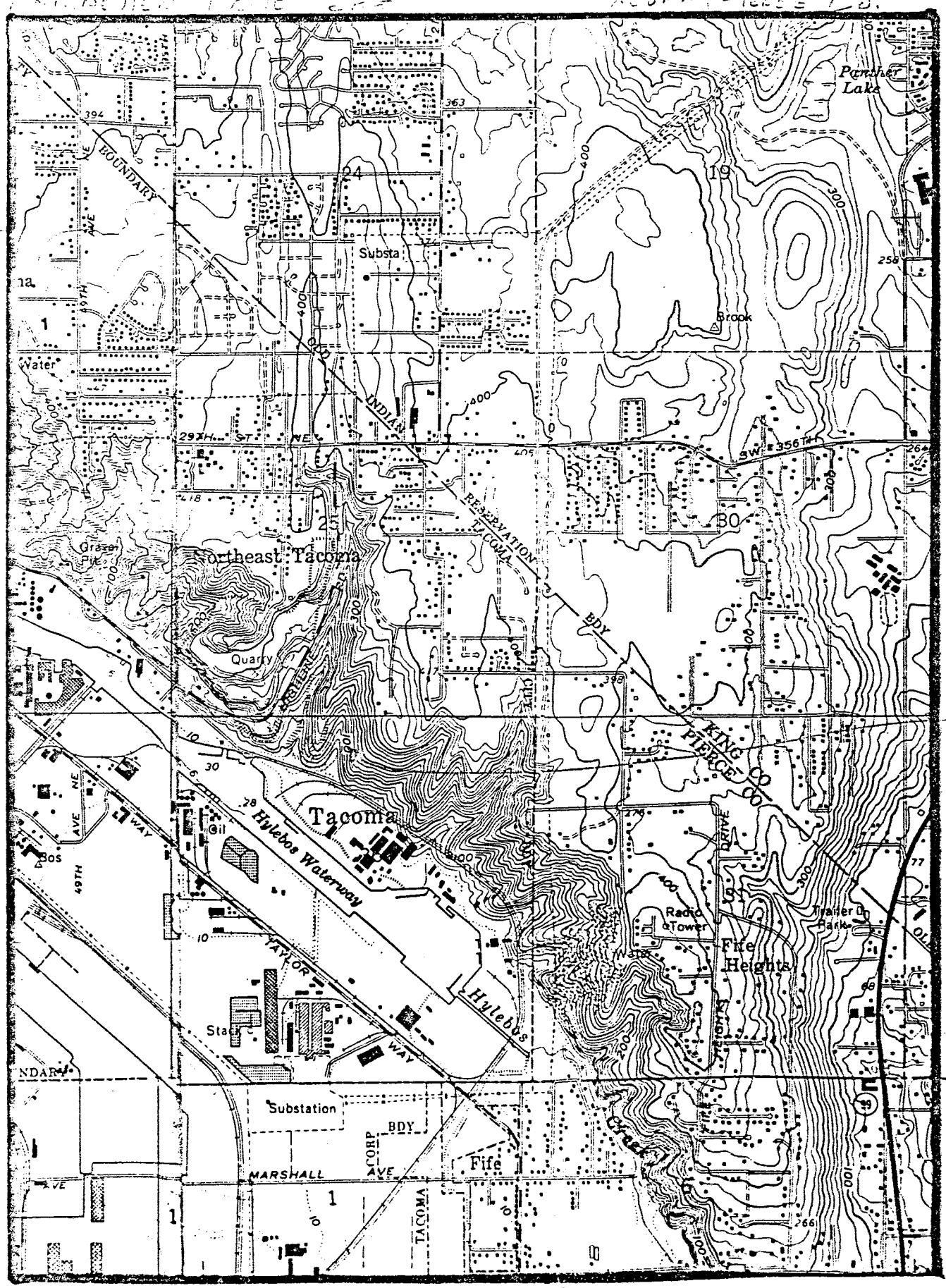
III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

IV. COMMENTS

There is an ongoing Superfund investigation in the Tacoma Tideflats.

V. SOURCES OF INFORMATION (cite specific references: state files, reports, etc.)

Tacoma Off-plant Disposal Site Investigation: Marine View Drive, Occidental Chemical Corp., 1984; EPA ERRIS file; WDOE files; USGS, Tacoma North (1981) & Poverty Bay (1981) Quads; WDSHS, 1985, Computer listing of Public Water Supplies; 1980 Fed. Census; PSCOG, 1984.



Approx
NW ¼
Sec. 31
T. 21 N
R. 3 E
WM

T. 21 N
T. 20 N

Commencement Bay Contractor Report + Oline 10-2-78

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

Summary Memorandum

Site ID: WA D980639645
County: Pierce
Priority Assessment: None
Backlog Red. Cat.:
Date/Revised: 06/25/85

Name and Location:

Don Oline Landfill
1801 Alexander Ave.
Tacoma, WA 98421

Contact: Occidental
Telephone: (206) 3832661
Site Status: ( ) Active (X) Inactive ( ) Unknown

Site Description/TSD Activities:

From 1972 until 1975 the property, owned by Don Oline, was used for disposal of waste sludges from solvents production at Occidental Chem. Corp. & disposal of dredge spoil from Occidental docks. Occidental disposal ceased in 1975 & all wastes have been covered by clean fill. Site has also been used for disposal of wastes from Domtar Lime Corp.

Waste Types/Quantities/Characteristics:

Dredge spoils & solvent sludges disposed at site were contaminated with chlorinated hydrocarbons (chlorinated ethenes), asbestos, & several heavy metals. Approximately 13,000 tons of Occidental wastes were disposed of at site, including 2000 tons of dredge spoil.

Physical/Social Environment:

Wastes have been covered & site is now used by a metal recovery facility and for diesel fuel storage. Site is in an industrial area of the Tacoma Tideflats. No residential areas within 1 mile. There are no parks or schools within 1 mile. Hylebos & Blair Waterways, tributaries of Commencement Bay, are located 0.3 mi N and S of site, respectively.

Pollutant Mobilization/Pathways/Risk:

Groundwater contamination is likely given the solubility of the chlorinated ethenes in the sludges, the permeability of the artificial fill, & the shallowness of the water table (5-10 ft). All drinking water supply wells are from deep uncontaminated aquifers &/or are upgradient. Hylebos/Blair Waterways could be contaminated through GW, not SW.

Priority Assessment/Backlog Reduction Category:

None: Pending completion of groundwater investigation at the site.

Followup Recommendations:

The current property owners & WDOE are planning a groundwater monitoring program to evaluate potential contaminant migration. This investigation should be pursued.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 1 - Site Information and Assessment

I. IDENTIFICATION

01 State	02 Site Number
WA	D980639645

II. SITE NAME AND LOCATION

01 Site Name (legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier
Don Oline Landfill	1801 Alexander Ave

03 City	04 State	05 Zip Code	06 County	07 County Code	08 Cong Dist
Tacoma	WA	98421	Pierce	053	06

09 Coordinates Lattitude	Longitude	Section/Township/Range
471614.0	1222325.0	SE1/4, SW1/4, Sec. 26, T21N, R3E, WM

10 Directions to Site (starting from nearest public road)

III. RESPONSIBLE PARTIES

01 Owner (if known)	02 Street (business, mailing, residential)
Multiple (see comments)	

03 City	04 State	05 Zip Code	06 Telephone Number
			( )

07 Operator (if known and different from owner)	08 Street (business, mailing, residential)
Multiple (see comments)	

09 City	10 State	11 Zip Code	12 Telephone Number
			( )

13 Type of Ownership (check one)

(X) A. Private ( ) B. Federal: ( ) C. State ( ) D. County ( ) E. Municipal ( ) F. Other: ( ) G. Unknown

14 Owner/Operator Notification on File (check all that apply)

( ) A. RCRA 3001, Date Rec'd: / / ( ) B. Uncontrolled Waste Site (CERCLA 103c), Date Rec'd: / / (X) C. None

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 On Site Inspection

(X) Yes, Date: 7/8 -/ 84 ( ) No

By (check all that apply):

(X) A. EPA ( ) B. EPA Contractor (X) C. State (X) D. Other Contractor ( ) E. Local Health Official ( ) F. Other:

Contractors Name(s): Conestoga-Rovers

02 Site Status (check one)

( ) A. Active (X) B. Inactive ( ) C. Unknown

03 Years of Operation beginning year ending year

1972 1975 ( ) Unknown

04 Description of Substances Possibly Present, Known, or Alleged

From 1972 to 1975, the area was used for the disposal of a variety of waste sludges & dredge spoil from Occidental Chemical Corp. Those materials were contaminated with chlorinated hydrocarbons, metals & asbestos. Area also used for disposal of wastes from Domtar Lime Comp. As of 1979 site was used for the disposal of shredded automobile interiors. Site now used for a metal recovery facility and diesel fuel storage.

05 Description of Potential Hazard to Environment and/or Population

Contamination of groundwater is probable since other similar Occidental sludge disposal sites in the Tacoma area have been found to have groundwater contamination. However, no monitoring has been done at this site as of yet. All groundwater use in the area is from deep aquifers ()200 ft.), which are not likely to be contaminated.

V. PRIORITY ASSESSMENT

01 Priority for Inspection (check one; if high or medium is checked, complete Part 2 and Part 3)

( ) A. High (inspection required promptly) ( ) B. Medium (inspection required) ( ) C. Low (inspect on time available basis) (X) D. None (no further action needed complete current disposition form)

VI. INFORMATION AVAILABLE FROM

1 Contact	02 Of (agency/organization)	03 Telephone Number
Ned Therien	WDOE	(206) 4596280

04 Person Responsible for Assessment	05 Agency	06 Organization	07 Telephone Number	08 Date
Donald Weston		SAIC	(206) 7477899	06/ 25/ 85

Modified (5/84) from EPA Form 2070-12 dated 7/81

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 2 - Waste Information

I. IDENTIFICATION

01 State	02 Site Number
WA	D980639645

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (check all that apply)

( )A. Solid ( )E. Slurry
( )B. Powder, Fines ( )F. Liquid
(X)C. Sludge ( )G. Gas
( )D. Other:

02 Waste Quantity at Site (measures of waste quantities must be independent)

Tons: 13,000
Cubic Yards: 0
No. of Drums: 0

03 Waste Characteristics (check all that apply)

(X)A. Toxic (X)E. Soluble ( )I. Highly Volatile
( )B. Corrosive ( )F. Infectious ( )J. Explosive
( )C. Radioactive ( )G. Flammable ( )K. Reactive
(X)D. Persistent ( )H. Ignitable ( )L. Incompatible
( )M. Not Applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge	Unk	N/A	Dredge spoil & solvent-prod sl
OLW	Oily Waste			
SOL	Solvents			
PSD	Pesticides			
OCC	Other Organic Chemicals			
IOC	Inorganic Chemicals			
ACD	Acids			
BAS	Bases			
MES	Heavy Metals			

IV. HAZARDOUS SUBSTANCES (see Appendix for most frequently cited CAS numbers)

01 Cat.	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
SLU	Trichloroethene	79016	Landfilled sludges	*	N/A
SLU	Tetrachloroethene	127184	Landfilled sludges	*	N/A
SLU	Lead	7439921	Landfilled sludges	150	mg/kg
SLU	Copper	7440508	Landfilled sludges	50	mg/kg
SLU	Asbestos	1332214	Landfilled sludges	2000	mg/kg
SLU	Cadmium	7440439	Landfilled sludges	<10	mg/kg
SLU	Mercury	7439976	Landfilled sludges	<1	mg/kg
SLU	Chromium	7440473	Landfilled sludges	20	mg/kg

V. FEEDSTOCKS (see Appendix for CAS numbers

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (cite specific references, e.g., state files, etc.)

(*Total chlorinated hydrocarbons=4000 mg/kg) EPA/ERRIS files; WDOE files; USGS, Tacoma N. (1981), & Tacoma S. (1981) Quads; Conestoga-Rovers & Assoc., Occidental Chem. Corp., Tacoma off-plant disposal sites groundwater investigation, 1984;

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 3 - Description of Hazardous Conditions & Incidents

I. IDENTIFICATION
01 State: WA
02 Site Number: D980639645

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 (X) A. Groundwater Contamination 02 ( ) Observed (Date:) (X) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
GW is at 5-10 ft beneath artificial fill. Though no GW studies have been done at site, it's probable that contamination has occurred. Chlorinated ethenes in sludge are highly mobile & contamination has been observed at other sim. Occidental sites. Owners & WDOE planning a GW monitor. prog.

01 (X) B. Surface Water Contamination 02 ( ) Observed (Date:) (X) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
Sludges are buried beneath 1-2 ft of clean fill; unlikely that runoff would be contaminated. Hylebos &/or Blair Waterways could potentially be contaminated via GW. Both waterways used for commercial/industrial purposes only. Surface drainage is to Hylebos Waterway 0.3 mi north.

01 (X) C. Contamination of Air 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
None known or suspected. Resident & transient population within one mile of site is 7500.

01 (X) D. Fire/Explosive Conditions 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
No certified fire/explosion conditions.

01 (X) E. Direct Contact 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
Material is buried beneath 1-2 ft of clean fill. No threat of direct contact unless excavated.

01 (X) F. Contamination of Soil 02 ( ) Observed (Date:) (X) Potential ( ) Alleged
03 Area Potentially Affected (acres): (5
04 Narrative Description
The sludge (& potentially the surrounding soils) are contaminated with chlorinated organics and heavy metals. Soil is artificial fill with moderate to high permeability.

01 (X) G. Drinking Water Contamination 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
There are)60,000 persons dependent upon public water supplies within 3 miles of site. Nearest known public well is 1500 ft NW. There are 105 private wells within 3 miles of site. Most wells are upgradient & all draw from deeper aquifers which are unlikely to be contaminated.

01 (X) H. Worker Exposure/Injury 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Workers Potentially Affected: 0
04 Narrative Description
None known or suspected since wastes of concern are buried.

01 (X) I. Population Exposure/Injury 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged
03 Population Potentially Affected: 0
04 Narrative Description
No known threat to population since there is no opportunity for direct contact (unless wastes are excavated) & there is little possibility that wastes could contaminate drinking supplies. Only potential threat is of environmental contamination.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
Part 3 - Description of Hazardous Conditions & Incidents

I. IDENTIFICATION

01 State	02 Site Number
WA	D980639645

II. HAZARDOUS CONDITIONS AND INCIDENTS (continued)

01 (X) J. Damage to Flora 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) K. Damage to Fauna 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description (include name[s] of species)
None known. Only route of contamination would be via groundwater migration to waterway. No sampling has yet been done.

01 (X) L. Contamination of Food Chain 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) M. Unstable Containment of Wastes (spills/runoff/standing liquids/leaking drums) 02 (X) Observed (Date: 1984) ( ) Potential ( ) Alleged

03 Population Potentially Affected: 04 Narrative Description
Wastes are buried with no protection against migration via groundwater.

01 (X) N. Damage to Offsite Property 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

01 (X) O. Contamination of Sewers, Storm Drains, WWTPs 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
Area is served by sanitary & storm sewers, but there is no known threat of contamination.

01 (X) P. Illegal/Unauthorized Dumping 02 ( ) Observed (Date:) ( ) Potential ( ) Alleged

04 Narrative Description
None known or suspected.

05 Description of Any Other Known, Potential, or Alleged Hazards
None known. There is an ongoing SuperFund investigation in the Tacoma Tideflats.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

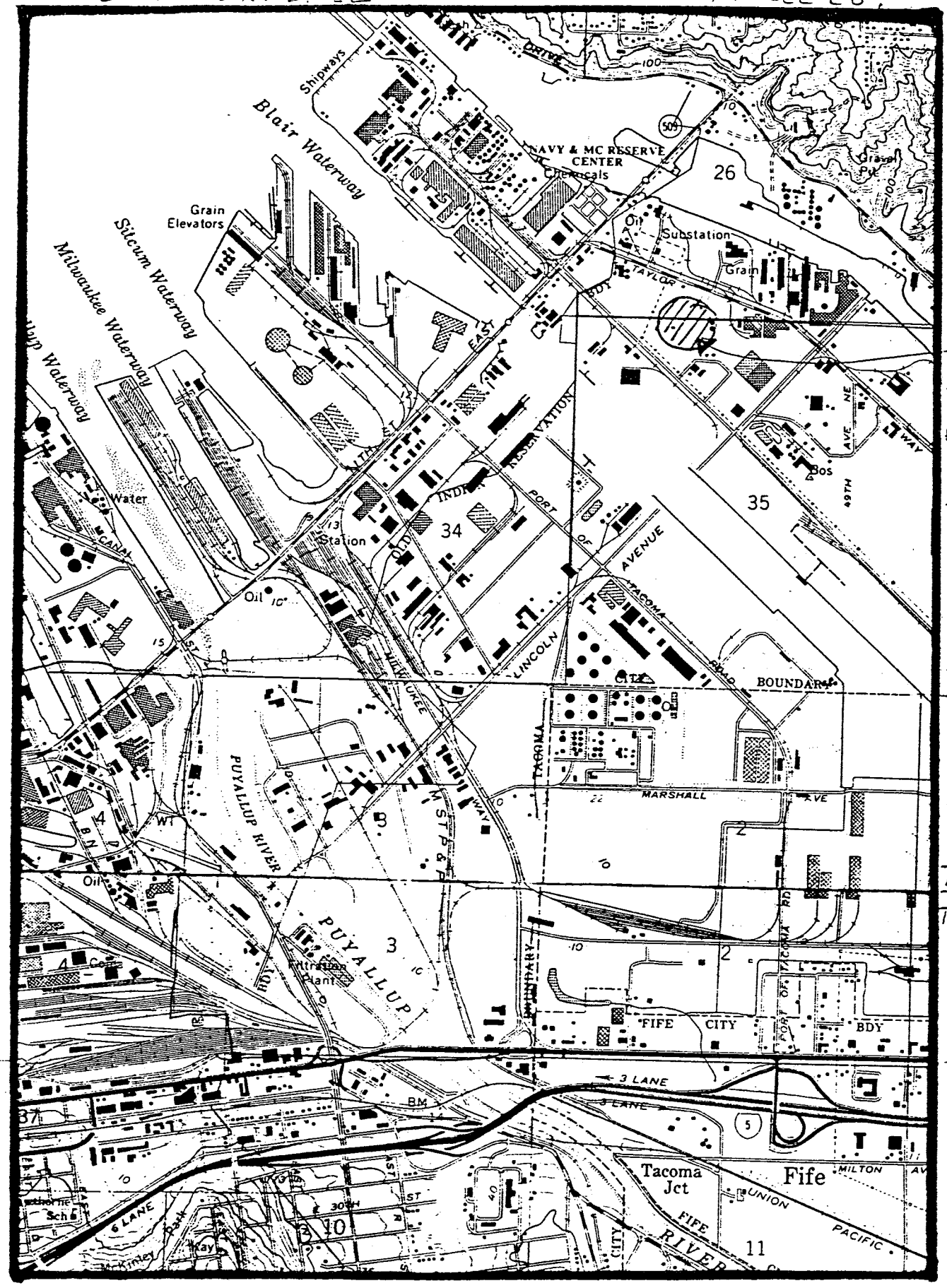
IV. COMMENTS

Owners: Chemical Processors, 1701 Alexander Ave., Tacoma, WA 98421; The Potters (Emerson H., Lillian, D. Gordon & Virginia), address unknown; Solidus Corporation, address unknown.

V. SOURCES OF INFORMATION (cite specific references: state files, reports, etc.)

EPA/ERRIS files; WDOE files; WSB #22, 1968; Rick Pierce, WDOE, pers. comm.; WDSHS, Water Supply Listing; Hart-Crowser, 1980, Hooker Chemical Hydrogeological Investigation; Conestoga-Rovers & Assoc., 1984, Occidental Chem. Corp. Groundwater Investigation.

TODD DLINE LANDFILL PIERCE CO.



R. 3 E.

RECOMMENDATION FOR ENFORCEMENT ACTION
DATED 7/16/85 IN INHOUSE FILE.

INHOUSE MEMO

TO: Howard Steeley
FROM: Thomas Eaton
DATE: July 19, 1985
SUBJECT: Recommendation for Enforcement Action - Reichhold Chemical

IN INHOUSE FILE

Department of Ecology

COX 085

ENVIRONMENTAL COMPLAINT

DATE 8-12-85

TIME 0859 ☐ a.m. ☐ p.m.

☆ WATER QUALITY ☐ WATER RIGHTS ☐ SHORELANDS ☐ AIR

☐ HAZARDOUS WASTES ☐ SOLID WASTES ☐ OTHER _____

Region SW District III County Pierce

Complaint received by Will Abercrombie

1. Does the complainant wish to remain anonymous? ☐ Yes ☐ No

2. Complaint reported by:

Name Russ POST Telephone No. 591-6573

Address TPCHD Tacoma (City) _____ (State) _____ (Zip)

3. Date(s) of violation ± 5 years ago

4. Type or kind of pollutant, if known Transformer oil (PCB's?)

5. Statement of problem observed ± 2500 transformers located behind the shop. Oil all over. Reclaiming metals & pumping oil into truck.

6. Alleged violator or source:

Name General Metals

Address _____ Tacoma (City) _____ (State) _____ (Zip)

7. Where did the violation occur?: Street _____

City _____ County _____

Directions to place of incident: _____
Use reverse side for notes

Watercourse, if any _____

8. Description of damage (dead fish, etc.) _____

Referred to _____ (Name) for investigation on _____ (Date)

(Use back of this form for sketch, map, additional notes, etc.)

ECY 010-23 Rev. 5/81

DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE ASSESSMENT OF PENALTY AGAINST REICHHOLD CHEMICALS, INC.	)))	NOTICE OF PENALTY INCURRED AND DUE No. DE 85-572

To: Reichhold Chemicals, Inc.
2340 Taylor Way
Tacoma Way
Tacoma, WA 98401

Notice is hereby given that you have incurred, and there is now due from you, a penalty in the amount of $9,000.00 under the provisions of RCW 90.48.144.

From April 25 to May 2, 1985, Reichhold Chemical Corporation in Tacoma violated Condition S3 of NPDES Permit No. WA-000156-2 by discharging excessive levels of phenols and COD to the Tacoma Central Sewer Plant No. 1. These permit violations are a violation of RCW 90.48.180.

The penalty herein described is due and payable by you within thirty (30) days of your receipt of this Notice. If, however, for any reason, you believe that the violation herein described did not occur or that you have an explanation as to why it occurred, or any other fact which you believe the department should consider with regard to this penalty, and desire to submit an "APPLICATION FOR RELIEF FROM PENALTY," you should set forth these facts on the enclosed form and return it to the department within fifteen (15) days. This form must be signed under oath before a notary public or any other person authorized to take oaths.

Upon receipt of an "APPLICATION FOR RELIEF FROM PENALTY," the department will consider the same and will either reduce the penalty, cancel the penalty, or allow it to remain as originally stated. You will be duly notified by the department of its action.

DATED at Olympia, Washington AUG 12 1985

Marc A. Horton
Assistant Director
Department of Ecology
State of Washington

ANDREA BEATTY RINIKER
Director

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

AUG 12 1985

CERTIFIED MAIL

Reichhold Chemicals, Inc.
2340 Taylor Way
Tacoma Way
Tacoma, WA 98401

Gentlemen:

Enclosed is Notice No. DE 85-572. All correspondence relating to this document should be directed to the enforcement officer. If you have any questions concerning the content of the document, please call Thomas Eaton, Tumwater, telephone (206) 753-6375.

A form entitled "Acknowledgment of Service" is also enclosed. Please sign this form and return it to this office.

Sincerely,

Philip E. Miller
Enforcement Officer

PM:jv

Enclosures

399
ZR 79.85
WQ Enforcem

DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE ASSESSMENT OF A PENALTY AGAINST REICHHOLD CHEMICALS, INC.	)))	ORDER UPON SATISFACTION OF PENALTY ASSESSMENT No. DE 85-572

To: Reichhold Chemicals, Inc.
2340 Taylor Way
Tacoma, WA 98401

By "NOTICE OF PENALTY INCURRED AND DUE," dated the 12th day of August 1985, a total penalty assessment of $9,000.00 was levied against Reichhold Chemicals, Inc. pursuant to the provisions of RCW 90.48.144.

The Department of Ecology, having received on the 16th day of September 1985 a total of $9,000.00 from Reichhold Chemicals, Inc., to satisfy the above described penalty assessment, hereby issues this Order establishing that penalty assessment No. DE 85-572 has been fully satisfied.

DATED at Olympia, Washington OCT 17 1985

Marc A. Horton
Assistant Director
Department of Ecology
State of Washington

DEPARTMENT OF ECOLOGY
OLYMPIA, WA. 98504
'85 NOV -4 A10:00

~~Agnata Brothers~~
Reichhold Chem D.W.
Pierce Co.

HARTFORD SPECIALTY

123 William Street
New York, New York 10038
Telephone: (212) 553-8000

TOWER

October 29, 1985

'85 NOV -8 P4:33

Mr. Donald W. Moos
Director, State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504

Attn.: RCRA Financial Requirements

Re: Name of Insurer: Hartford Accident & Indemnity Company
Manhattan Regional Office
123 William Street
New York, NY 10038

Name of Insured: Reichhold Chemicals, Inc.
525 North Broadway
White Plains, NY 10602

Location of Facility	EPA Identification Nos.
Tacoma, Washington	WAD009252891

Policy No.: 10 CL B34095W
Policy Period: 01/01/85-01/01/86

Dear Mr. Moos:

Coverage in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147 for "Sudden and Accidental Occurrences" resulting from pollution has been cancelled effective the renewal.

This cancellation to be effective sixty (60) days after receipt of this letter at 12:01 A. M.

Very truly yours,

Leslie Inerfield
Leslie Inerfield
Hartford Specialty Company
LI:1b-2/3630b

cc: Mr. Fritz Felcone
Johnson & Higgins
95 Wall Street
New York, NY 10005

RCF TSD 3A

ANDREA BEATTY RINIKER
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

November 18, 1985

Mr. John Falkowski
Reichhold Chemicals, Inc.
P. O. Box 1482
Tacoma, WA 98401

WAD009252891

Dear Mr. Falkowski:

On November 4, 1985, the department received Hartford's notice of cancellation for policy number 10CLB34095W covering sudden accidental occurrences. Our records do not indicate any other active liability coverage for Reichhold.

Therefore, you must provide documentation of liability coverage for sudden accidental occurrences, as specified by 40 CFR 265.147, by the effective date of cancellation of your previous policy (January 3, 1986). This date has been confirmed by Will Abercrombie of the Southwest Regional Office.

Please submit the required documents and refer any questions to Marie Zuroske, (206) 459-6299, Department of Ecology, Mail Stop PV-11, Olympia, WA 98504-8711.

Sincerely,

Earl Tower
Division Supervisor
Waste Management Division

ET/sr

cc: Tom Cook
Will Abercrombie
Marie Zuroske

BX 377
85 HW/RCRA

Reichhold Chemicals, Inc.
Corporate Headquarters
525 North Broadway
White Plains, New York 10603

REICHHOLD

CERTIFIED MAIL, RETURN RECEIPT REQUESTED

'85 NOV 25 P4:54

November 22, 1985

Mr. Donald W. Moos
Director, Department of Ecology
State of Washington
Mail Stop PV-11
Olympia, Washington 98504

Reference: Tacoma, Washington Facility
EPA Identification Number WAD009252891

Dear Mr. Moos:

Enclosed for filing, please find letter from Chief Financial Officer in support of the use by Reichhold Chemicals, Inc. of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post closure care in connection with the above noted RCRA facility.

Please include this with the revised closure plan transmitted separately.

Our insurance carrier, The Hartford Speciality Company, has advised Reichhold Chemicals, Inc. that they are notifying all applicable agencies that Reichhold's current liability coverage for sudden and accidental coverage will cease as of January 1, 1986. Thus, we have revised our financial assurance filing utilizing the financial test to satisfy liability requirements.

I have enclosed a copy of the auditors certification. This certification was filed with our April 15, 1985 letter and certified the amounts from our financial statement. The amounts in the April 15th letter have not changed, since we are currently referencing the financial status of the last fiscal year which ended December 31, 1984. A new auditor certification letter will be requested from Peat Marwick and Mitchell if so required by your agencies at this time.

Continued...

Copy to Marie Zeranski For Comment
12-2-85 wm

Tel. (914) 682-5700
Twx: 7105681373
Telex: 6818190
Cable: Beckacite White Plains

November 22, 1985

We trust that these revisions satisfy the financial responsibility assurance requirement regulations for both the State of Washington and EPA. If you have any questions or comments concerning this matter, please contact me at your earliest convenience.

Sincerely,

William E. Markey, Jr.
Director of Risk Management

WEM/lid
enc.

cc: Messrs. W. Abercrombie
J. D. Ballbach

Reichhold Chemicals, Inc.
Corporate Headquarters
525 North Broadway
White Plains, New York 10603

Donald W. Moos
Director, Department of Ecology
State of Washington
Mail Stop PV-11
Olympia, Washington 98504

REICHHOLD

'85 NOV 25 P4:54

LETTER FROM CHIEF FINANCIAL OFFICER

I am the Chief Financial Officer of Reichhold Chemicals, Inc., 525 North Broadway, White Plains, New York 10603. This letter is in support of this firm's use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post closure care as specified in Subpart H of 40 CFR 264 and 265.

1. The owner or operator identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: See Schedule I.

2. The owner or operator identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure or post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: None.

3. In states where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 or 265, this owner or operator is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility: See Schedule II

4. The owner or operator identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a state through the financial test or any other financial assurance mechanism specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent state mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None.

The owner or operator is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

Tel. (914) 682-5700
Twx: 7105681373
Telex: 6818190
Cable: Beckacite White Plains

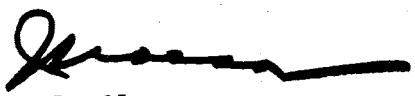
The fiscal year of this owner or operator ends on December 31. The figures for the following items marked with an asterisk are derived from this owner's or operator's independently audited year-end financial statements for the latest completed fiscal year ended December 31, 1984.

ALTERNATIVE I

1.	Sum of current closure and post-closure cost estimates [total of all cost estimates shown in the four paragraphs above]	$ 6,890,537
2.	Amount of annual aggregate liability coverage to be demonstrated	8,000,000
3.	Sum of lines 1 and 2	12,890,537
* 4.	Total liabilities (if any portion of the closure or post-closure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4]	165,398,000
* 5.	Tangible net worth	206,421,000
* 6.	Net worth	208,430,000
* 7.	Current assets	175,830,000
* 8.	Current liabilities	80,877,000
9.	Net working capital [line 5 minus line 6]	94,953,000
*10.	The sum of net income plus depreciation, depletion and amortization	45,935,000
*11.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	356,546,000

		YES	NO
12.	Is line 5 at least $10 million?	X	
13.	Is line 5 at least 6 times line 1?	X	
14.	Is line 9 at least 6 times line 1?	X	
* 15.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 16		x
16.	Is line 11 at least 6 times line 3?	X	
17.	Is line 4 divided by line 6 less than 2.0?	X	
18.	Is line 10 divided by line 4 greater than 0.1?	X	
19.	Is line 7 divided by line 8 greater than 1.5?	X	

I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151 (g) as such regulations were constituted on the date shown immediately below.

Signature: 

Name: J. R. Olson

Title: Chief Financial Officer

Date: November 21, 1985

SCHEDULE I

EPA REGION	RCI LOCATION	EPA ID. NO.	CLOSURE COST EST.
Region II	Carteret	NJD002520021	$ 10,500.00
	Niagara Falls	NYD002103216	11,068.00
Region III	Sewickley	PAD004334140	34,000.00
Region IV	Tuscaloosa	ALD004002838	9,550.00
Region V	Ferndale	MID020087128	51,892.00
Region VI	Houston	TXD008063398	30,760.00
Region IX	Visalia	CAD050344910	1,428,000.00
Region X	Tacoma	WAD009252891	5,300,000.00
	Total Schedule I		6,875,770.00

SCHEDULE II

Region IV	Gulfport	MSD001661719	14,767.00
	Total Schedule II		14,767.00
	TOTAL SCHEDULES I AND II		$ 6,890,537.00

1985 Closure Cost Estimate for RCRA Financial Responsibility Filing

PEAT MARWICK

Peat, Marwick, Mitchell & Co.
Certified Public Accountants
South Tower Building
White Plains Plaza
White Plains, New York 10601
914-428-3330

Board of Directors
Reichhold Chemicals, Inc.

We have examined the consolidated financial statements of Reichhold Chemicals, Inc. and consolidated subsidiaries as of and for the year ended December 31, 1984 and have issued our report thereon dated February 6, 1985. We did not perform audit tests for the purpose of expressing an opinion on the individual amounts such as those enumerated below.

We have applied certain agreed-upon procedures (as discussed below) to certain specified amounts included in the letter dated April 15, 1985 (the letter) from J. R. Olson, Executive Vice President and Chief Financial Officer, to the Environmental Protection Agency (EPA), solely to assist Reichhold Chemicals, Inc. (The Company) in its reporting requirements to the EPA. It is understood that this report is to be used solely for this purpose, and is not to be referred to or distributed to anyone else or for any other purpose. Our procedures and findings are as follows:

a. We compared the dollar amounts of "Current assets" ($175,830,000) and "Current liabilities" ($80,877,000) listed in the letter to the corresponding amounts in the consolidated financial statements included in the Company's 1984 Annual Report to Stockholders and found the amounts to be in agreement.

b. We compared the dollar amounts of "Total liabilities" ($165,398,000), "Net worth ($208,430,000), and "Tangible net worth" (net worth less intangible assets) ($206,421,000) listed in the letter to corresponding amounts computed from amounts included in the Company's 1984 Annual Report to Stockholders and found the amounts to be in agreement.

c. We compared the dollar amount of "Total assets in U.S." ($356,546,000) listed in the letter to the corresponding amount determined by computing the sum of assets of Reichhold Chemicals, Inc. (parent company) Reichhold Energy Corp, and The Reichhold DISC (these assets represent The Company's U.S. assets) at December 31, 1984 included in the Company's general ledgers less the sum of intercompany domestic investments and intercompany receivables at December 31, 1984 included in schedules provided by the Company, which were reconciled to the Company's general ledger, and found the amounts to be in agreement.

Because the above procedures do not constitute an examination made in accordance with generally accepted auditing standards, we do not express an opinion on any of the accounts or items referred to above. In connection with the procedures referred to above, no matters came to our attention that caused us to believe that the specified accounts or items should be adjusted. Had we performed additional procedures, matters might have come to our attention that would have been reported to you. This report relates only to the accounts and items specified above.

Peat, Marwick, Mitchell & Co.

April 15, 1985

Reichhold Chemicals, Inc.
Corporate Headquarters
525 North Broadway
White Plains, New York 10603

REICHHOLD

CERTIFIED MAIL, RETURN RECEIPT REQUESTED

November 22, 1985

Mr. Charles E. Findlay
Director, Hazardous Waste Division
U.S. Environmental Protection Agency - Region X
1200 6th Avenue
Seattle, Washington 98101

Reference: Tacoma, Washington Facility
EPA Identification Number WAD009252891

Dear Mr. Findlay:

Enclosed for filing, please find letter from Chief Financial Officer in support of the use by Reichhold Chemicals, Inc. of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post closure care in connection with the above noted RCRA facility.

Please include this with the revised closure plan transmitted separately.

Our insurance carrier, The Hartford Speciality Company, has advised Reichhold Chemicals, Inc. that they are notifying all applicable agencies that Reichhold's current liability coverage for sudden and accidental coverage will cease as of January 1, 1986. Thus, we have revised our financial assurance filing utilizing the financial test to satisfy liability requirements.

I have enclosed a copy of the auditors certification. This certification was filed with our April 15, 1985 letter and certified the amounts from our financial statement. The amounts in the April 15th letter have not changed, since we are currently referencing the financial status of the last fiscal year which ended December 31, 1984. A new auditor certification letter will be requested from Peat Marwick and Mitchell if so required by your agencies at this time.

Continued...

Tel. (914) 682-5700
Twx: 7105681373
Telex: 6818190
Cable: Beckacite White Plains

November 22, 1985

We trust that these revisions satisfy the financial responsibility assurance requirement regulations for both the State of Washington and EPA. If you have any questions or comments concerning this matter, please contact me at your earliest convenience.

Sincerely,

William E. Markey, Jr.
Director of Risk Management

WEM/lid
enc.

cc: J. Webb

Reichhold Chemicals, Inc.
Corporate Headquarters
525 North Broadway
White Plains, New York 10603

Regional Administrator
U. S. Environmental Protection Agency - Region X
1200 6th Avenue
Seattle, Washington 98101

REICHHOLD

'85 NOV 25 P4:55

LETTER FROM CHIEF FINANCIAL OFFICER

I am the Chief Financial Officer of Reichhold Chemicals, Inc., 525 North Broadway, White Plains, New York 10603. This letter is in support of this firm's use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post closure care as specified in Subpart H of 40 CFR 264 and 265.

1. The owner or operator identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: See Schedule I.

2. The owner or operator identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure or post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: None.

3. In states where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 or 265, this owner or operator is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility: See Schedule II

4. The owner or operator identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a state through the financial test or any other financial assurance mechanism specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent state mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None.

The owner or operator is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

Tel. (914) 682-5700
Twx: 7105681373
Telex: 6818190
Cable: Beckacite White Plains

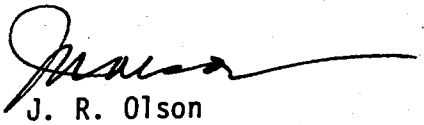
The fiscal year of this owner or operator ends on December 31. The figures for the following items marked with an asterisk are derived from this owner's or operator's independently audited year-end financial statements for the latest completed fiscal year ended December 31, 1984.

ALTERNATIVE I

	1.	Sum of current closure and post-closure cost estimates [total of all cost estimates shown in the four paragraphs above]	$ 6,890,537
	2.	Amount of annual aggregate liability coverage to be demonstrated	8,000,000
	3.	Sum of lines 1 and 2	12,890,537
*	4.	Total liabilities (if any portion of the closure or post-closure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4]	165,398,000
*	5.	Tangible net worth	206,421,000
*	6.	Net worth	208,430,000
*	7.	Current assets	175,830,000
*	8.	Current liabilities	80,877,000
	9.	Net working capital [line 5 minus line 6]	94,953,000
*	10.	The sum of net income plus depreciation, depletion and amortization	45,935,000
*	11.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	356,546,000

			YES	NO
	12.	Is line 5 at least $10 million?	X	
	13.	Is line 5 at least 6 times line 1?	X	
	14.	Is line 9 at least 6 times line 1?	X	
*	15.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 16		x
	16.	Is line 11 at least 6 times line 3?	X	
	17.	Is line 4 divided by line 6 less than 2.0?	X	
	18.	Is line 10 divided by line 4 greater than 0.1?	X	
	19.	Is line 7 divided by line 8 greater than 1.5?	X	

I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151 (g) as such regulations were constituted on the date shown immediately below.

Signature: 

Name: J. R. Olson

Title: Chief Financial Officer

Date: November 21, 1985

SCHEDULE I

EPA REGION	RCI LOCATION	EPA ID. NO.	CLOSURE COST EST.
Region II	Carteret	NJD002520021	$ 10,500.00
	Niagara Falls	NYD002103216	11,068.00
Region III	Sewickley	PAD004334140	34,000.00
Region IV	Tuscaloosa	ALD004002838	9,550.00
Region V	Ferndale	MID020087128	51,892.00
Region VI	Houston	TXD008063398	30,760.00
Region IX	Visalia	CAD050344910	1,428,000.00
Region X	Tacoma	WAD009252891	5,300,000.00
	Total Schedule I		6,875,770.00

SCHEDULE II

Region IV	Gulfport	MSD001661719	14,767.00
	Total Schedule II		14,767.00
	TOTAL SCHEDULES I AND II		$ 6,890,537.00

1985 Closure Cost Estimate for RCRA Financial Responsibility Filing

PEAT MARWICK

Peat, Marwick, Mitchell & Co.
Certified Public Accountants
South Tower Building
White Plains Plaza
White Plains, New York 10601
914-428-3330

Board of Directors
Reichhold Chemicals, Inc.

We have examined the consolidated financial statements of Reichhold Chemicals, Inc. and consolidated subsidiaries as of and for the year ended December 31, 1984 and have issued our report thereon dated February 6, 1985. We did not perform audit tests for the purpose of expressing an opinion on the individual amounts such as those enumerated below.

We have applied certain agreed-upon procedures (as discussed below) to certain specified amounts included in the letter dated April 15, 1985 (the letter) from J. R. Olson, Executive Vice President and Chief Financial Officer, to the Environmental Protection Agency (EPA), solely to assist Reichhold Chemicals, Inc. (The Company) in its reporting requirements to the EPA. It is understood that this report is to be used solely for this purpose, and is not to be referred to or distributed to anyone else or for any other purpose. Our procedures and findings are as follows:

a. We compared the dollar amounts of "Current assets" ($175,830,000) and "Current liabilities" ($80,877,000) listed in the letter to the corresponding amounts in the consolidated financial statements included in the Company's 1984 Annual Report to Stockholders and found the amounts to be in agreement.

b. We compared the dollar amounts of "Total liabilities" ($165,398,000), "Net worth ($208,430,000), and "Tangible net worth" (net worth less intangible assets) ($206,421,000) listed in the letter to corresponding amounts computed from amounts included in the Company's 1984 Annual Report to Stockholders and found the amounts to be in agreement.

c. We compared the dollar amount of "Total assets in U.S." ($356,546,000) listed in the letter to the corresponding amount determined by computing the sum of assets of Reichhold Chemicals, Inc. (parent company) Reichhold Energy Corp, and The Reichhold DISC (these assets represent The Company's U.S. assets) at December 31, 1984 included in the Company's general ledgers less the sum of intercompany domestic investments and intercompany receivables at December 31, 1984 included in schedules provided by the Company, which were reconciled to the Company's general ledger, and found the amounts to be in agreement.

Because the above procedures do not constitute an examination made in accordance with generally accepted auditing standards, we do not express an opinion on any of the accounts or items referred to above. In connection with the procedures referred to above, no matters came to our attention that caused us to believe that the specified accounts or items should be adjusted. Had we performed additional procedures, matters might have come to our attention that would have been reported to you. This report relates only to the accounts and items specified above.

Peat, Marwick, Mitchell & Co.

April 15, 1985

Solidus Corporation
2244 PORT OF TACOMA ROAD
P. O. BOX 817
TACOMA, WASHINGTON 98401

February 11, 1986

Gordon Potter
UNICO SERVICE & ENGINEERING, INC.
P.O. Box 887
Benica, CA 94510

Dear Mr. Potter:

I appreciated the opportunity to visit with you today about the property in Tacoma and share the common interests we have with Chemical Processors being a neighbor for both of us.

I have included for you a couple of maps. One is an area map and the other - outlined in red - shows the general area that was involved in the nitric acid spill of 10/3/85.

Now that you have given your approval for shallow ground water monitoring wells on your property, as indicated on the map in red, it will provide the necessary documentation to see if there has been any apparent damage to your property by Chemical Processors.

Depending on scheduling, we would hope to have tests completed by the first part of next week. This will be done by an outside environmental company and samples will be tested by a state approved laboratory. If there is evidence of damage to your property, you will be able to use the results of the ground water study to make Chemical Processors clean up your property.

We have obtained counsel for this matter and if you feel that you would like to make this a joint effort we would certainly be glad to consider it.

If you have any questions or need any information that I might be able to provide to you, please call and I'll be most happy to discuss it further. You can reach me at Lilyblad Petroleum's number (206) 572-4402.

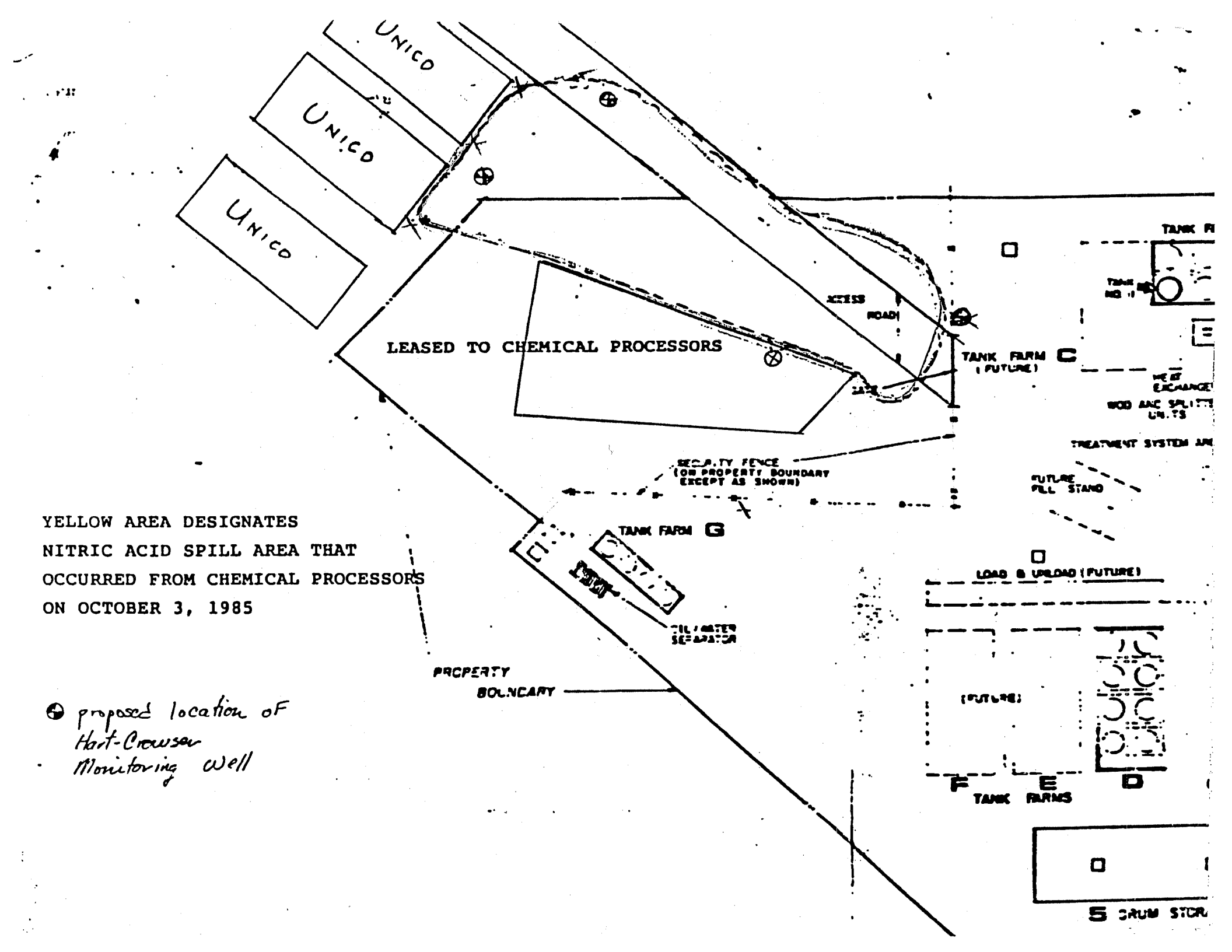
Thanks for your cooperation in this matter.

Sincerely yours,

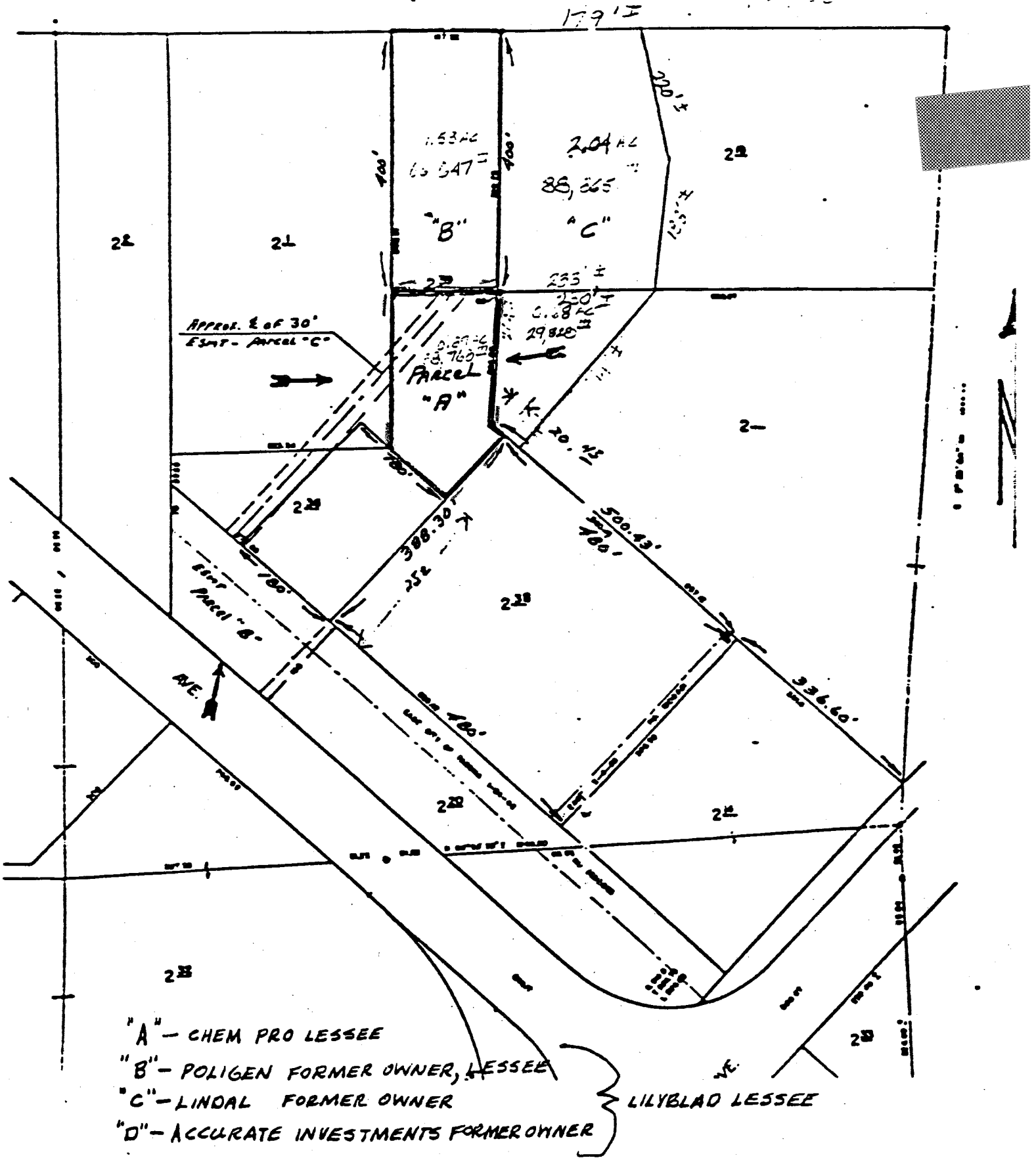
Glenn R. Tegen
President

GRT/rf

Enclosure


UNICO
UNICO
UNICO
LEASED TO CHEMICAL PROCESSORS
ACCESS ROAD
TANK FARM C (FUTURE)
SECURITY FENCE (ON PROPERTY BOUNDARY EXCEPT AS SHOWN)
TANK FARM G
OIL/WATER SEPARATOR
PROPERTY BOUNDARY
LOAD & UNLOAD (FUTURE)
(FUTURE)
F E D
TANK FARMS
5 DRUM STOR
YELLOW AREA DESIGNATES
NITRIC ACID SPILL AREA THAT
OCCURRED FROM CHEMICAL PROCESSORS
ON OCTOBER 3, 1985
proposed location of
Hart-Crowser
Monitoring Well

...is based solely on the public records ...supplied only for the purpose of assisting in ...ting the premises. The company assumes no ...ability for variations or errors in dimensions or ...cation. Investigation must be made to determine ...whether any use hereof may violate governmental ...ealting or zoning laws.



"A" – CHEM PRO LESSEE
"B" – POLIGEN FORMER OWNER, LESSEE
"C" – LINDAL FORMER OWNER
"D" – ACCURATE INVESTMENTS FORMER OWNER
} LILYBLAD LESSEE

5/1/86
14C

Preliminary Assessment

Past Practices in the Vicinity of the Poligen Facility

Port of Tacoma, Washington

Prepared for

Sol-Pro/Lilyblad

May 1, 1986

J-1615-04

HART CROWSER & associates inc.

1910 Fairview Avenue East • Seattle WA 98102-3699 • (206) 324-9530

J-1615-04

CONTENTS

J-1615-04

PRELIMINARY ASSESSMENT
PAST PRACTICES IN THE VICINITY OF THE POLIGEN FACILITY
PORT OF TACOMA, WASHINGTON

INTRODUCTION

This report presents the results of our evaluation of existing data regarding past waste disposal practices within the Poligen facility at the Port of Tacoma (Figure 1). The report may be used as partial fulfillment of requirements necessary to meet requirements of Section 3004(u) of the 1984 RCRA amendments in order to obtain a final RCRA permit. The purpose of our work was twofold:

1) To assess whether the release of hazardous substances is occurring due to past practices at the site, and

2) To recommend remedial investigation work designed to provide information for development of corrective measures.

Our scope of work included contact with federal, state, and county agencies and a search of existing government files on Poligen, Occidental Petroleum, Chemical Processors, Acology Oil, and Puget Sound Industrial Petroleum. Available historical photography was used in conjunction with the files to assess the past practices.

This report is prepared for the exclusive use of Sol-Pro/Lilyblad for specific application to the Poligen facility. Our work was performed according to accepted hydrogeologic practices. No other warranty, expressed or implied, is made.

POLIGEN SITE HISTORY

The Poligen facility is located within a former tidal marsh of Commencement Bay between Alexander Avenue and Taylor Way on the west and east, respectively, and 11th Street and Lincoln Avenue to the north and south, respectively. Historical photos from the 1930s indicate that much of the property was originally a swampy area with ponded water. Use of the property required filling of portions of the wetland resulting in ponds as the wetland shifted. These ponds were subsequently filled in. The fill materials are estimated to be roughly 8 to 10 feet thick at the site and composed of "pit run" sand and gravel, dredge sand, and various waste materials. Figure 2 presents a conceptual drawing of the subsurface conditions at the Poligen facility showing sequences of fill materials placed on the original tideflat topography. The figure is not intended to be representative of any particular location on site but rather general application of fills.

The history of past activities at the Poligen site indicates that chemically contaminated and potentially hazardous materials were used as fill at the site. In some areas these materials were removed to facilitate new construction. The precise location of the current waste fills and clean soil fills was difficult to determine using existing data. Historical photographs provided the best information on time and location of wetlands and pond filling, while the Washington State Department of Ecology (WDOE) inspection reports provided insight to the specific activities and materials disposed of in the vicinity. Based on our evaluation of these data a chronology of the past land use and waste disposal activities is presented below. See Figure 1 for depiction of approximate areas of suspected waste disposal and pond filling.

Site Chronology

1965 - 1970: Don Oline acquires west half of current Poligen facility property (OCC report).

1967: An unknown fill material is placed to the west of the Poligen site (December 13, 1967 photo). The northeast quarter of the present Poligen property is a swamp. A swamp also exists along the west property boundary. The area between swamps (south central and northwest areas of the current facilities property) appears naturally vegetated.

1970: Aero Oil Company moves oil storage/refining operation to west side of Taylor Way in southwest Poligen property area (current Chempro lease area, Area 1 on Figure 1). Site is messy and oil is allowed to spill onto ground. (Inspection reports July 16, 1970 and September, 1970).

1971: Aero Oil Company uses pond located in current Chempro lease area for oil storage. (Inspection report February 3, 1971).

1972: Former Aero Oil now named as Acology Oil. Considerable oil is being dumped onto the ground. Communication with Bruce Smith (Acology Oil) indicates some dumping is occurring at the site when no one is around. (Inspection report June 15, 1972). Northeast quarter of current Poligen property is still wet area and appears to extend further south thus occupying the north half of the east side of the property (photo August 30, 1972).

1973: Stu Springer with Puget Sound Industrial Petroleum, Inc. has taken over Acology Oil's operation and the pond is still being used for holding oil. Unknown fill placed in northeast corner of Poligen site eliminates much of wet area in northeast corner (photo July 13, 1973).

1974: The pond areas that were holding oil are gradually being filled in; one pond is in the Chempro lease area of the Poligen facility and the other is just north along the west Poligen property boundary. Puget Sound Industrial Petroleum is linked to Chempro of Oregon and Inspection reports now refer to Entity as Chempro. Chempro pond areas (formerly Puget Sound Industrial) are being filled in with General Metals ground-up auto interiors (Inspection report September 4, 1974). Also, oil is occasionally being pumped from the ponds. There is new fill in east-central Poligen

property area, and it appears that a small pond may now occur in the center of the current Poligen area (March 20, 1974 photo).

1972 - 1975: Suspected period of disposal of Hooker sludge and dredge spoil wastes in previous mentioned ponds in the Chempro area. Another small disposal area of Hooker wastes is indicated in the northwest Poligen facility area (see Figure 1 for approximate disposal areas). Reports indicate the disposal material may contain small amounts of chlorinated hydrocarbons, heavy metals, and asbestos (OCC report).

February, 1975: D.O.E. Enforcement Notice to Puget Sound Industrial to fill in ponds as they are still holding some oil. Large amounts of sodium chromate spillage also noted in an Inspection report submitted during this month.

[redacted]ril 14, 1975: Oil is being dumped on the ground next to the Lilyblad [redacted]nce. Also, ponds still hold about 8 inches of oil.

July 28, 1975: Puget Sound Industrial (Chempro) pond now completely filled in. Filling is continuing on Oline's large pond (Oline's pond apparently refers to the pond to the north that borders on the west boundary of the Poligen facility) (D.O.E. Inspection report).

1975 - 1976: Lilyblad using small tank farm (two tanks) in the northwest corner of the present Poligen property. It appears most of the west area within the Poligen property is now filled in (from OCC photos file). A WDOE telephone report (August 2, 1982) indicates that Buffalo Don Murphy was responsible for filling in the Poligen area.

1978: Three additional smaller tanks noted on Lilyblad tank farm (Figure 1) (WDOE January 13, 1978 letter).

1978 - 1981: Several spills and leaks from the Chempro chemical processing unit (Chempro lease area). Predominantly chromic or nitric acid spills noted. Some other materials handled at the site that may be included in

the spillage and leakage include cyanide sludges, solvent still bottoms, electroplating waste acids (primarily chromic acid), phenols, chelating agents, and paint sludges (WDOE telephone report February 22, 1978, Inspection reports February 14, 1979, June 30, 1981, and letter July 6, 1981).

1978 - 1981: Oil recycling facilities are found to be inadequate, spillage and leakage to the ground were noted. Chempro was required to upgrade contaminant (Personnel communication with Frank C. Monahan).

March, 1981: WDOE Inspection reports on March 17, 1981 and March 30, 1981 observed large area of ground-up car interiors and large area of dredge spoils north of the Chempro lease area (the map included with inspection report is not to scale and the boundaries of these fills are difficult to determine). Also, some asphalt, concrete, wood and lime fills are noted but not located. Leachate from car parts was observed entering swamp to west northwest of Poligen property.

July, 1981: Solidus acquires some properties in this area including area now referred to as Chempro lease area.

January, 1982: Site vicinity is being investigated as Hooker dump site and WDOE performs site investigation (25 test pits dug on the east side of the current Poligen facility, WDOE letter June 11, 1982). Bruce Smith says that Acology Oil dumped lime used in their oil treatment system in the Chempro lease area, also Domtar may have dumped lime. Indication that methylmercuric phosphate sludge may also have been dumped in the area but no specific location given (Inspection report January 6, 1982). Oil sheen is observed in pond located in center of current facility. Oil on pond appears to be due to drainage from Lilyblad tank farm, as drain pipes and dike breach were observed to be running stormwater from tank farm area (WDOE Inspection report January 27, 1982).

December, 1981 - January, 1982: Waste water discharge from Chempro facility indicated release of metals, cyanide, and oil to sewer (Chempro letter to WDOE February 10, 1982).

March 5, 1982: Reports that Lilyblad's plans to develop site result in removal of some contaminated fills. Indication that site work possibly exposed pond in center of facilities property (see WDOE test pit data and letter report June 11, 1982).

May 19, 1982: Pond in center of current property, and DOE test holes have been filled in with clean backfill.

May, 1982: Proceed to obtain RCRA permit to move facilities to Poligen site.

August, 1982 - October, 1982: Removed loads of white sludge (presumably lime and Hooker wastes) from site to Coski landfill (Inspection report 10/15/82 and communication with Glen Tegen, 4/86). It is presumed that this removal occurred primarily in the central and east site areas as a result of the WDOE site investigation.

August, 1983 - October, 1983: Chemical spillage around tanks and from lab test wastes being dumped out window to a holding container noted in Chempro area. Considerable spillage noted within diked area with tire dragout occurring from equipment operation (Inspection reports August 16, 1983 and October 5, 1983).

October 3, 1985: Nitric acid spill from Chempro lease area. Acid neutralized within a few hours and contaminated soil removed within one week.

SUBSURFACE CONDITIONS

The chronology of past activities at the site indicates that potentially hazardous materials are most likely to exist in the subsurface beneath the

Chempro lease area and along the west side of the facilities property (in the suspected Hooker sludge disposal areas). If present, infiltrating precipitation and groundwater flow through these materials could result in release of hazardous waste constituents to the environment. The Poligen facility has been broken into three areas based on the waste materials that are expected to occur within these areas. Figure 1 presents the approximate boundaries of the areas. Discussion of the respective anticipated subsurface conditions is presented below.

AREA 1

Area 1 occupies the portion of the property currently leased to Chempro and the former site of operations for Acology Oil and Puget Sound Industrial Petroleum. Assessment of the past practices at this site indicates the following waste materials may occur in this area (no documentation on clean-up from past disposal in this area was found).

- Waste oils and associated products were processed and/or stored in a pond located in the center of this area for roughly three years. Although the oil was pumped from the pond several times prior to filling, oily sand and water were encountered during drilling of a monitoring well located southwest of the lease area (this direction was also determined at the time to be the downgradient groundwater flow direction) (Hart-Crowser report March 19, 1986).

- Lime wastes related to disposal practices of the waste oil operations, Domtar lime, and possibly Hooker sludge may have been used to fill in the pond in varying amounts not expected to be thicker than 1 to 2 feet in some portions of the former pond area. Minor amounts of chlorinated hydrocarbons, heavy metals, and asbestos may occur in these materials.

- Possible metals including chromium, copper, nickel, and lead, and cyanide and phenols related to spillage and leakage from existing facilities may be present in the soil and/or groundwater.

AREA 2

Area 2 includes the west half of the Poligen facility property, north of the Chempro lease area, formerly part of the Don Oline property. Some removal of waste fills was accomplished prior to construction of the current Poligen facilities. The areas which still include waste materials and those areas cleaned-up by soil removal cannot be specifically identified with the existing data. Figure 1 shows the estimated original occurrence of these waste fills. A list of the probable waste materials disposed of in this area is given below, although the areas in which these materials still occur is unknown.

- Lime material from the Hooker lime ponds and dredged material from the Hylebos waterway adjacent the Hooker plant was used to fill in some wet areas. The fill material is suspected of containing small amounts of chlorinated hydrocarbons, heavy metals, and asbestos. These waste materials are reported to be about 1 to 2 feet thick. It is believed this was the material observed in a monitoring well installed in January, 1986 in the southeast corner of Area 2.

MW-4?

- Automobile fluff consisting of ground-up car interiors from General Metals was used to fill in areas generally in the north Poligen facility area, but the specific area is not known. Car parts were also encountered during drilling of the monitoring well in the southwest corner of Area 2. It is estimated the auto fluff fill may be 3 to 8 feet thick where it occurs.

AREA 3

Area 3 includes the east half of the Poligen facility. In contrast to the other areas no specific waste disposal was identified for this area from the reviewed files. The historical photographs indicated the area was largely wetland prior to filling which occurred in various stages through this area. A WDOE site investigation provided data into the nature of the

fills in this area. The possible waste materials identified primarily from the WDOE files are listed below.

- Wood waste and demolition/construction debris fills were uncovered during the WDOE investigation primarily in the north half of this area. These types of fill materials are not expected to release hazardous substances.

- Lime wastes from Hooker Chemical were reported to occur adjacent to a pond which existed in 1981 in the central portion of this area. The files are unclear as to whether these materials were excavated during clean-up and removal at the Poligen facility.

As mentioned, the site is located within a former tidal marsh of Commencement Bay. The fill materials which overlie the tidal sediments are estimated to be 8 to 10 feet thick. Dredge sand fill is the most common material likely to be found overlying the tidal sediments. This sand fill is not in itself contaminated. In terms of groundwater flow, the dredge sand and the material above it, comprise the "upper aquifer" at the site.

The natural tideflat sediments generally include an upper silt to silty clay layer ("upper aquitard"). The silt is underlain by a sand layer that consists of clean to silty sand. The deeper sand layer is referred to as the "second aquifer".

RECOMMENDATIONS

This section outlines our recommendations for work to meet RCRA part B permit application requirements regarding continued releases (EPA Draft Statutory Interpretation of 1984 RCRA Amendments on Corrective Action for Releases from Hazardous Waste Facilities dated January 30, 1985). The recommended scope of work is largely field work, and is complementary to the analysis of existing data presented in the previous section. The recommended level of effort is such that:

- impacts from Hooker waste and the site currently occupied by Chempro will be quantified,

- a groundwater monitoring system may be designed and would largely or wholly be in-place,

- potential sources of contamination will be characterized in relatively high detail,

- offsite migration of contaminants in groundwater (the major pathway of migration) will be quantified in relatively high detail,

- the need for remedial action to reduce off-site migration may be assessed, and

- if removal of contaminated material is required, whether the material will likely be classified dangerous or extremely hazardous waste.

The recommended work is divided into 4 parts and many tasks. The parts refer to divisions of the work by areas, with part 1 being common to all as follows:

- Part 1 - Prepare for Field Work
- Part 2 - Scope of Work for Area 1 (Chempro Lease Area)
- Part 3 - Scope of Work for Area 2 (Northwest Portion)
- Part 4 - Scope of Work for Area 3 (East Half)

We recommend that all of the parts be performed during a single mobilization to allow maximum efficiency. Individual parts could be performed separately but in this case additional time and analyses may be required to meet the objectives of any single part.

PART 1 - Prepare for Field Work

Task 1.1 - Site Reconnaissance and Health and Safety Plan

A health and safety plan should be developed to minimize any potential hazards to field personnel. It should include identification of potential hazards, necessary monitoring, protective measures for various field activities, planned flexibility, and identification of persons responsible for supervising health aspects of field work.

Also, prior to field work, a site reconnaissance should be conducted to locate boring sites and utilities.

Task 1.2 - Finalize Sampling Plan

Before field work begins, the details of how and where samples should be taken and analyzed should be finalized. This should include review of additional aerial photographs not available within the time frame of the current project and incorporation of your knowledge of the past activities at the site. Field personnel should develop equipment lists and prepare field equipment for use.

Task 1.3 - Project Management

Time should be budgeted for communications and performing analyses of project status. Time should be budgeted in this task for project meetings.

PART 2 - Scope of Work Area 1 (CHEMPRO LEASE AREA)

Task 2.1 - Install Groundwater Monitoring Wells

Because the Chempro site will probably not be accessible for exploration and sampling of actual waste products, the contributions from possible waste buried below the site or leaching from the soils should be measured

by comparing upgradient versus downgradient groundwater quality. The wells installed thus far have confirmed the general groundwater flow directions but do not provide:

- o enough areal coverage of the downgradient side of the site, and
- o monitoring of the second aquifer.

The monitoring wells discussed for this task are designed to provide the coverage necessary for assessing potential contaminant contributions from the Poligen area currently occupied by Chempro. The assessment will be performed by comparing water quality to the chemistry of spills, leaks, or other contamination events that can be identified in the records. Sufficient borings are recommended such that no additional installations should be necessary for the overall continued releases assessment.

Figure 3 indicates the recommended locations for the PART 2 borings and monitoring wells. The 4 existing shallow wells would be augmented by 2 additional shallow wells and 5 deeper wells.

We recommend that the wells be installed by the cable tool method as described below:

Deeper Wells

- o Drill and drive 10-inch-diameter casing 2 to 3 feet into the silt aquitard, take continuous drive soil samples and clean sampler as described for test pit soil samples.
- o Install 8-inch-diameter casing within 10-inch casing and extract the 10-inch casing as a cement-bentonite slurry is tremied into the annual space between the casings.
- o When the grout has set for 12 hours, resume drilling with 6-inch casing to total depth expected to be 25 feet with continuous soil sampling.

- Take Shelby tube samples of silt aquitard for permeability testing.

- Install 2-inch-diameter schedule 40 threaded PVC casing and well screen into the natural sand aquifer, place sand pack around the screen, a bentonite pellet seal above the sand pack, and seal to 3 feet from ground surface with cement-bentonite grout; seal from 3 feet to ground surface with class C concrete and install a 4-inch lockable steel protective casing.

Shallower Wells

- Drill and drive 6-inch temporary steel casing to a predetermined depth based on the soil profile disclosed in the nearby deeper well.

- Take one soil sample at the intended screen interval (driven sample).

- Set PVC casing and short (2 to 5 foot) well screen, sand pack, bentonite pellet seal, cement-bentonite grout seal, concrete, and protective surface casing as described for the deeper wells.

Minimum decontamination precautions should include hot water washing of drill bits, bailers, and temporary steel casing lengths if they are reused between locations. Washing with methane or acetone may also be required. After installation, the wells should be developed by pumping. An H-Nu organic vapor analyzer or equivalent should be used to monitor during explorations (test pit and borings).

Task 2.2 - Survey, Sample, and Analyze Groundwater

Water levels in wells should be measured and the well elevations should be surveyed to allow calculation of groundwater flow directions. Four sets of water levels should be taken to assess tidal affects. Selected wells should be tested to allow calculation of hydraulic conductivity and the rate of groundwater flow.

All wells should be sampled in accordance with current EPA guidance and tested for parameters that may be moving off-site with groundwater from on-site contamination sources. Also, these data are needed to identify possible migration of contaminated groundwater onto the site.

We recommend that samples be collected with a peristaltic pump and that they be stored and transported in accordance with EPA and laboratory recommendations. We recommend that the analyses listed in Table 1 be performed on groundwater samples.

The wells selected for the priority pollutant scan should be selected based on evaluation of the groundwater flow systems in the upper and lower aquifers (water level measurements, surveying, and evaluation of groundwater flow direction should precede sampling).

The 3004(u) interpretation available from EPA references 40 CFR 264 Appendix VIII parameters on the baseline list of constituents for which analyses should be performed. For the project site we recommend avoiding use of this list of parameters because it is long and expensive to run. In this case, it appears unnecessary because of the amount of information available on the nature of past practices. The EPA priority pollutant list, augmented by the other indicated parameters, should be sufficient to assess continued releases.

Task 2.3 - Analyze Soil Samples and Characterize Waste

We recommend that soil and waste samples be analyzed to allow assessing the relationship between groundwater quality and possible contamination sources, to evaluate the extent of chemical contamination across the site, and to provide preliminary evaluation of the waste classification should removal of the material be necessary.

Samples to be analyzed should be selected based on the results of field explorations, the types and number of analyses recommended for PART 2 are indicated in Table 1. The limited PART 2 level of effort in soil analyses

is based on the difficulty in placing explorations in the likely contaminant source areas.

The major waste classification test excluded from the above list is bioassay. The bioassay test has been used in the past largely as the test of last resort at the discretion of the WDOE. It has come under considerable criticism and we recommend getting input from WDOE personnel and/or your legal counsel before using the bioassay test.

Task 2.4 - Evaluate Data

The following analyses are recommended:

Hydrogeologic Characterization: The hydrogeology of the site needs to be characterized to identify groundwater flow directions and contaminant migration pathways. This evaluation should also serve as the basis for RCRA Part B Subpart F groundwater monitoring. The analysis should include both explored aquifers, an evaluation of groundwater-surface water interaction, recharge, sources, sinks, flow rates, and tidal effects.

Contaminant Migration Analysis: An evaluation of the rate, flux, and direction of contaminant migration should be performed to satisfy the RCRA 3004(u) requirements. The major receptors of possible migration will likely be marine and benthic organisms in Blair Waterway, and thus an evaluation of potential impacts to health, welfare, and the environment should be based largely on those organisms. This analysis should stress the contributions from other potential sources in the Port of Tacoma also.

Assess Waste Classification: The probable classification of wastes tested should be assessed based on chemical analysis data.

Task 2.5 - Produce Report

The field data, chemical data, analyses and conclusions resulting from the work should be presented in a project report. The report should

specifically address site requirements under RCRA 3004(u) and 264 Subpart F. Also, the report should, to the extent possible, correlate potential water contamination with specific activities, spills, or leaks and the dates and operators of the facilities at the time of the activity. The results of the analyses performed under Task 2.4 should be presented with appropriate sections, maps, and calculations.

PART 3 - Scope of Work Area 2 (NORTHWEST PORTION)

We recommend that the approach to assessing continued releases from the northwest portion of the facility, consist of excavating test pits, installing monitoring wells in borings, and water and soil chemical analyses. The area designated for the effort is based on the area of the major potential waste deposit of Hooker line sludges and General Metals automobile fluff as indicated by the records search (although we understand considerable clean-up effort has occurred in this area). Insufficient chemical characterization data are available for the sludge to allow narrowly focused analyses at this stage. The recommended program is outlined over the following paragraphs.

Task 3.1 - Excavate Test Pits

We recommend that approximately 10 to 15 backhoe test pits be excavated in AREA 2 to assess the distribution of possible wastes remaining after Lilyblad's clean-up efforts. These should be located in a regular grid pattern at approximately 100-foot centers.

The soils disclosed in the pits should be described by a geologist or engineer experienced in the description of soils and identification of typical Port of Tacoma fills and waste products. The various soil layers should be sampled in accordance with possible chemical analyses of the samples. For instance, any potentially contaminated soil or waste layer should be sampled, preserved, and shipped in accordance with current EPA guidance for sampling soils intended for chemical analyses. This includes minimizing potential cross contamination by cleaning the backhoe bucket

with a hot-water power wash between test pits, and cleaning sampling implements (stainless steel spoons, etc.) with detergent, water, and acetone, and finally rinsing with distilled water between each sample.

Task 3.2 - Install Monitoring Wells

The same approach to performing borings and installing monitoring wells is recommended here as for PART 2, Task 2.1. Figure 3 indicates the 4 additional sets of wells that should be installed for PART 3 if PART 2 is conducted simultaneously or if PART 2 precedes PART 3. If PART 3 precedes PART 2 then the deep well located just north of the Chempro lease area should be installed for PART 3. The wells placed on the northeast side of the site (entire Poligen site) are recommended for indications of background conditions. Other upgradient wells (on the north side of the site) appear to be in areas of sludge disposal and may not be good indicators of uncontaminated water quality.

Task 3.3 - Survey, Sample, and Analyze Groundwater

The same work outlined for PART 2 should be performed for the PART 3 wells. Table 1 indicates the water analyses recommended for PART 3.

Task 3.4 - Analyze Soil Samples and Characterize Waste

The analyses indicated in Table 1 should be performed on soil and waste samples from PART 3 to achieve the same goals as expressed for PART 2.

Task 3.5 - Evaluate Data

The same analyses recommended for PART 2 are recommended here for PART 3. The orientation of the analyses, however, should be towards identifying contaminant contributions from Hooker sludge. The overall objective of assessing the potential for significant continued releases should also be addressed.

Task 3.6 - Produce Report

The report elements indicated for PART 2 should also be produced for PART 3. In addition, a map of remaining sludge should be produced to the extent possible.

PART 4 - Scope of Work Area 3 (REMAINDER OF SITE)

The recommended PART 4 scope of work parallels the work recommended above for PART 3. Tasks corresponding to PART 3 tasks 3.1 through 3.6 should be conducted as tasks 4.1 through 4.6. We recommend that:

- 15 to 20 test pits be excavated for PART 4,
- three additional well sites be developed for Task 4.2 (see Figure 3 for further additional wells recommended if PART 4 is not preceded by PARTS 2 and 3), and
- the chemical analyses indicated on Table 1 be performed for tasks 4.3 and 4.4.

HART-CROWSER & ASSOCIATES, INC.

Lori J. Herman

LORI J. HERMAN
Project Hydrogeologist

Charles T. Ellingson

CHARLES T. ELLINGSON
Senior Project Hydrogeologist

LJH/CTE:sek

TABLE 1 - DISTRIBUTION OF CHEMICAL ANALYSES

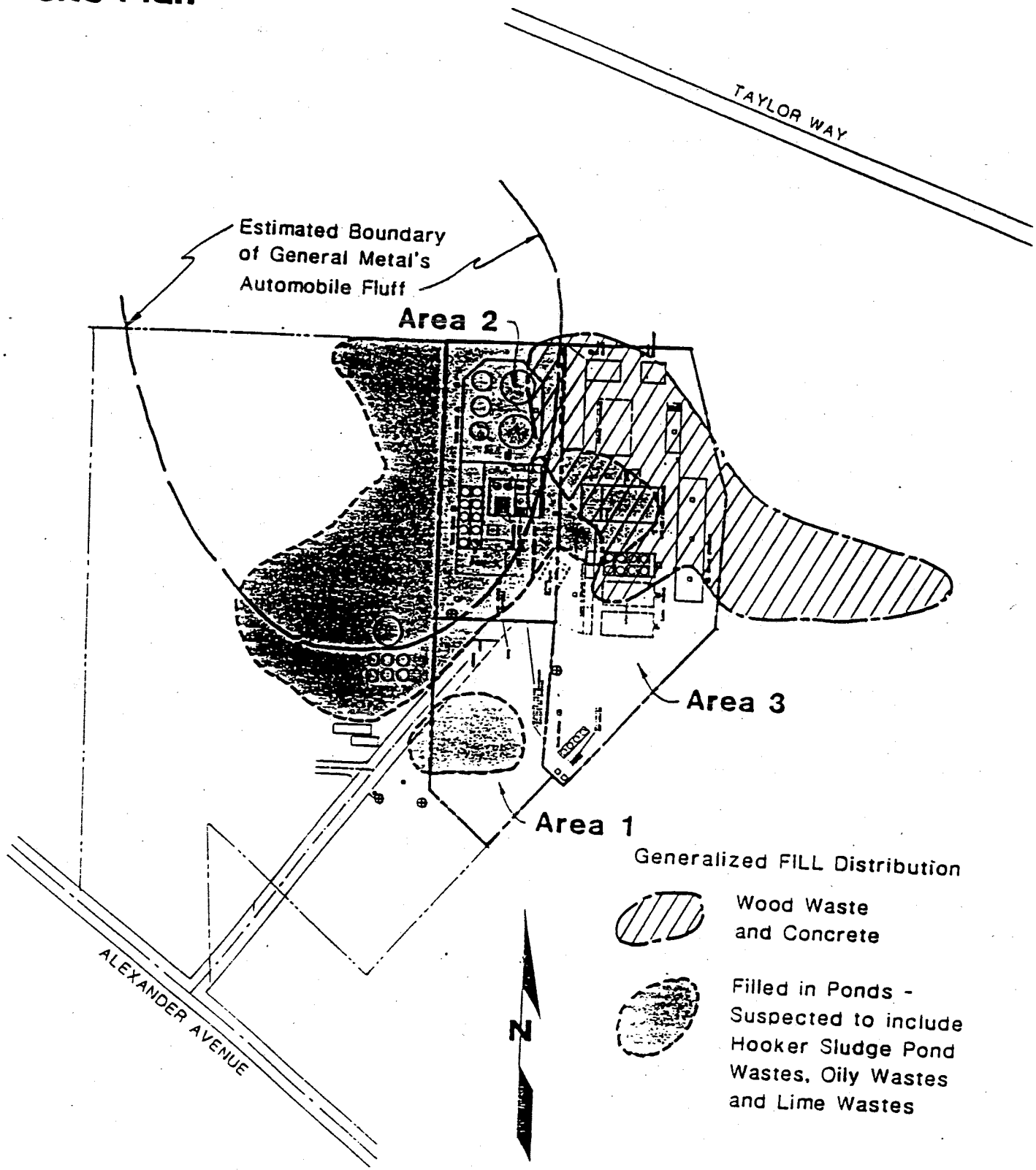
PART	TASK	WATER ANALYSES							
		FIELD	TOC	TOX	N+CN	VOA	BAN	METLS	PCB-PEST
2	2	11	11	11	11	6	6	6	6
3	3	8	8	8	8	6	6	6	6
4	3	4	4	4	4	3	3	3	3
		SOIL ANALYSES							
		H.H.	PAH	VOA	BAN	METLS	PCB-PEST	CN	
2	3	3	3	4	4	3	3	3	
3	4	4	3	5	4	3	3	3	
4	4	3	3	4	4	3	3	3	
TOTALS									
WATER		23	23	23	23	15	15	15	15
SOIL		10	9	13	12	9	9	9	-

NOTES:

FIELD = TEMPERATURE. ELECTRICAL CONDUCTIVITY. pH
TOC = TOTAL ORGANIC CARBON
TOX = TOTAL ORGANIC HALOGEN
N+CN = NITRATE-NITRITE. CYANIDE
VOA = PRIORITY POLLUTANT VOLATILE ORGANICS
BAN = PRIORITY POLLUTANT EXTRACTIBLES
METLS = PRIORITY POLLUTANT METALS
PCB-PEST = PRIORITY POLLUTANT PCB. PESTICIDES
H.H. = HALOGENTATED HYDROCARBONS
PAH = POLYNUCLEAR AROMATIC HYDROCARBONS

NUMBERS OF ANALYSES ASSUME PARTS ARE PERFORMED SEQUENTIALLY OR ALL TOGETHER. NUMBER OF ANALYSES FOR PARTS PERFORMED OUT OF SEQUENCE OR ALONE SHOULD BE GREATER THAN INDICATED TO ACCOUNT FOR INEFFICIENCY.

Site Plan

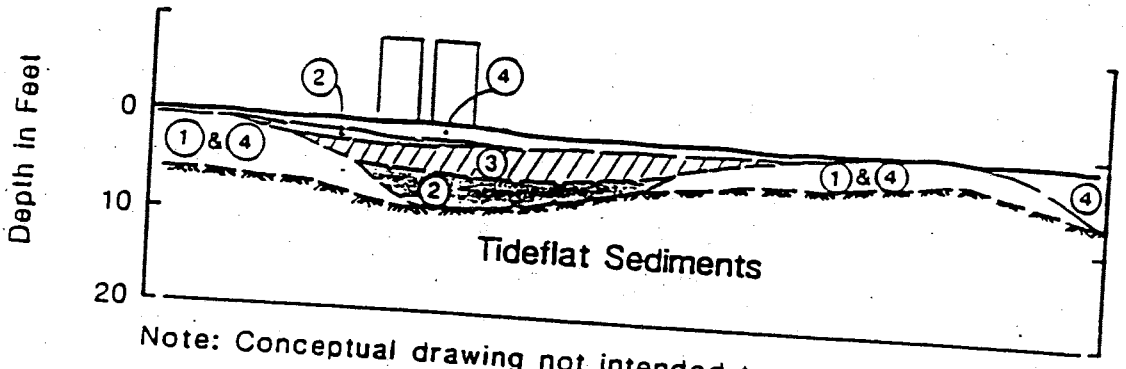


Dredge SAND and SAND and GRAVEL Borrow overlay Tideflat Sediments over entire site with specific other Fills as indicated.

J-1615-04 May 1986

HART-CROWSER & associates inc.

Conceptual Subsurface Profile



Note: Conceptual drawing not intended to represent any specific section of site.

(1) Dredge SAND

(2) Filled in Ponds Suspected to include Hooker Sludge Pond Wastes, Oily Wastes and Lime Wastes

(3) Wood Waste and Concrete

(4) SAND and GRAVEL Borrow Material

Vertical Exaggeration x 10

Horizontal Scale in Feet

0 200 400

0 20 40

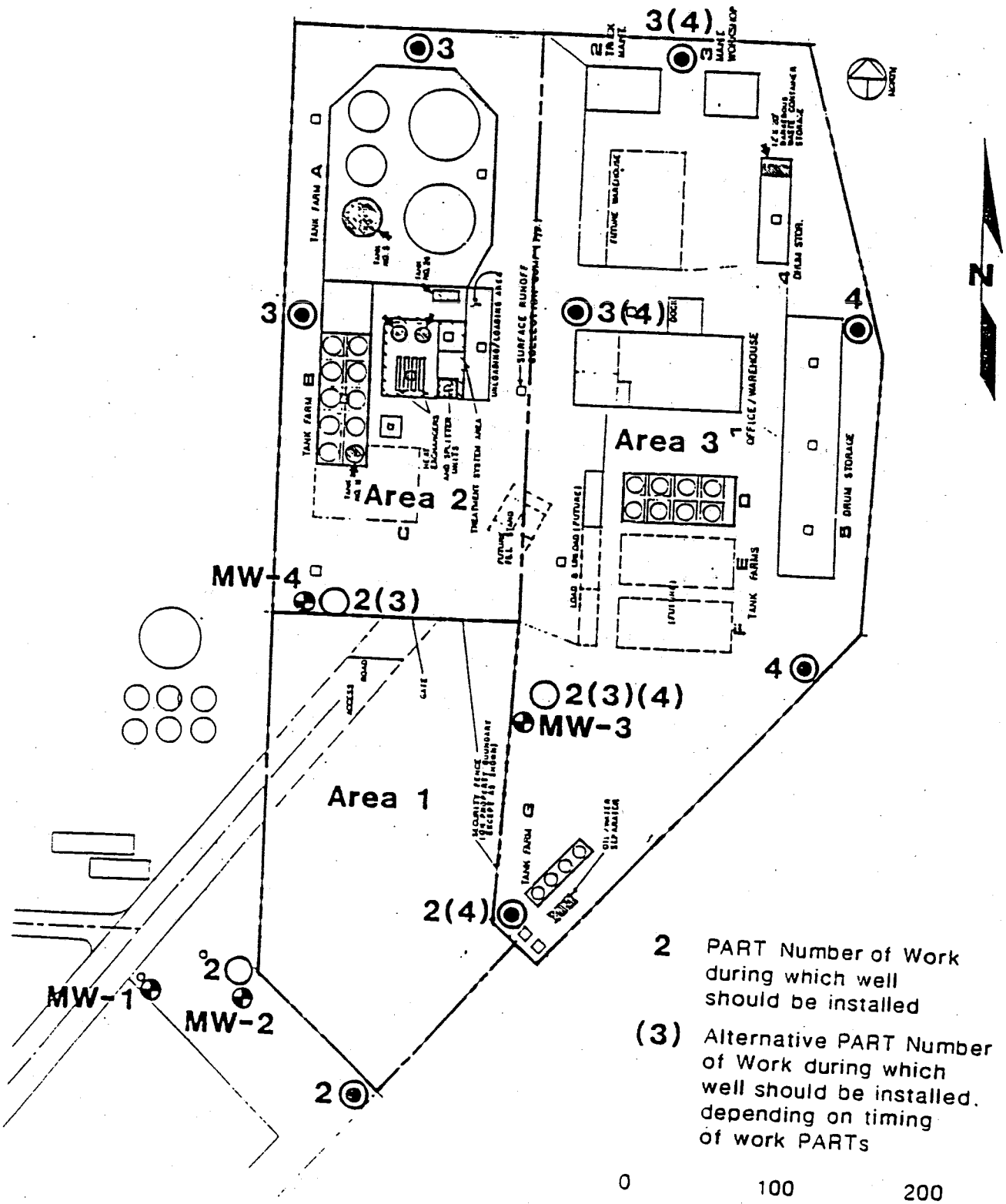
Vertical Scale in Feet

J-1615-04 May 1986

HART-CROWSER & associates inc.

Figure 2

Recommended Exploration Plan



2 PART Number of Work during which well should be installed

(3) Alternative PART Number of Work during which well should be installed, depending on timing of work PARTs

0 100 200

Scale in Feet

M -1 Existing Shallow Well Location and Number

Recommended Deep Well Location

Recommended Deep and Shallow Well Location

J-1615-04 May 1986

HART-CROWSER & associates inc.

Figure 3

ALFRED M. ALLEN, M.D., M.P.H. • DIRECTOR OF HEALTH

November 18, 1986

MGA Associates

RE: Non-Permitted Disposal of Auto Fluff

TO WHOM IT MAY CONCERN:

On November 10, 1986, this department received and investigated a complaint regarding dumping of auto fluff on Bernard Coski's property. During the investigation, a representative explained your intent to recycle this material. Several steps must be completed before this operation may begin.

At this time, you are directed to cease and desist all operations relating to auto fluff handling from general metals immediately. Contact this department, Public Works, and all other appropriate agencies for applications and permits.

Thank you for your immediate attention to this matter and if you have any questions, please feel free to contact this office.

Sincerely,

Jody L. Snyder

Jody L. Snyder, R.S.
Environmental Health Specialist
Chemical/Physical Hazards
Environmental Health Division

JLS:brs

cc: Brian Ragen, Pierce County Prosecuting Attorney
Jim Sinding, City of Tacoma Prosecuting Attorney
Brett Betts, Southwest Department of Ecology
James Handmacher, Attorney at Law
Steven Causseaux, Attorney

TACOMA-PIERCE COUNTY HEALTH DEPARTMENT
3629 SOUTH D ST. TACOMA. WASHINGTON 98408-6897

ALFRED M. ALLEN, M.D., M.P.H. • DIRECTOR OF HEALTH

November 18, 1986

Martin Vail
General Metals
1902 Marine View Drive, N.E.
Tacoma, WA.

RE: Non-Permitted Disposal of Auto Fluff

Dear Mr. Vail:

The Tacoma-Pierce County Health Department recently received and investigated a complaint regarding dumping of auto fluff on Bernard Coski's property above Manke lumber.

RCW 70.95.030 defines "Solid Waste" as all putrescible and nonputrescible solid and semi-solid wastes including garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles or parts thereof, and discarded commodities.

RCW 70.95.240 states it shall be unlawful for any person to dump or deposit or permit the dumping or depositing of any solid waste onto or under the surface of the ground or into the waters of this state except at a solid waste disposal site for which there is a valid permit.

Since autofluff is defined as Solid Waste, it is your responsibility to assure that all of this material is disposed at a permitted landfill. At this time MGA Associates is operating without a recycling permit and cannot legally except your waste.

Thank you for your consideration in this matter and if you have any questions, please feel free to contact me at 591-6572.

Sincerely,

Jody L. Snyder

Jody L. Snyder, R.S.
Environmental Health Specialist
Chemical/Physical Hazards
Environmental Health Division

JLS:brs

cc: Brian Ragen, Pierce County Prosecuting Attorney
Jim Sinding, City of Tacoma Prosecuting Attorney
Brett Betts, DOE
Steven Causseaux, Attorney

TACOMA-PIERCE COUNTY HEALTH DEPARTMENT
3629 SOUTH D ST. TACOMA, WASHINGTON 98408-6897

GM1/DW #1
CCSS
GM #1
7-26-77/78

HARTCROWSER

Earth and Environmental Technologies

Request for Proposal to Conduct a Preliminary Soil/Groundwater Site Assessment at General Metals of Tacoma

July 1987

1910 Fairview Avenue East Seattle, Washington 98102-3699 206.324.9530

REQUEST FOR PROPOSAL
TO CONDUCT A
PRELIMINARY SOIL/GROUNDWATER
SITE ASSESSMENT AT
GENERAL METALS OF TACOMA

Prepared by

Hart Crowser, Inc.

J-1977

July 1987

J-1977

Purpose

The purpose of this project is to conduct a preliminary site assessment to assess if past or current activities have adversely impacted the subsurface environment at General Metals of Tacoma (GMT). The intent is to provide information on the site geology, hydrogeology, and soil and groundwater quality to identify potential areas of concern for additional work, as appropriate. Additional sampling and analysis needs, if required, will be recommended based on this preliminary work.

Facility Background

The GMT facility is located at 1901 Marine View Drive on the east side of Hylebos Waterway, Figure 1. The plant site encompasses approximately 14 acres and has been the location of GMT operations for approximately 17 years, Figure 2. Prior land uses are expected to have been industrial. The current operator has been using the site since 1981.

The GMT is a ferrous scrap metal facility used for storage and initial processing of iron and steel scrap for further recycling off-site. Plant processes include a shredder, a hydraulic shear machine, cutting torch operations, and an equipment maintenance facility. Scrap metal sources include auto bodies, appliances, railroad cars, empty drums, cable, and various other ferrous scrap.

In general, the facility is surfaced with limited and discontinuous asphalt and concrete and is otherwise a natural contour.

The facility storm drainage system is limited and is shown on Figure 2. The system consists of several segments. During heavy rainfall, surface ponding of water is evident in many areas of the site. The storm drainage system, located just west of the shredder house, is filled with concrete and is not operational; however, the storm drain system, located east of

the shear house, appears to be plugged and no longer discharges to the Hylebos Waterway. The catch basin located just east of the shear house, does drain stormwater and it is assumed to discharge below ground somewhere along the storm drain line.

Until approximately five years ago an incinerator, used to burn wood from the demolition of railroad box cars, was located in the northeast portion of the facility. The incinerator has since been removed leaving only a concrete pad.

Transformers which may contain PCBs are located in the following three areas on the plant site:

- Near the steam cleaning pad at the northeast end of the maintenance building;
- Inside a fenced enclosure just south of the main office building; and
- Adjacent to the shear house.

Swab samples have recently been obtained from the transformer exteriors. Also, soils near the transformer locations have been sampled. These data will be available prior to initiation of this project. All PCB transformers will be replaced in 1987.

Sludges from Hooker Chemical's chlorinated solvent production operations are reported to have been buried in a wedge-shaped area on the east side of Marine View Drive, directly across from the scale house, as shown on Figure 2. This property, which does not belong to GMT, collects water from the surrounding bluffs, much of which is from springs. If these reported sludges exist, there is a potential that leachate from the sludge may be affecting groundwater quality under the GMT site.

CBSS
Buffelen
7/13/88

HARTCROWSER

Earth and Environmental Technologies

Site Characterization Work Plan
Buffelen Woodworking Company
Tacoma, Washington

Prepared for
Buffelen Woodworking Company

July 13, 1988
J-2155-01

1910 Fairview Avenue East Seattle, Washington 98102-3699 206.324.9530

J-2155-01

SITE CHARACTERIZATION WORK PLAN
BUFFELEN WOODWORKING COMPANY
TACOMA, WASHINGTON

I. INTRODUCTION

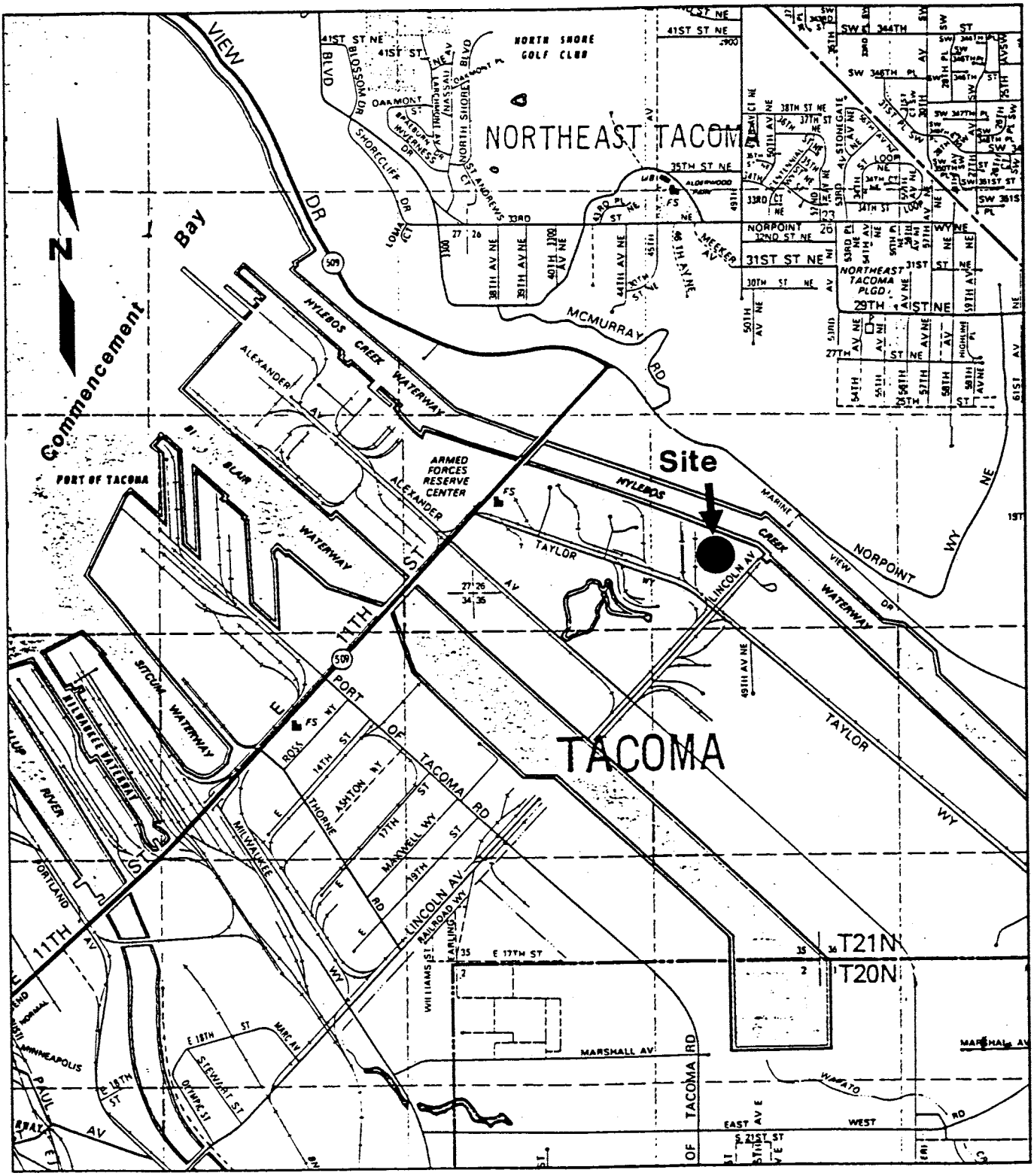
The purpose of this work plan is to detail the methods and procedures used to perform site characterizations at three specific areas on the Buffelen Woodworking Company property in Tacoma, Washington (Figure 1). These areas are referred to as the penta tank area, the penta treatment area, and the veneer factory formaldehyde area (Figure 2).

Environmental concern for these three areas has developed through previous work documented in several reports (Hart Crowser, Inc., August 1987, December 1987, January 1988, April 1988, and June 1988). This work began with an environmental audit of the entire Buffelen property. The audit revealed potential for environmental concern at the penta tank and treatment areas and the veneer factory formaldehyde area. Discharges to the soil of pentachlorophenol solutions were suspected at the penta tank and treatment areas and discharges to the soil of plywood glues containing formaldehyde were suspected at the veneer factory formaldehyde area.

As a result, verification and characterization sampling was pursued within these areas. Analytical results and field observations from this sampling have provided additional information on each of the areas (see below), but have been inadequate for site characterizations to be used for remediation purposes. Sampling to be performed in conformance with this work plan is intended to obtain additional information which will enable the areas to be characterized and subsequently remediated.

Vicinity Map

Buffelen Woodworking Company



Base map prepared from Thomas Guide maps 3 and 6 of Pierce County, Washington, 1988 updated edition.

HARTCROWSER

J-2155-01 7/88

Figure 1

This plan will be used by field staff while collecting field samples and possibly by other consultants and/or state and federal agencies when relying on this work for review or further investigations. For these intended uses the plan contains six sections beyond this introduction. These sections are the following:

Two attachments also accompany this work plan and are guidelines for work specified in the plan. These attachments are the Quality Assurance Plan (Attachment A) and Health and Safety Plan (Attachment B).

II. HISTORY

The Buffelen Woodworking Company opened its Tacoma plant in 1913 with a saw mill and door factory. In the early 1920s they expanded their manufacturing capacity to include plywood production, which continued until spring of 1988. Doors are now the principal product manufactured by Buffelen. The penta tank and treatment areas and the veneer factory formaldehyde area are related to door and plywood manufacturing, respectively.

As part of Buffelen's door manufacturing process, the doors were treated with a wood preservative. Penta, a pentachlorophenol solution, was the wood preservative used and was used on-site from the 1950s to early 1986. The doors were treated in a portion of an old door warehouse, which has been recently demolished. The former area of this building is herein referred to as the penta treatment area (Figure 2).

Penta used to treat the doors was stored in a 500-gallon, above-ground, storage tank. The tank was located adjacent to the machine shop and penta was pumped from the tank to the treatment area, a distance of about 100 feet. The tank and penta within the tank were removed in early 1987 to an interim status treatment, storage and disposal (TSD) facility in Tacoma, Washington. This former tank location is herein referred to as the penta tank area (Figure 2).

Plywood production at Buffelen took place in separate facilities from door manufacturing and penta treatment. One of the steps in the plywood production was the gluing together of wooden veneers in mechanical presses located in the veneer factory along Hylebos Inlet. The glue, which consists of a mixture of organic resins, formaldehyde, wheat flour, and water, was washed from the presses with water to clean them. Discharge of the washing water was to the soil below the factory until 1976 when the discharge line was connected to the city sewer. This discharge area below the factory is herein referred to as the veneer factory formaldehyde area (Figure 2).

III. EXISTING CONDITIONS

The penta treatment and tank areas and the veneer factory formaldehyde area consist of exposed soil on the ground surface. The penta treatment and tank areas are not covered by any of Buffelen's structures, whereas the veneer factory formaldehyde area is predominantly covered by the veneer factory, which is pile supported above the ground surface.

Surface water flow patterns on the site areas have been observed while sampling and from aerial photos. Surface water flows onto the penta treatment area and occasionally ponds. Ponded water infiltrates the soil and/or flows to the Hylebos Waterway through a channel. Surface water does not appear to flow onto or away from the penta tank area. Presumably, precipitation infiltrates the soil surface at this area. Tidal water is known to submerge at least parts of the veneer factory formaldehyde area during each high tide. A small pond (1,600 square ft) exists at least

intermittently on the south side of this area. Apparently, it is filled during high tide and does not completely drain.

The first available chemical data at the penta treatment and tank areas and the veneer factory formaldehyde area were on verification samples of soil (Hart Crowser, Inc., December 1987 and January 1988). Following this sampling, additional samples were collected in an attempt to characterize the spatial distributions of pentachlorophenol and formaldehyde at each area (Hart Crowser, Inc., April 1988).

Verification samples of surficial soils in the penta treatment area were analyzed for pentachlorophenol (PCP) and indicated a concentration range of 120 to 14,000 mg/kg. A composite soil sample from the penta tank area showed PCP to be present at 34 mg/kg.

Characterization soil sampling was undertaken in each of these areas.

Approximately 2,500 square feet of soil was compositely sampled within a grid with 10-foot centers over the penta treatment area down to depths of 5 feet. The samples were analyzed for pentachlorophenol. Table 1 shows the reported concentration ranges for each sampling depth. There were patterns to the concentration distribution in both vertical and horizontal directions. These patterns suggested that high concentrations should exist outside the sampled area on the east and south sides and that concentrations decline toward the west and north. Concentrations also were found to decline downward in the soil profile.

Table 1 - Penta Treatment Area - PCP Concentration Range by Depth

Depth in Feet	Range in PCP Concentration in mg/kg (dry weight)
Surface	1.4 to 14,000
1.5	<0.025 to 6,044
3.0	<0.025 to 1,615
5.0	0.017 to 320

~~Solidus Corporation~~
Chemical Processors

Solidus Corporation
2244 PORT OF TACOMA ROAD
P.O. BOX 817
TACOMA, WASHINGTON 98401

RECEIVED

'88 JUL 18 P4:50

July 18, 1988

Ms. Suzanne Milham
Washington State Department
of Ecology
Southwest Regional Office
7272 Cleanwater Lane
Olympia, Washington 98504-6811

Re: Public Notice of Partial Closure - Chemical Processors, Inc., 1701 Alexander Avenue, Tacoma, Washington

Dear Ms. Milham:

You will find enclosed with this letter materials submitted on behalf of Solidus Corporation commenting on the partial closure plan submitted by Chemical Processors, Inc. with regard to that company's operations at 1701 Alexander Avenue in Tacoma.

Our comments include my written statement as President of Solidus, the comments from Roy F. Weston, Inc. on the technical and regulatory adequacy of the partial closure plan, with appendices including very important EPA and Ecology guidelines for closure under RCRA, and two memos from Solidus Corporation's attorney analyzing the regulatory criteria to be applied and the documentation available to date which shows that Chemical Processors, Inc. was involved in operations on Parcel "A" at the time the "old oil ponds" existed on that site as an asset used for Chemical Processors, Inc.'s benefit.

Solidus Corporation is sensitive to the requirement that Parcel "A" be cleaned up to protect the environment for future generations. To that end, and in accord with our comments and the comments of others, both in writing and at the public hearing, we respectfully request that Chemical Processors, Inc.'s proposed partial closure plan be rejected as inadequate.

If you have any questions, please call me.

Very truly yours,

Glenn R. Tegen
President

GRT:sjb/3014e
Enclosures

Before the Department of Ecology
Public Hearing on Partial Closure Plan
Presented by Chemical Processors, Inc. for
Facility at 1701 Alexander Avenue,
Tacoma -- Statement of Glenn R. Tegen

I am President of Solidus Corporation. Solidus is a small Washington private corporation which owns the property formerly occupied by Chemical Processors, Tacoma Facility.

In 1981 Solidus acquired the parcel which Chem Pro used for its Tacoma facility. Chem Pro had its facility on the property at the time. Chem Pro's business included storage, treatment management and recycling of liquid hazardous waste and used oil. I understand that Chem Pro had been involved in operations on the property since at least 1976. There had been prior operations on the site by the same individuals who were involved in Chem Pro.

In 1982 Solidus and Chem Pro negotiated a lease which expired December, 1986. Chem Pro was permitted to remain on the property under the lease but Chem Pro promised to provide me effective when the lease terminated an acknowledgement from the Department of Ecology or EPA or both that closure had been accomplished according to all applicable laws and regulations including RCRA. That has not yet been done. Whether Chem Pro's closure is in accord with all laws and regulations it is what this hearing, in my opinion, is all about.

Solidus Corporation has never had any business operations of its own on the subject property. Chem Pro operated a commercial hazardous waste and oil recycling business on the property for at least 10 years. I think the closure plan Chem Pro has provided, as I understand it, does not go far enough because Chem Pro has not satisfied Ecology's concern and my concern that all chemicals left on the property have been cleaned up.

By way of background, Ecology must understand that it was only with the greatest difficulty that Chem Pro was persuaded to do as much cleanup as has been done to this point. Chem Pro left the property in extremely poor condition at the end of December, 1986 when their lease expired. Even though Chem Pro must have known the lease was going to expire and that I was supposed to be given a Certificate of Closure at that time, when Chem Pro's term actually was up there were thousands of gallons of liquids remaining on the property in tanks, contaminated debris, asphalt and concrete were scattered around the property, and the surface of the property was obviously very contaminated. Solidus has photos of these conditions, copies of these photos were given to Ecology. Solidus has had to invest substantial dollars in stabilizing the site after Chem Pro's lease expired, and monitoring Chem Pro's cleanup actions taken to date.

I do not think it is fair on top of all this that Solidus should be left holding the bag when Chem Pro has been involved in the site for over a substantial period of time, has managed millions of pounds of waste on the site on a commercial basis while Solidus has only been in picture since 1981 and never did anything with the property except lease it to Chem Pro.

I asked Roy F. Weston Engineers to provide me detailed technical comments on Chem Pro's closure plan. I understand that the public comment period on the plan will remain open through Monday. I will have that sent to the Department of Ecology before that time.

From the work Weston has done to date, I can state that Chem Pro's plan is inadequate according to EPA and Ecology regulations. Chem Pro's plan has not included sufficient sampling of soil and groundwater to assure that the environment is being adequately protected and that all chemicals left on the site because of Chem Pro's activities have been cleaned up.

I also have been told by Weston that one of the specific criteria for facilities which manage waste in tanks says that when a tank is closed the owner or operator must remove or decontaminate, among other things, all "contaminated soils". I do not think that Chem Pro has removed all contaminated soils as

this regulation requires. In the first place, Chem Pro's oil management operation left obvious and extensive oil stains all over the property. I have not seen anything to prove that that operation did not include oils contaminated with chemicals or hazardous waste.

That oil kept going down through the ground. Chem Pro did not dig up and remove all the earth under their oil management area which was contaminated. In other areas of the property I believe that Chem Pro simply dug down until they felt like they had done enough to try to persuade Ecology that no more work was needed. From what I understand the sampling data has said though, I do not believe all contamination, including contamination with metals, has been removed from the property.

The deficiencies in Chem Pro's closure plan are of great concern to Solidus. First, as I said earlier, Chem Pro promised to provide proof that closure was done according to all requirements of the regulations. That promise was made by Chem Pro in 1982 when the lease with Solidus was made. Whether closure is adequate is still an issue. Second, Ecology has come to Solidus and requested that Solidus prepare a remedial plan and feasibility study for the property. I do not think it is right for Ecology to make this demand of Solidus alone when Solidus never managed waste on the site and Chem Pro used the

site for waste management for many years. I think Ecology should either address the problem with chemicals remaining on the site by making the closure plan more inclusive or by requiring that Chem Pro participate with Solidus in the talks about cleanup to get property back where it should be.

In closing, I would like to ask the Department of Ecology to reject Chem Pro's proposed closure plan because it does not go far enough towards meeting the regulation. I will provide a copy of my statement to the hearing officer. Thank you.

3013e

LAW OFFICES OF

EISENHOWER, CARLSON, NEWLANDS, REHA, HENRIOT & QUINN

1200 FIRST INTERSTATE PLAZA
TACOMA, WASHINGTON 98402
AREA CODE (206) 572-4500

MEMORANDUM

TO: Mr. Glenn R. Tegen
President
Solidus Corporation

FROM: Charles K. Douthwaite

RE: Regulatory Criteria for Approval of TSD Facility Closure Plan

DATE: July 13, 1988

This memo sets forth the criteria established in Ecology and EPA regulations which govern the agencies' decision to approve or disapprove a closure plan for a TSD facility. These closure criteria should be applied by EPA and Ecology in their decision whether or not to approve Chemical Processors, Inc.'s proposed closure plan for the unit of ChemPro's TSD facility formerly operated on Parcel "A" owned by Solidus Corporation at 1701 Alexander Avenue in Tacoma.

CLOSURE PLAN CRITERIA

Although Ecology is the agency taking the lead (e.g., a Public Notice regarding ChemPro's closure plan was published by Ecology) Ecology uses EPA's criteria for closure of interim status TSD facilities. See, WAC 173-303-400(3)(a).

Under EPA's regulations, Ecology, after providing public notice and possibly an opportunity for a hearing, is obliged to "approve, modify, or disapprove" the TSD owner or operator's proposed closure plan. In making this decision, Ecology "must assure" that the approved plan is "consistent" with, among other requirements, 40 CFR §265.111 and 40 CFR §265.197. Those

two provisions are important as 40 CFR §265.111 is the general closure performance standard and 40 CFR §265.197 is the closure performance standard especially for tank systems. ChemPro, of course, operated hazardous and solid waste management units, including tanks on Parcel "A".

The general performance closure standard for all hazardous waste management facilities is written in 40 CFR §265.111. That section says,

> The owner or operator must close the facility in a manner that:
>
> (a) Minimizes the need for further maintenance, and
>
> (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere, and
>
> (c) Complies with the closure requirements of this Subpart including, but not limited to, the requirements of §§265.197, 265.228, 265.258, 265.280, 265.310, 265.251, 265.381 and 265.404.

The closure performance standard tailored specifically for tank systems, 40 CFR §265.197, provides, in part, as follows:

> (a) At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless §261.3(d) of this Chapter applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in Subparts G and H of this Part.

(b) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in paragraph (a) of this section, then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (§ 265.310). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in Subparts G and H of this Part.

* * *

Note that the tank closure standard has a more specific requirement for contaminated soils than the general standard. While the general standard, 40 CFR §265.111(b) calls for a closure which eliminates "to the extent necessary to protect human health and the environment" the post-closure escape of hazardous waste constituents to groundwater, the tank closure standard, 40 CFR §265.197, calls for removal or decontamination of all "contaminated soils" among other things.

The tank closure standard gives the site operator, unless complete removal or decontamination of contaminated soils is practicable, the option to perform post-closure care and monitoring. This post-closure care and monitoring must be equivalent to that required of a landfill (which includes, for example, long-term groundwater monitoring). Post-closure care must be performed pursuant to a permit.

As noted above, post-closure care is a requirement where the owner or operator cannot practicably remove all contaminated soils. Post-closure care and monitoring also may be required where a tank system does not have secondary containment meeting EPA's requirements. The question of whether ChemPro's facility met the secondary containment requirement should be directed to the engineers for Ecology.

In our opinion, Ecology also should apply §3004(u) of RCRA, as amended, 42 U.S.C. §6924(u). Section 3004(u) requires corrective action for "all releases of hazardous waste or

constituents" from any "solid waste management unit" at a facility seeking a permit. Section 3004(u) should be applied first because ChemPro has stated that it will be seeking a final facility permit for its facility which at one time included the solid and hazardous waste tank treatment and storage units on Parcel "A" owned by Solidus, and second because ChemPro may be unable to practicably remove or decontaminate all contaminated soil on Parcel "A" thus requiring that ChemPro provide post-closure care and monitoring pursuant to a post-closure permit.1/

EPA's regulations implementing §3004(u) of RCRA provide, among other things, that corrective action shall be implemented for solid waste management units.

> The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for (sic) all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which the waste was placed in such unit.

40 CFR §264.101. ChemPro had solid waste management units on Parcel "A," including tanks, piping and other equipment for managing used oil. The alleged oil ponds on the property could also constitute solid waste management units.

1/ The State Environmental Policy Act also requires that Ecology consider the impact of §3004(u). If Ecology decides to approve ChemPro's closure plan, that approval will be an "action" as defined under SEPA. See, WAC 197-11-704(2)(A)(i). Ecology's decision on ChemPro's Part B application also will be an "action" under SEPA. As neither Ecology action is categorically exempt, SEPA review will be necessary. See, WAC 197-11-310. When approval of one phase of related approvals on a project will affect consideration of later phases, the lead agency (in this case Ecology) must consider and act on all approvals before the project can proceed. See, Merkel v. Port of Brownsville, 8 Wn. App. 844, 509 P.2d 390 (1973).

APPLICATION OF CRITERIA

ChemPro's closure plan, to the extent that ChemPro maintains its position that the plan has been implemented fully at this time, does not comply with the applicable criteria. ChemPro has not removed or decontaminated all waste residues or "contaminated soils" left at the site. Table 4.4 included in "Phase II Hydrogeological Investigation Parcel A" April, 1988 prepared by Sweet-Edwards/EMCOM, Inc. shows the presence of chromium in all soil samples obtained. Chromium concentrations exceed 150 ppm in 7 out of 15 samples. Two samples displayed on Table 4.4 contain concentrations of chromium over 1,000 ppm. Chromium, as I understand it, is a constituent associated with ChemPro's hazardous waste treatment and storage operations.

The data also show releases of constituents from solid waste management units at the facility. Those releases are displayed, in part, on Table 4.3 of the above-named Sweet-Edwards/EMCOM, Inc. report.

As the closure plan presented by ChemPro does not meet the regulatory criteria, Ecology's duty under 40 CFR §265.112(d)(4) and WAC 173-303-400(3) is to disapprove or modify ChemPro's plan such that the plan is consistent with the criteria.

CKD:sjb
2999e

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MEMORANDUM

TO: Glenn R. Tegen, President, Solidus Corporation

FROM: Charles K. Douthwaite

RE: Chemical Processors, Inc. -- Operation of Former Oil "Ponds"

DATE: July 18, 1988

The remarks of Department of Ecology staff person Suzanne Milham made at the opening of the July 14, 1988 public hearing on Chemical Processors's partial closure plan suggested that she (and by inference Ecology) is convinced that the contamination on Parcel "A" can be seen as having "past" and "present" aspects and that Chemical Processors, Inc. may have a claim to avoid responsibility for the allegedly "past" problems.

Information we received from Mr. Stuart Springer, formerly of Puget Sound Industrial Petroleum, ties Chemical Processors, Inc. into the allegedly "past" problems. This occurs in three areas. I suspect that additional investigation would discover many other connections.

The three areas which appear based only on the information we have to date, are as follows: (1) Mr. Springer stated that due to the reorganization of Puget Sound Industrial Petroleum and the involvement of Mr. Ron West and Mr. Newton Clark III the management of that company, the assets of Puget Sound Industrial Petroleum were managed for Chemical Processors's benefit; (2) Ecology issued Order Docket No. DE 75-2 to Puget Sound Industrial Petroleum when Mr. West and Mr. Clark served as officers of the company and likely had investment in it; and (3) Independent evidence shows that the "chemical side" received oily waste. This evidence, in addition to NPDES records and permits in Ecology's possession, includes evidence that used oil spills occurred after Chemical Processors was involved in the facility.

The information we have at this point pertaining to these issues as follows.

1. Mr. Springer reported when asked why Mr. West and Mr. Clark were made officers of Puget Sound Industrial Petroleum that Chem Pro of Oregon was formed by Ron West, Newton Clark and Mr. Springer. He said that corporation acquired the stock of Puget Sound Industrial Petroleum (hereinafter PSIP) at that time. Mr. Springer said PSIP was liquidated during 1975 and all assets transferred to Chem Pro of Oregon. Around that time a Mr. Marv Lennington also acquired shares of Chem Pro of Oregon stock. Mr. Lennington later was listed as a vice-president of PSIP.

When asked about control of PSIP operations Mr. Springer reported that control of Chem Pro of Oregon was used to benefit Chemical Processors, Inc. Mr. Springer said employees were paid on Chemical Processors's checks, that Chemical Processors was allowed by Chem Pro of Oregon's board to "operate the old PSIP asset in any manner they wish." Mr. Springer reports that his objections were overruled by the Chem Pro of Oregon Board. Mr. Springer reported that ultimately the value of his assets were diluted and that he had to resort to an attorney to obtain a settlement. From 1974 through 1976 Mr. Springer reported that the Tacoma operation of Chem Pro of Oregon for all intents and purposes was run by Mr. Ron West. Mr. West evidently had the support of the Chem Pro of Oregon Board to use the Tacoma PSIP operation as some kind of adjunct to Chemical Processors, Inc.'s Pier 91 plant. Mr. Springer said that ultimately the PSIP asset was sold to Chemical Processors, Inc. in a way that reflected the interlocking control of the two companies. He said

> The acquisition of what we will call the PSIP asset by Chemical Processors was a staightforward purchase from Chem Pro of Oregon. The terms were very favorable, offering almost no return to the Chem Pro of Oregon shareholders.

In sum, the evidence is that Mr. Ron West exercised control of PSIP assets with the assent of the Chem Pro of Oregon Board. Mr. West sat on the Chem Pro of Oregon Board. This picture is very different from the picture suggested by Chem Pro to date, i.e., the idea that Chem Pro operated without any connection to the Tacoma site until possibly sometime in 1976.

2. A review of corporate records of Puget Sound Industrial Petroleum filed with the Washington Secretary of State corroborate the connection between Chemical Processors, Inc. and Puget Sound Industrial Petroleum.

The first filing, Articles of Incorporation, was made April 16, 1973. The articles named the initial Board of Directors as Stuart Springer, Carol Lee Springer, and Arthur Brevik. An annual report of the corporation filed July 27, 1973, in addition to Mr. Springer and Ms. Carol Lee Springer, includes as a Director a E. Jeanette Johnson.

The officers changed in 1974. The annual report stamped received by the Office of the Secretary of State on June 13, 1974 lists Mr. Ronald West and Mr. Newton Clark III as Secretary and Treasurer respectively. Mr. Springer remained as President. The address given by Messrs. West and Clark is 5501 Airport Way, Seattle, Washington. That address was, and continues to be, Chemical Processors, Inc.'s main office.

The annual report received May 12, 1975, in addition to Messrs. Springer, West and Clark, adds a Mr. Marv Lennington as Vice President. Mr. Lennington's address is given as 11535 North Force Street, Portland, Oregon. No other annual reports were received from the Secretary of State's Office.

Two additional corporate documents were received. These include a "Statement of Intent to Dissolve" and "Articles of Dissolution."

The "Statement of Intent to Dissolve" was filed June 7, 1976. Mr. Springer, Mr. Lennington and Mr. West are identified as officers and directors of the corporation. The Certificate of Receipt of the "Statement of Intent to Dissolve" also dated June 7, 1976 is identified as "Filed at the request of Chemical Processors, Inc., 5501 Airport Way So., Seattle, WA 98108."

The "Articles of Dissolution" were filed June 17, 1976. The articles are signed by Mr. Springer and Mr. West as President and Secretary, respectively, of Puget Sound Industrial Petroleum. The Secretary of State's Certificate of Receipt of the "Articles of Dissolution" also dated June 17, 1976, was "Filed at the request of Chemical Processors, Inc., 5501 Airport Way So., Seattle, WA 98108."

The "old oil ponds" evidently existed during the time Mr. West and the others served as officers and directors of PSIP and, according to Mr. Springer, used PSIP's assets to benefit Chemical Processors, Inc. Ecology may actually have

known of this arrangement, for example, a September 4, 1974 inspection report prepared by Jim Oberlander was given to Chem Pro as well as Puget Sound Industrial Petroleum. That report indicates that pond areas were being filled with auto waste from General Metals at the time. Shortly thereafter Ecology issued a Notice of Violation and later an Order Docket No. DE 75-2 to Puget Sound Industrial Petroleum, Inc. The Notice of Violation and Order indicate that the ponds were not filled and that some oil remained in them.

3. Documents in Ecology's possession indicate that Chemical Processors, Inc.'s operation included discharges of oil and grease. First, NPDES permits issued by Ecology had an effluent limitation for oil and grease. Second, monitoring reports required by the permit indicated that oil and grease was discharged along with other chemicals. Second, as well as the evidence in photographs you obtained in January, 1987, and gave to Ecology, Mr. Springer reported when asked about spills that occurred on the property after PSIP's operation had ended, that a large spill occurred during 1976. He said that about 15,000 gallons of waste oil was dumped on Parcel "A". The oil remained there for several days. Mr. Springer said,

> [He] didn't see it until perhaps two weeks later, and there was still a sheen over the mud puddles. I would estimate that the total area affected was 100 yards in radius from the old boiler room to the north and east, that is to say northerly from Parcel "A" and into Parcel "C".

In sum, these two bits of evidence (and I suspect other evidence exists) demonstrates beyond question that Chemical Processors, Inc.'s operation on Parcel "A" involved activities which led to oil contamination of the site.

CKD:sjb
3018e

Washington Environmental Council

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July 14, 1988

Ms. Suzanne E. Milham
Washington Department of Ecology
Southwest Regional Office
7272 Clearwater Lane M.S. LV-11
Olympia, WA 98504-6811

Re: Partial Closure of Parcel A of ChemPro Tacoma Site

Dear Ms. Milham:

The purpose of these comments is to review the history of Parcel A of the Chemical Processors ("ChemPro") Tacoma site, and in particular, the history of spills and other problems that occurred during the time that ChemPro operated the site. ChemPro has taken the position that it should only be required to clean up those portions of Parcel A which it is responsible for having contaminated; however, as this paper will demonstrate, it is unquestioned that a great deal of contamination occurred on Parcel A directly as a result of ChemPro's activities. Moreover, substantial questions remain about the ability to segregate the damage caused by ChemPro from the damage caused by other, unidentified entities, as well as about ChemPro's role in prior activities at the site. The Washington Environmental Council therefore urges that ChemPro be held responsible for the entire clean up of Parcel A.

In the Parcel A Final Closure Activities Report prepared by Sweet-Edwards/EMCON, dated May 18, 1988, it is stated that continued filling of Parcel A in the 1960s and 1970s at and around the site is reported to have included lime sludges, petroleum tank-cleaning scales and sludges, and auto debris/fluff. That this fill occurred, is unquestioned. During the early 1970s, there is documentation that a pond on the

materials handled at the site that may have been included in the spillage and leakage include "cyanide sludges, solvent still bottoms, electroplating waste acids (primarily chromic acid), phenols, chelating agents, and paint sludges." A Department of Ecology inspection report dated August 25, 1980, states, "The place still looks like a disaster waiting to happen."

During the same period, problems were also noted in the oil recycling area of the ChemPro activities on Parcel A. An inspection report by the Department of Ecology on February 14, 1979 found that the oil recycling area was inundated with oily water and that no storage capacity was available to handle a potential spill. This situation violated two conditions of ChemPro's waste discharge permit. A September 23, 1980 inspection by the Environmental Protection Agency concluded, "The general observation of spilled material in the working areas raises questions about the nature of operations at the site." The report noted that the floor of the transfer and storage areas of the site was covered with waste material, and that there was oil everywhere. In fact, counsel for ChemPro has acknowledged that "incidental spills and leaks during Chemical Processors' operations" may have contributed to the oil contamination at the site.

The Hart Crowser report states that between December 1981 and January 1982 wastewater discharge from the ChemPro facility indicated a release of metals, cyanide and oil into the sewer. A November 1982 report on the facility by Harper-Owes stated:

> The data . . . suggest that groundwater at the ChemPro Tacoma site is presently impacted by a variety of past and present practices. Important identified toxins leaving the site, and probably entering Blair Waterway, include volatile halogenated aliphatics, and possibly nickel and cyanide.

The report also stated:

> Apparent cyanide inputs can be traced to the ChemPro facility, and concentrations observed down gradient of the unit were more than 100 times greater than the suggested salt water chronic criteria and nearly 10 times greater than the suggest salt water acute criteria.

In addition, a bio-assay test performed by Harper-Owes, using groundwater flowing beneath the ChemPro facility, killed all 30 test salmon in less than a minute.

In August 16, 1983, a Department of Ecology field report found chemical spillage around tanks and from lab test wastes being dumped out of a window to a holding container. Considerable chromium spillage within the dike area was also noted. In addition, tire drag-out occurred from equipment operation. The condition of the site was checked "unsatisfactory." Problems in the oil portion of the facility continued as well during this period. For example, an April 1982 report filed by EPA stated,

> Past disposal practice of the company revealed that at that time waste oils, all types of solvents were dumped, spilled or reclaimed from a large, open, unsealed pond or lake. Surface drainage from the general area were piped to the Hylebos and end up in the Blair Waterway.

In August 1983, a RCRA violation assessment prepared by the Wahington Department of Ecology stated that the oil processing area was a "mess." This report also stated that there was considerable chromium spillage at the facility as well.

On March 14, 1984, Jim Oberlander from the Department of Ecology wrote a letter to ChemPro responding to the 1982 Harper-Owes report. This letter stated:

> We suspect, through the substandard mode of the Tacoma ChemPro operation "treating" chemical waste within the "plant" dike area, possible leakages through the impoundment floor may have occurred. WDOE is alarmed about ChemPro's waste treatment activity in the Big Boy tank and six smaller tanks which have no spill containment. The amount of sludge within these tanks also warrants discussion. The above may constitute gross violations of WAC 173-303 (dangerous waste regulations).

This letter instructed ChemPro to conduct a coordinated groundwater monitoring program (including deeper monitoring wells) at the site, addressing 23

separate parameters, including three parameters -- cyanide (total and free), TCE and nickel -- which were described as being of "immediate" concern. Significantly, the May 1988 Parcel A final closure activities report submitted by ChemPro contains no testing for cyanide.

On October 3, 1985, 10,096 gallons of liquid nitric acid solution were spilled on the ChemPro property. 6,408 gallons of the acid were retrieved; 3,688 gallons were spilled outside of the processing area onto the ground. In March 1986, Hart Crowser performed a study on the 1985 spill. This report found nitrate concentration in a down gradient well at a significant level. The report stated, "It is possible that the elevated nitrate is a residual effect of the nitric acid spill."

The Hart Crowser report of May 1986 on the ChemPro facility stated, "possible metals including chromium, copper, nickel, and lead, and cyanide and phenols related to spillage and leakage from existing facilities may be present in the soil and/or groundwater." The report continued, "The major receptors of possible migration will likely be marine and benthic organisms in Blair Waterway, unless an evaluation of potential impacts to health, welfare, and the environment should be based largely on those organisms."

In spite of this extensive history of spills at Parcel A which are directly attributable to ChemPro, the closure plan assumes that a distinction can be made between the shallow zone (ChemPro) and deep zone allegedly (non-ChemPro) of the property. This assumption is highly questionable both on technical and policy grounds. At a technical level, any relationship between the areas (or lack thereof) can only be demonstrated by a comprehensive investigation which studies the possibility of migration to the deeper zones. The Final Closure Activities Report, however, simply ignores all pollution at the site below a depth of 30 inches. In the absence of further testing, there is simply no basis for ChemPro to assert, as it has done repeatedly, that it has no responsibility for the pollution at deeper zones on Parcel A.

From a policy standpoint, it also makes no sense to absolve ChemPro of any responsibility for the demonstrated pollution at the deeper zones of the property. The RCRA regulations state that to close a site, the owner or operator must close the facility in a manner that minimizes or eliminates the possibility of postclosure escape of dangerous wastes, and returns the land to the appearance and use of surrounding land areas to the extent possible. What ChemPro seeks to do is in effect to create two separate pieces of land on Parcel A, one of which it is willing to accept responsibility to restoire to the levels required by the RCRA regulations, and one of which it is not willing to clean up at all. ChemPro seeks to make this distinction, which is clearly artificial and not expressly contemplated in the regulations, in spite of the fact that there is no question that, as an operator at the site, it is responsible for the entire site. Moreover, from a culpability standpoint, certainly the absentee owner of Parcel A (Solidus) is far less responsible for the pollution at the site than ChemPro, given the site history described above. Finally, as noted above, there is some question as to whether ChemPro is in fact responsible for past practices at the site.

Under the regulations, ChemPro has the duty to submit a closure plan which provides for the clean-up of the entire site. WEC urges that the Department of Ecology not approve the partial closure plan proposed, and mandate a clean-up by ChemPro of the entire site.

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July 18, 1988

VIA TELECOPY

Ms. Suzanne E. Milham
Washington Department of Ecology
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M/S LV-11
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Re: Partial Closure of Parcel A of CHEMPRO Site

Dear Ms. Milham:

This letter is intended to supplement the comments previously filed on behalf of the Washington Environmental Council ("WEC") regarding Chemical Processors' ("CHEMPRO") closure plan for Parcel A at its Tacoma facility.

As I am sure you are aware, it has been and continues to be WEC's position that there is ample authority, both on statutory and public policy grounds, for the Department of Ecology ("DOE") to compel CHEMPRO to clean up all of the waste at Parcel A, regardless of who is technically responsible for having dumped it. There can be no question of DOE having this authority under the state Superfund law (see RCW 70.105B.040). In addition, as presented by Mr. Robb at the July 14 hearing, we believe it is also clear that CHEMPRO has a duty as an operator of the site to effect a comprehensive clean-up under RCRA. See WAC 173-303-610(2).

Nonetheless, various equitable arguments have been put forward that CHEMPRO is not responsible for sub-surface waste on Parcel A. As noted at the hearing, these arguments rest on two assumptions: first, that the waste admittedly dumped by CHEMPRO can somehow be segregated from other waste; and second, that CHEMPRO has no connection with the entitites which are responsible for the waste.

With regard to the first point, both Mr. Littler's analysis of the CHEMPRO plan, as well as the extensive history of spills at the site documented in our earlier comments

demonstrate that CHEMPRO has failed to meet its burden in segregating responsibility for the waste at the site. In addition, we have just uncovered information about an additional release by CHEMPRO that occurred in the winter of 1976. At that time, about 15,000 gallons of waste oil were apparently spilled at CHEMPRO's Tacoma site. The spill is reputed to have ocurred on a weekend, and thus was not discovered until the following Monday; during that time heavy rains had spread the spill all over the site. Given the fact that a large portion of the wastes for which CHEMPRO seeks to disclaim responsibility is oil-related, this new evidence casts further doubt that there is no connection between CHEMPRO's activities and the sub-surface waste at the site.

CHEMPRO's second assumption is that there is no connection between CHEMPRO and prior operators of the site. This assumption appears to be unwarranted as well, inasmuch as it appears that both the former president (Ron West) and vice-president (Newton Clark III) of CHEMPRO were part owners of Chempro of Oregon (the previous operator of Parcel A). Moreover, because CHEMPRO apparently held an effective majority of Chempro of Oregon stock, they were able to operate the Tacoma site in any manner they wished prior to their purchase of Chempro of Oregon. Finally, we have been informed that Chempro of Oregon had acquired Puget Sound Industrial Petroleum who was the previous operator of a waste oil facility at the site.

From a legal standpoint, there are a number of ways in which CHEMPRO could be held liable for prior activities at the site. For example, when there is a de facto consolidation or merger, liabilities ordinarily are assumed by the purchasing corporation. See Uni-Com. N.W. v. Argus Publishing, 47 Wn.App. 787, 737 P2nd 304 (1987). Similarly, in a straight stock purchase, liabilities would also be transferred. Recently, new doctrines such as the "continuity of enterprise" theory, see Cyr v. B. Offen & Co., 501 F.2nd 1145 1st Cir. 1974), and "product line" theory, George v. Parke Davis, 107 Wn.2d 584, 733 P.2nd 507 (1987) have sprung up to create new exceptions to the non-liability of successor corporations. Finally, in light of the fact that CHEMPRO may have effectively controlled operations at the site prior to the purchase by CHEMPRO of Chempro of Oregon, there is some authority for holding CHEMPRO

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liable as an operator of the site during the period Chempro of Oregon and Puget Sound Industrial Petroleum was the sole operator. See Idaho v. Bunker Hill Corp., 635 F.Supp. 665 (D. Idaho 1986). All of these theories need further exploration before CHEMPRO can be deemed to have no legal liability for prior actions at the site.

More importantly, from a public policy standpoint, given the substantial connection bwetween Chempro of Oregon and CHEMPRO, there is no equitable justification for refraining to pursue a complete clean-up of the site by CHEMPRO. As noted previously, there is ample statutory authority for DOE to seek such a rememdy. Given the facts as we now know them, there is no equitable basis for DOE to seek less than the complete complement of remedies available to it under Superfund and RCRA.

We therefore urge rejection of the CHEMPRO plan to close Parcel A. In any event, at a minimum, a detailed investigation of the corporate histories must be performed before the DOE is in a position to conclude that CHEMPRO is not legally responsible for the extensive pollution at the site.

Thank you again for the opportunity to comment on this plan.

Very truly yours,

Leonard B. Barson

Lynn Lincoln Sarko

Rodney L. Brown, Jr. by LBB

LBB/LLS/RLB:jfc
cc: David Bricklin
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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

February 10, 1989

TO: Suzanne Powers

FROM: David Polivka

SUBJECT: ChemPro Tacoma Parcel A Closure Autofluff testing

I have reviewed the report submitted by ChemPro evaluating the chemistry of the autofluff both beneath Parcel A and in an area not affected by Parcel A activities. Sweet-Edwards/Emcon has taken 8 background samples from four test pits. The samples were analyzed for total metals, EP toxic metals, and cyanide. The analytical results of samples taken from the auto fluff beneath Parcel A were then, at our request, statistically compared to the background analyses. The statistical method used was the Student T test.

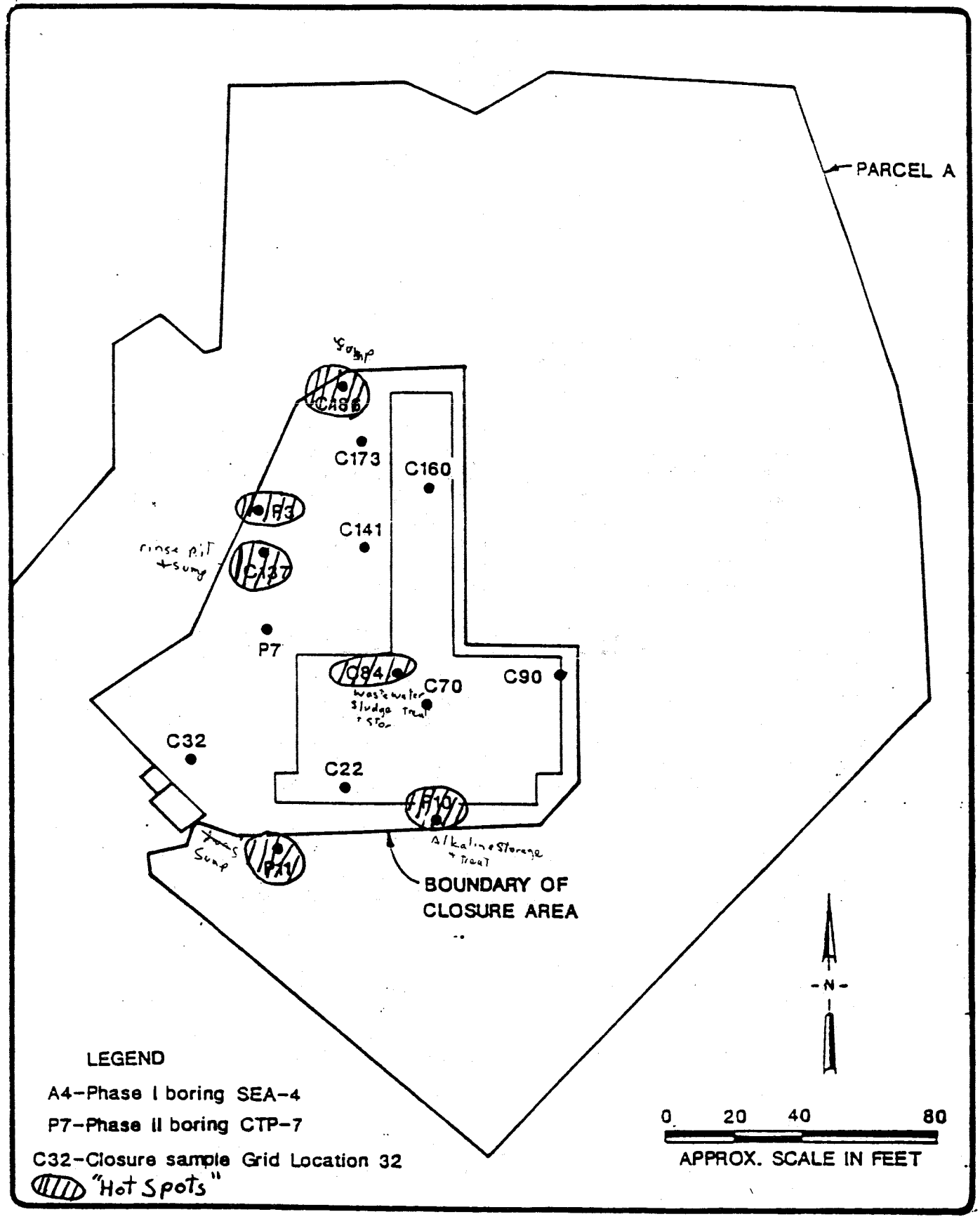
My review of the EP Tox results indicates that all of the results are below the designation as dangerous waste as per WAC 173-303-090. However there are four values for chromium and one value for lead which are above background. The closure standards under 40 CFR 265 indicate that background or below must be achieved or post closure monitoring initiated. In the total metal analyses there are several values which are above background. These include chromium, hexavalent chromium, one cyanide sample and one sample with other metals.

Sweet-Edwards/Emcon states that statistically there is no significance between the background samples and the samples from the closure area. However, Sweet-Edwards has suggested that there may be potentially localized impacts of the dangerous waste management on the closure area.

My review of the report shows that there are apparently 6 "hot spots" in beneath Parcel A and that the statistical methods used by Sweet-Edwards appears to mask them. The "hot spots" are shown in the attached figure. Because there appears to be "hot spots" in the closure area, I feel that "clean closure" as defined by 40 CFR 265 has not been achieved.

In addition, our letter to ChemPro dated August 10, 1988 which included a review of the closure activities by Mark Fuchs asked for an assessment of the depth of the sediment contamination. As of this date this assessment has not been performed.

cc: Tim Nord - HWP
Cullen Stephenson - HWP
file: CPT6



Sweet-Edwards
EMCON

Figure 2

AUTO FLUFF SAMPLING LOCATIONS
WITHIN PARCEL A CLOSURE AREA

DATE 1/89
DWN. MP
APPR.
REVIS.
PROJECT NO. S9403.09

KUKER-RANKEN INC./ 123928

SWEET-EDWARDS/EMCON
PROPOSED WORK SCOPE/ COST ESTIMATE FEBUARY 17,1989
CHEMPRO PARCEL B PARCELB1.WR1

Task 1 SITE PREPARATION

Work Scope:
Seven previously selected soil boring sites and one additional background boring site will be located and identified. A 12 inch core will be drilled through all areas covered with asphalt.

Assumptions:
Chempro will provide for site access and removal of plastic cover if required.

Cost Estimate:	Unit	Unit Cost	Quantity	Cost	Task Total
Professional services					
Project Hydrogeologist	Hour		5		

Outside services					
Concrete coring	Each		6		
Exp. on Subs @.15%					

Reimbursable expenses					
Mileage	Mile		100		
Communications	Lot				

Total Task 1

Task 2 DRILLING AND SOIL SAMPLING

Work Scope:
Each soil boring will be drilled using a hollow stem auger drill rig. Borings will be advanced to a maximum depth of 3 feet. Undisturbed soil samples will be collected during drilling using a split spoon sampler.
Soil will be obtained at the surface (below asphalt), and at approximate depths of 1.5 and 3 feet. Each boring will be backfilled with bentonite chips to ground surface and the hole sealed with concrete.

Assumptions:
o Boring depth will be 3 feet
o 3 samples per boring

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

February 28, 1989

To: Howard W. Steeley

From: Cullen D. Stephenson C.DS

SUBJECT: ChemPro Tacoma Parcel A Closure

In our February 21 meeting with ChemPro, we outlined our plan to include Parcels A through E in the permit and corrective action processes. The Hazardous Waste Permits Section agreed to draft a written copy of our plan. That draft is attached. Please review, revise, and issue the letter. Tim Nord and I will be glad to discuss the matter with you as needed.

I met with Kathy Mix to discuss our meeting and future plans for closure of Parcel A. She remains convinced (and I agree) that the best solution to the closure issue is to separate out Parcel A into a separate WAD number. The new number would carry the same limitations for reconstruction as now exist for Parcels A-E. The advantage for splitting out interim status would be that past practices liability would be better aligned along landowner boundaries. We could issue the new number to Mr. Tegen, or to both Tegen and ChemPro. Agreement by all parties would have to be obtained. (In any case, we will continue to address all parcels (A-E) in our permit review and issuance.) We will get EPA and AG input to the plan to split out interim status, and then send a proposal to you for consideration and implementation.

cc: Tom Eaton
Kathy Mix
Tim Nord
Suzanne Powers
File CPT-6

March 1, 1989

Mr. Dennis F. Stefani
Manager, Regulatory Affairs
Chemical Processors, Inc.
2203 Airport Way South, Suite 400
Seattle, Washington 98134

DRAFT

Dear Mr. Stefani:

This letter is intended to clarify the Department of Ecology's position regarding closure of parcels at your Tacoma facility. Simply stated, our position is as follows:

- Past practices contamination is the responsibility of the landowner, and was assumed with land purchase.
- Contamination from your operations is your responsibility.
- When we cannot determine the source of contamination (i.e. whether it is from recent or historical contamination), we must hold both the operator and the landowner responsible.

Please note that this position does not supersede the regulatory requirement of joint and several liability for both owner and operator. Rather, the intent is to create a common sense approach for proper clean-up.

How does this relate to our intended course of action for the Tacoma permit? With only one WAD number for Parcels A-E, it is not possible to separate Parcel A from our permit consideration. First, clean closure of Parcel A has not been achieved, as evidenced by the presence of high hexavalent chromium levels in known sump areas. Second, based on hazardous waste regulations, it is clear that final closure can be performed only when <u>all</u> units are closed (see 40 CFR 265 Subpart G and the 5/2/86 Federal Register preamble.) The closure of Parcel A, even if performed to "clean standards", would only be a partial closure, and we could not separate Parcel A from further permit consideration.

As we discussed in our 2/21/89 meeting, we expect a response from you on these issues as soon as possible. We intend to pursue site clean-up and permit review in an expeditious and equitable manner. If you have any questions, please contact Suzanne Powers of my staff at 753-3275.

Sincerely,

Howard Steeley

CHEMPRO SM

A Burlington Environmental Inc. Company

CERTIFIED MAIL

May 30, 1989

Suzanne Powers
Washington Department of Ecology
Southwest Regional Office
7272 Cleanwater Lane
M/S LU-11
Olympia, WA 98504

Dear Ms. Powers:

Enclosed is the "Statistical Evaluation, Parcel A Closure" for Chempro's Tacoma facility. This document as prepared by Sweet-Edwards/EMCON, Inc. for Chempro addresses the statistical issues raised by Ecology on closure of Parcel A.

Chempro proposes to meet with Ecology to further discuss the closure of Chempro's hazardous waste operations on Parcel A. Chempro will expect Ecology to define the standard which will be acceptable for clean closure, which will then allow a determination of what further actions, if any, are necessary.

Please call Dennis Stefani or me at (206) 223-0500 to schedule a meeting to review this subject, and if you have any questions.

Sincerely,

Peter K. Ressler
Compliance Manager

PKR:tks

Enclosures

cc: W. D. Maer
M. S. Palumbo
W. E. Fisher
D. F. Stefani
M. P. Keller

RECEIVED
89 MAY 31 AM 9:09

CHEMICAL PROCESSORS, INC.
Park 90/5, Suite 400 • 2203 Airport Way South • Seattle, Washington 98134
(206) 223-0500 • FAX: 223-7791

STATISTICAL EVALUATION
PARCEL A CLOSURE

CHEMICAL PROCESSORS, INC.

May 1989

Prepared for:

Chemical Processors, Inc.
2203 Airport Way South
Suite 400
Seattle, WA 98134

Prepared by:

Sweet-Edwards/EMCON, Inc.
18912 North Creek Parkway
Suite 210
Bothell, WA 98011

Project No. S94-10.01

TABLE OF CONTENTS

List of Figures

List of Tables

Chapter 1
INTRODUCTION

1.1 PURPOSE

Chemical Processors, Inc. (Chempro) is performing necessary investigations for the unit closure of Parcel A at the Tacoma facility. A January 1989 report prepared by Sweet-Edwards/EMCON, Inc. (SE/E) provides the most recent closure sampling, analysis results, and preliminary statistical evaluation. Additional closure sampling data and site characterization data are presented in SE/E reports dated May 1988, April 1988, and September 1987. The Department of Ecology (DOE) reviewed these results and requested additional statistical evaluation of the soils testing data. The purpose of this report is to provide the additional statistical evaluation of these closure test results, and specifically a comparison of background area and closure area results to assess whether or not a clean closure of Parcel A has been achieved.

1.2 SCOPE OF WORK

The scope of work performed by SE/E with the assistance of Gregory Glass, statistical/environmental consultant, was a detailed statistical evaluation of background and closure area soils chemical test results of total metals and cyanide concentrations.

1.3 PREVIOUS INVESTIGATION

An initial site characterization study at Parcel A was conducted by SE/E during May and June 1987. The Phase I Hydrogeological Investigation report (SE/E, 1987) presented the site geology, hydrogeology, and soils and water chemistry. A site characterization study at the adjoining Parcels B & C conducted

by SE/E during November 1987, further defined the local area geology, hydrogeology, and water chemistry (SE/E, 1988).

An additional study of the chemical quality of soils at Parcel A was conducted by SE/E during September 1987. The Phase II Hydrogeological Investigation report (SE/E, 1988) presents depth discrete soil chemical data in the area of the Hazardous Waste Treatment Facility.

Closure activities were implemented at Parcel A in the area of the Hazardous Waste Treatment Facility during October and November 1987. The work was performed in accordance with a WDOE approved Closure Plan for Parcel A (1987). The closure activities are presented in the Parcel A Final Closure Activities Report (SE/E, 1988). A preliminary assessment of whether or not clean closure of the Hazardous Waste Treatment Facility on Parcel A had been achieved was presented in the Parcel A Closure Auto Fluff Testing and Analysis Report (SE/E, 1989).

1.4 SITE DESCRIPTION AND BACKGROUND

Parcel A is about 1 acre in size and is located in the industrial section of the Port of Tacoma, Washington, in the northwest quarter of Section 35, T21N, R2E, W.M. The site lies between the Hylebos and Blair Waterways to the southeast of Commencement Bay on fill materials placed on the former Puyallup River Delta tide flat zone. The site area is generally flat with a slight grade toward the south.

Previous geologic investigations suggest that prior to the placement of fill materials, the area of Parcel A was part of the channeled marshlands of the Puyallup River Delta (Hart-Crowser, 1975). Prior to 1924, much of the Puyallup River Delta was dredged and filled to create navigable waterways and usable land for industry. Continued filling in the 1960's and 1970's at and

around the site is reported to have included lime sludges, petroleum tank-cleaning scales and sludges, and auto debris/fluff.

Prior to excavation, Parcel A was generally covered by gravel road base, concrete pads, or asphalt. The previous studies conducted by SE/E found fill materials underlying Parcel A to a depth of about 10 feet. In general, the fill materials consist of about 2.4 feet of visually "clean" sands, gravelly sands, and clayey sand. The upper fill is underlain by visually "dirty" fill materials of auto debris, auto debris intermixed with lime sludge, oily auto debris, and/or oily sands. Underlying the fill is about 1 to 3 feet of silt (tidal marsh/tide-flat deposit), and an undetermined thickness of interbedded silty sand (deltaic deposits).

Excavation of the surface concrete and asphalt was accomplished by backhoe. The surface materials varied in thickness from 2 to 6 inches. The surface material was carefully removed to leave the subsurface soils undisturbed. Subsurface soils were subsequently removed in 6-inch increments using the trac-hoe.

All soil removed during the excavation was temporarily stockpiled on an unexcavated concrete slab to prevent possible cross contamination. The stockpiled surface material and soil was loaded with the backhoe into trucks for removal from the site. The slab remnant was removed last. All material was shipped to a RCRA-approved, hazardous waste landfill in Arlington, Oregon.

Sampling of exposed soils was intended to be used to determine the extent of soil removal at locations across the site. However, the heterogeneous nature of the soils precluded assurance that discrete samples would adequately characterize the in-situ soil chemistry underlying the entire sampling/excavation site. Therefore, soil removal was continued over the entire

hazardous waste treatment area until the auto body fluff/debris was reached.

Was auto fluff over entire site

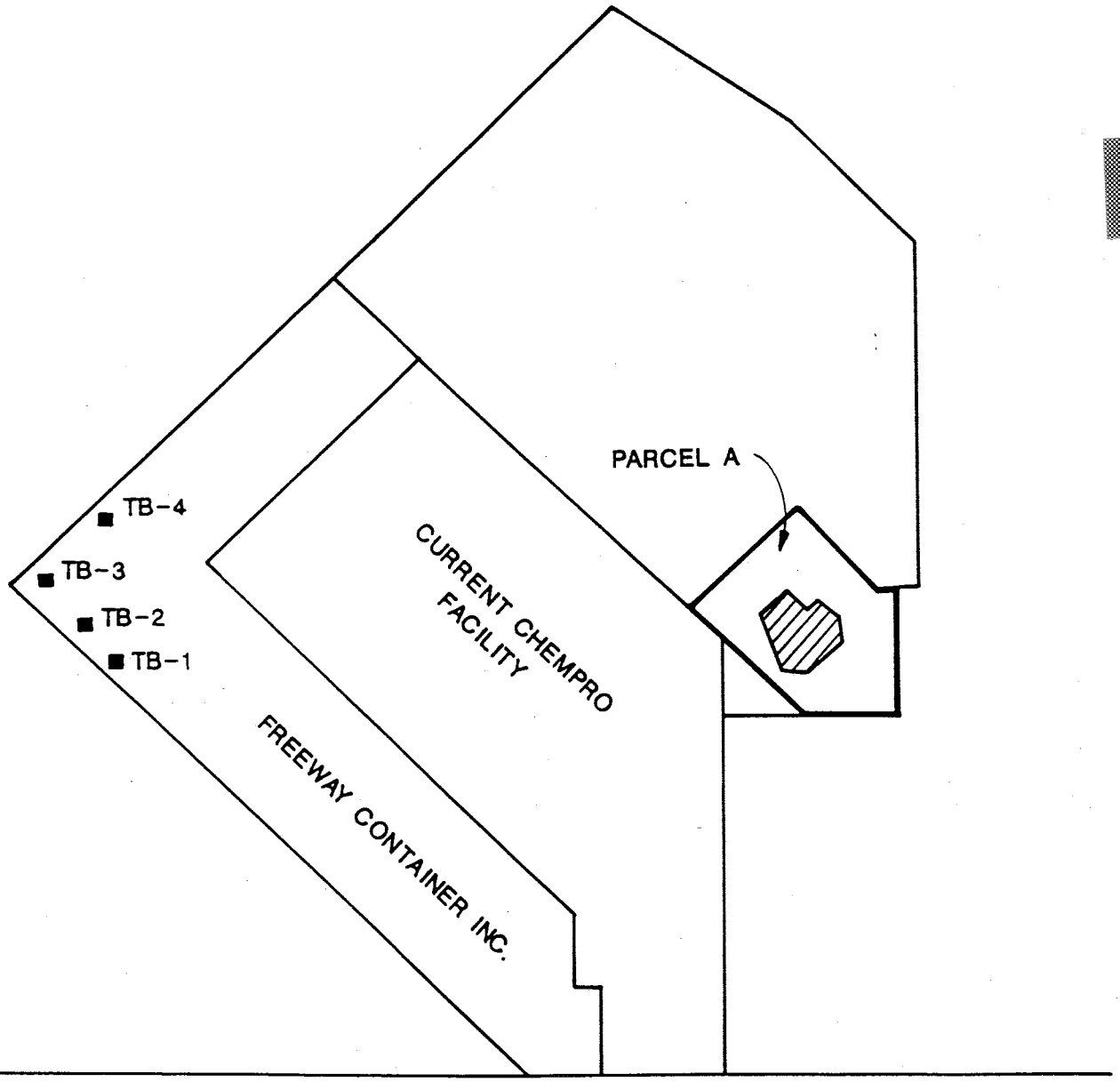
Four test pits (TB-1, TB-2, TB-3, and TB-4) were excavated for collection and analysis of auto fluff/debris background samples. Auto fluff, assumed to be of similar source and age, not potentially influenced by operation of the hazardous waste facility was determined to be appropriate for background samples. All test pits were excavated using a backhoe under the direction of a SE/E geologist. The location of each test pit is shown on the following figure. The depth of each test pit ranged from 3 to 5 feet depending on the depth of overburden.

Auto fluff samples were obtained by the backhoe from two locations in each test pit (e.g., TB-1A and TB-1B) in order to evaluate variability in auto fluff material. Samples were obtained by breaking open chunks of material with stainless steel spoon and removing a portion of the material not contacted by the backhoe bucket.

Preliminary statistics indicate that:

- most of the observed concentrations are attributed to the auto fluff matrix

- further assessment of total metals and cyanide analysis were required to define any potential remaining "hot spots" from the former hazardous waste operations.



LEGEND

TB-1 ■ Approximate location of Background Auto Fluff Samples

▨ Approximate area of Closure

N

NOT TO SCALE

Sweet-Edwards
EMCON

LOCATION OF BACKGROUND AUTO FLUFF SAMPLING SITES

DATE 1/89
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APPR. ____
REVIS. ____
PROJECT NO. S9403.09

Chapter 2
STATISTICAL EVALUATION

2.1 DATA SETS

Data are available for 8 background locations and for 15 closure area locations. Analyses of soil (auto fluff) samples included total metals and cyanide, and EP Toxicity test (leachable) metals. Preliminary statistics suggested that further assessment of total metals and cyanide analysis were required to define any potential remaining impacts from the former dangerous waste operation. Additional statistical evaluations were performed for total metals and cyanide analyses. The ten constituents evaluated were: arsenic, barium, cadmium, chromium, hexavalent chromium, lead, mercury, selenium, silver, and total cyanide.

The closure area sample data included values for 127 out of a possible 150 analyses for the ten constituents evaluated. A number of values are reported as less than a stated lower limit of detection. For the purposes of statistical evaluation, the detection limit was used for all calculations involving undetected values. In the case of hexavalent chromium, detection limits for the closure samples were much higher than for the background samples, where no hexavalent chromium was found. The undetected values for closure samples cannot be readily evaluated in this circumstance; such values are simply flagged.

2.2 STATISTICAL TESTS

SE/E (January 1989) performed testing of whether closure samples as a group differed significantly from background samples as a group. Such testing provides a good measure of the overall differences in the two groups of samples, but did not evaluate the existence of "hot spots" of residual contamination. For this evaluation, each of the 127 closure sample results was tested for

significance against the background data set. The question being addressed was - what is the probability that a single analytical result comes from the distribution represented by the background sample set results? This testing approach is consistent with the general approach used to evaluate RCRA ground water monitoring data and has been previously applied to RCRA closure data sets.

It should be recognized that performing a large number of tests (127, in the case of Parcel A) introduces a significant issue regarding false positive results. Even at a $p = 0.05$ significance level, some statistically significant results are expected to occur due to chance alone. This issue has been much discussed in the context of RCRA ground water monitoring. At the least, the magnitude, spatial occurrences, frequency, and correlation of all results identified as significant from statistical testing results should be evaluated in relation to site history.

2.2.1 Data Screening

A quick screening of the closure data set was performed. All values (concentrations) greater than the maximum value reported within the background data set were identified and flagged. There were a total of 11 such values (not including the not detected values for hexavalent chromium), occurring in 6 different samples. This screening approach does not provide quantitative parametric statistical testing results. However, considering only the rank-ordering of data values (a Mann-Whitney/Wilcoxon nonparametric approach), the probability of any one of nine samples all drawn from the same distribution being the maximum value is just 1/9, or $p = 0.11$. With the number of background samples available, nonparametric testing does not provide low significance values.

2.2.2 T-Test Form

Under the assumption that the underlying distributions for background and closure samples are the same, a pooled-variance t-test is appropriate. The general form of this test is:

$$t_{n+m-2} = \frac{\bar{X}_1 - \bar{X}_2}{S_t\sqrt{1/n + 1/m}}$$

$\bar{X}_1$, $\bar{X}_2$ are sample means
n, m are sample means
S_1^2, S_2^2 are sample variances

where

$$S_t = \sqrt{[(n-1)S_1^2 + (m-1)S_2^2]/(n+m-2)}$$

S_t = Pooled variance

In the case where a single closure sample is tested against a set of background results, the pooled variance t-test reduces to the so-called single-sample t-test of the form:

$$t_{n-1} = \frac{X_i - \bar{X}}{\sqrt{S_b^2\,[(n-1)/n]}}$$

n is background sample site
X_i is closure value
$\bar{X}$ is background mean
S_b^2 is background variance

The null hypothesis is that a closure sample is equal to the background sample mean. The alternate hypothesis being tested is that the closure sample value exceeds the background sample mean. A one-tailed t-test is therefore used, at a chosen significance level of p = 0.05.

Under an assumption that the eight background samples from test pits are independent, the number of degrees of freedom (df) is 7. The following significance values result:

p	t (df=7)
.10	1.415
.05	1.895
.025	2.365
.01	2.998
.005	3.499
.0005	5.405

Under an assumption of non-independence of background samples i.e., treating the samples as replicates (4 background samples rather than 8 background samples) the t-test is less powerful; that is, it has a higher likelihood of false negatives (failing to detect a difference that really exists). The significance values for a one-tailed t-test with 3 degrees of freedom are:

p	t (df=3)
.10	1.638
.05	2.353
.025	3.182
.01	4.541
.005	5.841
.0005	12.941

2.2.3 Background Distributions

The form of the background distribution was explored for all of the constituents evaluated except hexavalent chromium (not detected in the background data set). The small number of samples tested in the background data set makes testing of distributional form (e.g., using chi-squared tests) difficult. Histogram plots and best fits for a normal distribution using both raw data and log-transformed data were produced using the Statgraphics statistical program (Statistical Graphics Corp., Version 2.1). The results for arsenic, chromium, lead, mercury,

and silver are attached (Figures 1 through 5).

A technique of plotting values to evaluate the normality of a data set, termed normal probability plots, was also used. Plots for arsenic, chromium, lead, mercury, and silver for both raw data and log-transformed data are attached (Figures 6 through 10). Similar plots for the closure data set are also provided for comparison (Figures 11 through 15). A true normal distribution plots as a straight line in this graphical evaluation technique. The raw data and log-transformed data plots can therefore be compared in terms of their relative deviations from the straight line plotted; the less deviations, the better the approximation of a normal distribution.

A plotting technique termed Quantile-Quantile (Q-Q) plotting was also used to provide a measure of goodness-of-fit. Based on the number of background data values N, the normalized quantile values for quantiles of the cumulative distribution at values of 1/N+1, 2/N+1 ... N/N+1 are determined. For example, 1/9 or 0.111 of the cumulative unit normal probability distribution is equivalent to a value of approximately -1.22. Data values (raw or transformed) are also normalized by subtracting the mean and dividing by the standard deviation. The results are then rank-ordered and plotted against the N normal distribution quantiles. A true normal distribution will plot as a straight line. The sum of squared deviations from such a straight line is used as a measure of goodness of fit.

Table 1 titled "Evaluation of Distributional Form" provides all of the data necessary for Q-Q plots for raw and transformed data. Comparison of the sum of squared deviations shows that transformed data always have lower total deviations and therefore represent better fit to a normal distribution. In some cases such as arsenic, the percentage reduction in deviations is substantial; in others, such as chromium and silver, it is

smaller. Inspection of Figures 16 through 20 provides a visual check on the degree of difference.

The background data are assumed to be from representative and independent samples; specifically, the two samples obtained from each of the four test pits are assumed to be independent. Assuming independent samples increases the (apparent) power of the analysis and results in a lower critical value of significance for a one-tailed t-test, $p = 0.05$. This is therefore a conservative approach.

Inspection of the background data set suggests that in fact the two samples from each test pit may be correlated (differences between samples from a test pit are less than differences between test pits). The situation may therefore parallel the original interim status RCRA testing of ground water monitoring data, where four replicate analyses from a well were treated as through they were independent. The possible effect of non-independence was explored by recalculating critical values for all analytes for pooled values. The two samples for each test pit were averaged and the four resulting values used to calculate a new standard deviation for the background data set (the mean is not affected by the averaging of replicates). A new critical value was then calculated (at a lower degrees of freedom for the t-statistic).

The technique of plotting values to evaluate the normality of a data set, termed normal probability plots, was again used. Plots for arsenic, chromium, lead, mercury, and silver for both raw data and log-transformed data are attached (Figures 21 through 25).

Table 2 titled "Evaluation of Distributional Form" provides all of the data necessary for Q-Q plots for raw and transformed data. Comparison of the sum of squared deviations shows that there is

little difference between the raw and transformed data. With only 4 background data points on pooled replicates, the form of the distributions cannot effectively be evaluated.

2.3 T-TEST RESULTS

2.3.1 Independent Background Samples

The results of the statistical evaluations of closure samples using t-tests are summarized in Tables 3 and 4, one for tests based on raw values and the second for tests based on ln-transformed data.

Critical values for each constituent tested were calculated based on a t-test with 7 degrees of freedom and a $p = 0.05$ significance level. All closure samples that exceed the calculated critical value are significantly greater than background using this testing approach. These values are highlighted on the attached Tables 3 and 4. The p-value for each significant result can be approximated by comparing the t-value shown in the tables to the list provided in Section 2.2.2 for degrees of freedom = 7.

For tests based on raw data, a total of 11 values are identified as significantly greater than background at the $p = 0.05$ level. These are the same 11 values identified in the data screening approach (comparison to maximum background value). The 11 significant values occur in 6 samples.

For tests based on ln-transformed data, a total of 6 values are identified as significantly greater than background. These 6 values occur in a total of 4 samples (see Table in Section 2.3.3 below).

2.3.2 Replicate Background Samples

The results of the statistical evaluations of closure samples using t-tests are summarized in Tables 5 and 6, one for tests based on raw values and the second for tests based on ln-transformed data.

Critical values for each constituent tested were calculated based on a t-test with 3 degrees of freedom and a p = 0.05 significance level. All closure samples that exceed the calculated critical value are significantly greater than background using this testing approach. These values are highlighted on Tables 5 and 6. The p-value for each significant result can be approximated by comparing the t-value shown in the tables to the list provided in Section 2.2.2 for degrees of freedom = 3.

For test based on raw data, a total of 11 values are identified as significantly greater than background at the p = 0.05 level. These are the same 11 values identified in the data screening approach (comparison to maximum background value). The 11 significant values occur in 6 samples.

For tests bases on ln-transformed data, a total of 4 values are identified as significantly greater than background. These 4 values occur in a total of 3 samples (see Table in Section 2.3.3 below).

2.3.3 Discussion

The closure sample analyses identified as significantly greater than background are:

SAMPLE	RAW DATA	LN-TRANSFORMED DATA	POOLED REPLICATES LN-TRANSFORMED DATA
CTP-3B#1	CR		
CTP-11B#3	AS, PB, HG, AG	HG, AG	
CTP-10B#2	CN	CN	CN

84-19	CR		
137-19	CR, CR+6	CR+6	CR+6
186-30	CR, CR+6	CR, CR+6	CR, CR+6

Given testing of 127 results at a p = 0.05 significance level, the expected number of failures by chance alone is 5 percent, or 6.35. For the raw data and transformed data, respectively, the failure percentages are 8.7 and 4.7 percent (not including the 5.5 percent of cases with high hexavalent chromium detection limits). The frequency of failures is therefore not remarkable. However, the magnitude of failures (reported concentrations, resulting p-values in the t-test) is relatively high. Six of the nine defined p-values for the raw data set are <0.01 (the two hexavalent chromium failures have undefined t-values). The clustering of failures at CTP-11B#3 would also not be likely due to chance alone.

A brief exploration of the correlational structure of the data sets was undertaken to further evaluate the results identified as significantly above background. Parametric and nonparametric (Spearman) correlation matrices for the background and closure sample data sets (Tables 7 through 10) were calculated, and various x-y scatterplots of the data were produced (Figures 26 through 51). All samples failing the t-tests are flagged on the x-y plots for ease of identification. Particularly for the chromium data, the samples failing appear to be relatively uncorrelated with other analytes. The correlations in the background data set, on the other hand, do tend to show relatively high values between chromium and other metals. These explorations of the data set structure support the idea of a separate cause for higher chromium values in the closure data set.

Chapter 3
SUMMARY

Statistical evaluations of 127 results of chemical analysis of closure samples for the Chempro Parcel A site in Tacoma, Washington were performed. Based on assessment of the background data distributions, ln-transformation of the data produces a better fit to a normal distribution, with the degree on improvement over raw data varying by constituent. Statistical testing of the ln-transformed data at a $p = 0.05$ significance level, using a single-sample t-statistic, identifies six values in four samples of the closure data set that are significantly greater than background. Statistical testing of the ln-transformed data, using pooled replicate rather than independent background samples, at a $p = 0.05$ significance level, identifies four values in samples of the closure data set that are significantly greater than background. Evaluation of the magnitude and pattern of these statistical failures suggests that they represent true failures rather than false positives (sampling variability).

Chapter 4
CONCLUSIONS

The detailed statistical evaluation of background and closure area soil (auto fluff) test results, total metals and cyanide concentrations show the following:

- The two background samples from each test pit are likely correlated.
- The single-sample t-test is appropriate for assessment of closure area soils test results.
- Ln-transformed data produces a better fit to a normal distribution for independent samples, but not readily determined for replicates with only four values.
- Most of the observed elevated metal concentrations are attributed to the auto fluff matrix.
- Four or possibly six analytes were identified as statistically greater than background. These analytes were present at three or four closure sampling sites, respectively.
- The concentrations of hexavalent chromium at sample sites 137 and 186 and total chromium at 186 may be a result of residual contamination from the Chempro hazardous waste operations. Site 186 was immediately below a former sump. Both sites were in the area of a reported historic chromic acid spill.
- The cyanide concentration at CTP-10B may be a result of residual contamination from the hazardous waste operation.
- It is not clear whether mercury and/or silver at CTP-11B are found as residual contaminants from previous operations (those analytes are not significant for the statistically weaker pooled replicate test).

REFERENCE

Hart-Crowser and Associates, Inc. 1975, Geology of the Port of Tacoma

Sweet-Edwards/EMCON Inc. 1987, Phase I Hydrogeological Investigation, Parcel A: Vol. 1 through 3, Prepared for Chemical Processors Inc.

Sweet-Edwards/EMCON Inc. 1988, Phase II Hydrogeological Investigation, Parcel A, Prepared for Chemical Processors Inc.

Sweet-Edwards/EMCON Inc. 1988, Parcel A Final Closure Activities Report, Prepared for Chemical Processors Inc.

Sweet-Edwards/EMCON Inc. 1988, Parcel A Closure Auto Fluff Testing and Analysis, Prepared for Chemical Processors Inc.