ADR Confidential Communication

Ex 3

DAVID C. BATSON, ESQ.
CONVENING NEUTRAL
5526 Uppingham Street
Chevy Chase, MD 20815-5508
202/494-8702 Fax 301/907-0240
dcbatson@erols.com

January 11, 2008

Mr. David Fournier
Jones Stevedoring Company
P O Box 3736
7245 W. Marginal Way S.W.
Seattle, WA 98106

Re: Convening Meeting for Portland Harbor Superfund Site
February 13, 2008; Portland, Oregon

Dear Mr. Fournier,

I am writing to invite you or a representative of your company to an informational meeting of parties identified as associated with the Portland Harbor Superfund Site (Site) located in the lower Willamette River near Portland, Oregon. The meeting will be held on February 13, 2008 in the 4th Floor Hospitality Room of NW Natural Company located at 220 NW 2nd Avenue in Portland, Oregon. Sign-in for the meeting will commence at 9:30, presentations will begin at 10:00, and the meeting will be completed by 4:00. After reading the information below, I hope that you will be interested in attending the meeting.

First, allow me to introduce myself. I am serving as a convening neutral (convenor) assisting parties to explore ways to support their common interests regarding the Site. As the convenor, I serve as a confidential neutral professional and assist parties to prepare for eventual negotiations with federal and state agencies through organizing into a group of potentially responsible parties (PRPs) and conducting an allocation of site costs among parties associated with the Site. I serve at the discretion of an initial group of parties (the Convening Group) brought together by the U. S. Environmental Protection Agency (EPA) for the purpose of exploring the creation of a PRP Group.

Site Background

In December of 2000, EPA listed the Site on the National Priorities List as a federal Superfund site. The study area for the Site encompasses a stretch of the lower Willamette River, from approximately river mile (RM) 2 to RM 11. A summary fact sheet regarding the Site is attached for your information. In that same month, EPA also sent out nearly seventy General Notice Letters (GNLs) informing PRPs that they may be liable for money expended by EPA for response actions at the Site under the comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), 42 U.S.C. § 9601 *et seq.* EPA sent additional GNLs in April 2006. EPA is continuing its PRP search and has stated that it intends to issue GNLs to additional parties during 2008.

In 2001, a remedial investigation and feasibility study (RI/FS) began at the Site and continues to the present. An extensive amount of information and data has been generated during the RI/FS concerning the nature, extent and sources of contamination at the Site. EPA has stated that it anticipates issuing a Record of Decision (ROD) specifying necessary cleanup actions for the Site in late 2010.

EPA has stated that it intends to send out Special Notice Letters providing PRPs the opportunity to negotiate a Consent Decree to pay any outstanding EPA oversight or removal action costs and to perform or pay for the remedial action selected for the Site within 60 days of issuing the ROD. Therefore, EPA counsel has advised the Convening Group that all PRPs associated with the Site need to be ready to enter into consent decree settlement negotiations with EPA by early 2011. The Agency has stated it will initiate enforcement action against non-settling parties.

Liability

As you may know, under Section 107(a) of CERCLA, PRPs may be held jointly and severally liable for all costs incurred by EPA and other PRPs (including interest) in responding to releases or threats of releases of hazardous substances at the Site. Under CERCLA, PRPs include a wide variety of parties associated with contamination found at the Site, include current and former owners and operators of facilities, persons who arranged for treatment and/or disposal of any hazardous substances, and persons who accepted hazardous substances for transport and selected where the hazardous substances were delivered. In addition under CERCLA, PRPs are responsible for costs associated with the restoration of natural resources damaged by hazardous substances at the site.

Under ORS 465.255, PRPs are strictly liable for remedial action costs incurred by the state or any other person that are attributable to or associated with the Site and for natural resources damages. Parties are liable as PRPs if they owned or operated a facility at the time of the release of hazardous substances, they became the owner or operator after the time of the release but knew or reasonably should have known of the release when they first became the owner or operator, or who obtained actual knowledge of the release and subsequently transferred ownership or operation without disclosing such knowledge, or if they caused or exacerbated the release or unlawfully hindered or delayed entry to or investigation or removal activities at a facility.

Based on information obtained from the RI/FS currently being performed for the Site and other extensive data collection and evaluation efforts undertaken to date, one or more participants in the Convening Group believe that you or your company are potentially responsible for response costs incurred and being incurred at the Site under Section 107(a) of CERCLA and ORS 465.255. A narrative summary of information about your facility and its relationship to the Site is enclosed with this letter. Additional specific information regarding your relationship to the Site will be available for review at the February 13, 2008 convening meeting.

ADR Confidential Communication

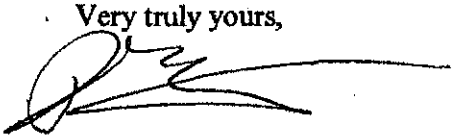
The February 13, 2008 Convening Meeting

Experience of PRPs at numerous Superfund sites has shown that the early organization of a PRP Group and the effective conduct of allocation discussions are important to successful negotiations with EPA, Natural Resource Trustees and State agencies. Likewise, experience has proven that coordinated efforts by PRPs through an organized PRP Group is often a much less expensive and a much more effective use of resources than litigation to resolve allocation and liability disputes. It is the intention of the members of the Convening Group to provide all parties an opportunity to participate in a fair and equitable process for allocating Site responsibilities and costs and to work together to meet the interests of all parties in future negotiations with federal and state agencies.

Toward these goals, the Convening Group is holding the February 13 convening meeting to provide you and other similarly situated parties the opportunity to learn more about the Portland Harbor Superfund Site and to consider joining in the formation of a PRP Group for the Site. At the meeting you will learn about Site conditions and contamination, EPA and Natural Resource Trustee intentions regarding cleanup of the Site and legal actions and how parties are associated with the Site. You will also learn about how PRPs have met their common interests by organizing and conducting an allocation process at similarly complex Superfund sites. There are no preconditions or commitments required for your attendance at the convening meeting; just your desire to learn about how to take advantage of the opportunity of joining other similarly situated parties in meeting your common interests.

I hope that you will take this opportunity to learn about the Site and pending actions that may affect you in the near future and to consider how to effectively address your potential liability for the Site. I look forward to seeing you on February 13 in Portland. If you have questions, please contact me at (202) 494-8702 (telephone), (301) 907-0240 (fax), or dcbatson@erols.com. All communications with me as a convening neutral are confidential and prohibited from disclosure by federal and state law. Thank you.

Very truly yours,



David C. Batson

Enclosures

Portland Harbor Site Fact Sheet

Narrative Summary of Party Specific Information

CERCLA Section 104(e) Nomination Summary:
Jones Stevedoring Company
Portland Harbor Superfund Site

I. Nominee and Corporate Status

Nominee	Contact Address
Jones Oregon Stevedoring Co.	Clayton R. Jones III President Jones Stevedoring Co. 2323 NW Suffolk St Portland, Oregon 97210

See Attachment 1 for corporate history.

II. Associated Parcel(s)

Parcel Number	Tax ID Number
Terminal 4, Berth 411, Slip 3 1233	R323802 (portion) R323802 R323803

See Attachment 2 (Base Map excerpt).

III. Period and Nature of Operations within Study Area[1]

Parcel Number	Identified Date(s) of Operation	Operations
Terminal 4, Berth 411, Slip 3	1974-1987 1989-1996	Cargo unloading, handling of bulk pencil pitch; maintenance & repair of forklift trucks, vehicles and other stevedoring equipment
1233	At least 1952 - Unknown	Operated terminal, stevedoring loading and unloading container cargo such as grain.

IV. Hazardous Substances Released and Discharge Pathway

Terminal 4: For an approximate nine year period, Jones handled pencil pitch unloading operations at Berth 411 at the Port of Portland's Slip 3 facility at Terminal 4. Pencil pitch is a solid coal tar distillate that was removed from ship holds by way of a clamshell equipped unloading tower. During Jones' operations, at least 25 releases of pencil pitch were documented at the facility, including direct over-water discharges as well as releases to the storm water system. Between 1989 and 1996, Jones operated a maintenance and repair facility at the Terminal 4 gearlocker, presumably for its

[1] Information reported in Sections III and IV is based on currently available documents.

stevedoring equipment. Jones also utilized outside spaces for assembly and disassembly of large equipment during that time. In 1989, Jones was discovered to have dumped an unknown quantity of solvent/degreaser outside of the gearlocker building. Jones' storm water system in the gearlocker area consisted of two discharge points, five catch basins and a steam cleaning pit that discharged to an oil water separator and water treatment unit connected to the municipal sewer.

Parcel 1233: Jones likely provided stevedoring services for loading and unloading barges or other vessels and related maintenance activities. Research into Jones' operations at this facility are ongoing.

V. Information Sources[2]

Blasland, Bouck & Lee, Inc. EE/CA Report, Public Review Draft. 2005.

Jones Oregon Stevedoring Company. NPDES Permit Correspondence. 1996.

Jones Oregon Stevedoring Company. NPDES Permit Correspondence. 1992.

ODEQ. NPDES Permit Correspondence. 1997

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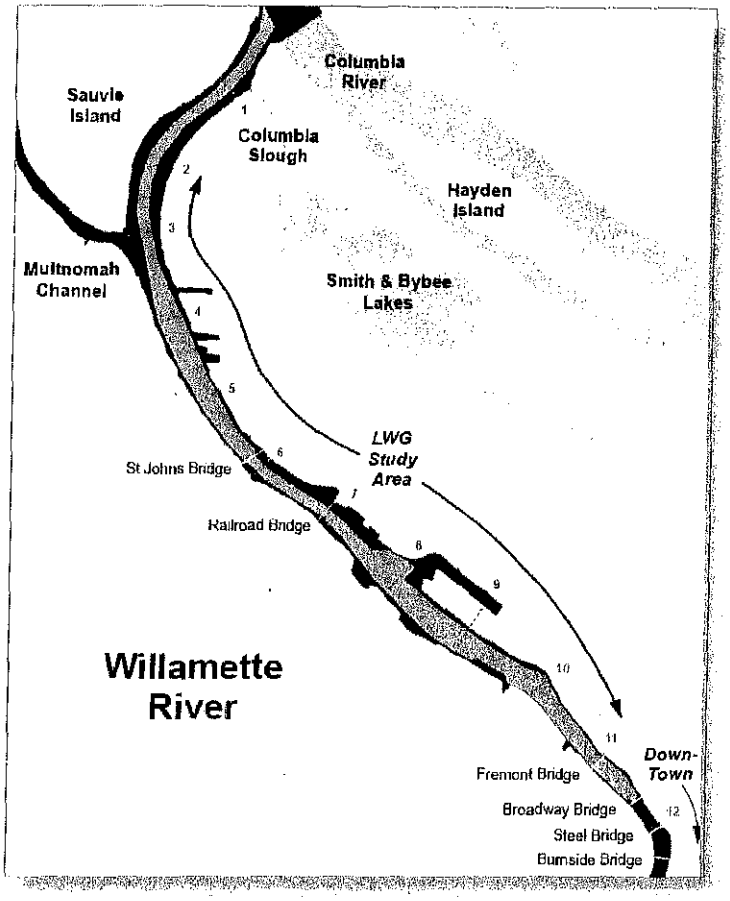
ODEQ. NPDES 1200-Z Permit for Jones Oregon Stevedoring Company. 1992.

Port of Portland. Lease files. Various dates.

US Army Corps of Engineers. Port Series Report. 1954.

[2] Supporting documents to be provided upon request.

PORTLAND HARBOR SUPERFUND SITE



HARBOR INFORMATION

- Heavily industrialized
- Hundreds of outfalls
- Agricultural, industrial, and municipal activities upstream
- Most sediment contamination from historic practices

RIVER CONDITIONS

- 150 years of significant physical changes
- Areas redirected, straightened, filled or deepened by dredging
- Riverbank filled, stabilized and/or engineered for industrial or water-dependent operations
- Riprap, bulkheads and over-water piers and docks
- Federally maintained navigation channel to a level of minus 40 feet

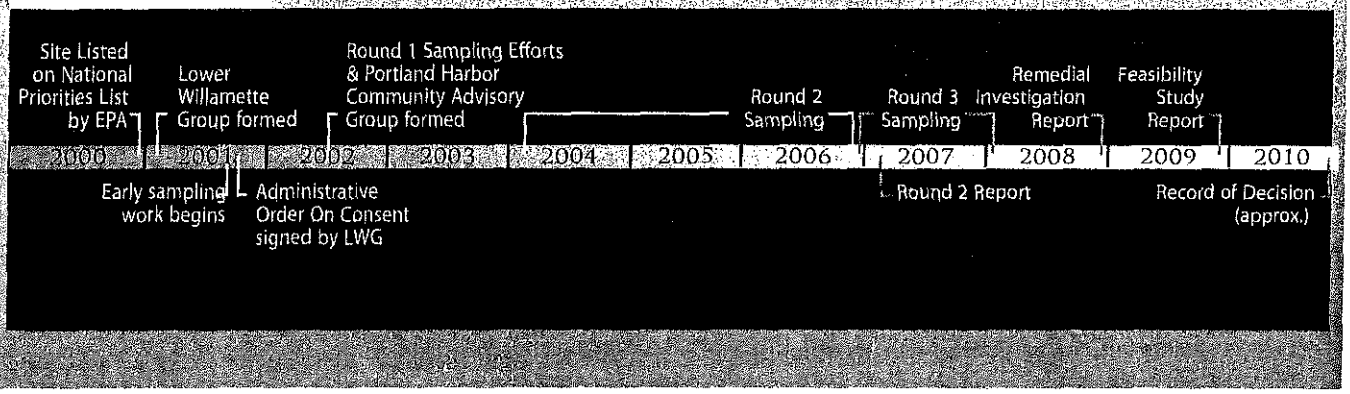
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS)

- Investigate the nature and extent of contamination for the in-water portion of the Site
- Assess potential risk to human health and the environment
- Develop and evaluate preferred remedial alternatives to reduce risks to acceptable levels
- Recommend preferred alternatives for cleanup

GOVERNMENT OVERSIGHT

- In 1997 a joint EPA and DEQ study of sediments in Portland Harbor identified contaminated river sediments.
- On December 1, 2000, the U.S. Environmental Protection Agency (EPA) added the Portland Harbor Site to the National Priorities List (NPL).
- EPA is the lead agency for overseeing the in-water work on contaminated sediments.
- DEQ is the lead agency for upland work and source control along the riverbanks.

TIMELINE



Data so far (Round 2 Report)

- 2,000 individual fish and invertebrate samples
- 1,650 surface sediment chemistry samples
- 1,800 subsurface sediment chemistry samples (from about 660 coring locations)
- Physical system data
- 233 Bioassays
- Habitat Surveys
- 225 transition zone water samples from 108 stations at nine sites
- 130 surface water samples from 25 point and transect stations

Next Steps

- Complete data gathering and analysis
- Human Health and Ecological Risk Assessments
- Remedial Investigation Report
- Feasibility Study
- Record of Decision

Round 2 Report

The Round 2 Comprehensive Site Characterization Summary Report (Round 2 Report) was submitted to EPA and its partners on February 21, 2007. The Report evaluated the physical, chemical and biological information collected to date and identified remaining data gaps for completion of the RI/FS.
The Report:

- Reviewed the investigative activities
- Described the upland and in-water physical characteristics of the Site
- Identified potential historical and current contaminant sources
- Evaluated how chemicals move through the physical system and into fish, wildlife and people
- Summarized the results of the Round 2 preliminary human health and ecological risk assessments (full assessments will be conducted in 2008)

Results

Samples have been analyzed for more than 540 chemicals of interest. The data show Polychlorinated Biphenyls (PCBs) are an important class of chemicals of interest on a site-wide and area-specific basis. Other area-specific chemicals of interest include: arsenic, mercury, pesticides, polycyclic aromatic hydrocarbons (PAHs), petroleum, phthalates (found in plastics), dioxins and furans. The next steps will be to determine which chemicals are posing risks to human and ecological health through conducting more detailed Risk Assessments.

DEQ and Source Control

In December 2005 DEQ and EPA issued the Final Portland Harbor Joint Source Control Strategy. DEQ has identified more than 70 upland sites that may be potential sources of contaminants in the Portland Harbor. As of July 2007 DEQ categorized 76 sites into the following source control categories:

- High Priority Sites (8)
- Preliminary High Priority Sites (10)
- Medium Priority Sites (12)
- Low Priority Sites (25)
- Priority "To be Determined" Sites (5)
- Sites with Source Control Decisions (16)

DEQ and the City of Portland entered into an Intergovernmental Agreement in 2003 to work together to identify and control current sources of contamination to the Willamette River via the municipal stormwater system.

Natural Resource Damage

The natural resource trustees are the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Nez Perce Tribe, the U.S. Department of the Interior, Oregon Department of Fish and Wildlife and the National Oceanic and Atmospheric Administration.

The Natural Resource Damage trustees established a Trustee Council to conduct activities associated with a natural resource damage assessment for the site. The Trustee Council prepared a Preassessment Screen in January 2007 and issued a notice of intent to perform an Injury Assessment for the Portland Harbor Superfund Site in January 2008.

ADDITIONAL INFORMATION: Extensive information is available online at EPA and DEQ websites such as maps, facts sheets, community involvement plans, general information and technical documents including the entire Round 2 Report.

EPA Region 10 Website for Portland Harbor: http://yosemite.epa.gov/r10/cleanup.nsf/webpage/Oregon+Cleanup+Sites

DEQ Website for Portland Harbor: http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/index.htm

LWG
LOWER WILLAMETTE GROUP

Co-Chairperson: Jim McKenna, Port of Portland
Co-Chairperson: Bob Wyatt, NW Natural
Treasurer: Fred Wolf, Legacy Site Services for Arkema

July 5, 2007

David Fournier
Jones Stevedoring Company
7245 W Marginal Way SW
Seattle, WA 98106

Re: Portland Harbor Superfund Site

There will be a briefing on Tuesday July 31, 2007 from 1:00pm - 3:00pm by representatives of the Lower Willamette Group (LWG) on the Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report.

The briefing will be held at the offices of Miller Nash, 111 SW 5th Ave, Suite 3400, Portland, OR 97204.

Please RSVP to Valerie Oster, LWG Project Coordinator, at voster@anchorenv.com.

CLAIMS DEPT.
JUL 10 2007
R.S.S.C.

CERCLA Section 104(e) Nomination Summary:
Jones Stevedoring Company

Portland Harbor Superfund Site

I. Nominee and Corporate Status

Nominee	Contact Address
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stevedoring equipment. Jones also utilized outside spaces for assembly and disassembly of large equipment during that time. In 1989, Jones was discovered to have dumped an unknown quantity of solvent/degreaser outside of the gearlocker building. Jones' storm water system in the gearlocker area consisted of two discharge points, five catch basins and a steam cleaning pit that discharged to an oil water separator and water treatment unit connected to the municipal sewer.

Parcel 1233: Jones likely provided stevedoring services for loading and unloading barges or other vessels and related maintenance activities. Research into Jones' operations at this facility are ongoing.

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Port of Portland. Lease files. Various dates.

US Army Corps of Engineers. Port Series Report. 1954.

[2] Supporting documents to be provided upon request.

JONES OREGON STEVEDORING C
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JO S WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT ACTION COPY

ROUTE NOTED

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TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

05/02/89
SENT BY FAX TO P.O.P
DATE 5/4/89 TIME 10:02

FROM: JONES OREGON STEVEDORING COMPANY
GEORGE VASS

TO SUMMARIZE OUR DISCUSSION ON TUESDAY, 05/02/89.

1. ADDITIONAL LIGHTING AT BERTHS 406, 407 and 408.
YOU ARE IN THE PROCESS OF REPLACING BURNED OUT LIGHTS.

2. CAPACITIES AND EPA REQUIREMENTS OF FUEL TANKS.
YOU INDICATED THAT YOU WERE UNABLE TO OBTAIN CAPACITY INFORMATION. I BELIEVE WE DISCOVERED, THROUGH AN ALTERNATE SOURCE, THAT THEY ARE 40,000 GALLON TANKS. SECONDLY, THE EPA REQUIREMENTS ARE AN ISSUE THAT THE PORT IS GOING TO HAVE TO DEAL WITH IN ORDER TO MEET TIME FRAME GUIDELINES.

3. OUTDOOR TELEPHONE RECEPTACLES.
YOU ARE WORKING ON GETTING A PLYWOOD BACKING FOR TWO OF THE THREE OUTDOOR RECEPTACLES AT BERTHS 406 AND 407.

4. CLEARING THE CEMENT WALL AREA.
I UNDERSTAND THAT YOU WOULD LIKE TO CLEAN THE OUTLOADER ONE MORE TIME AND WOULD LIKE TO USE THE CEMENT WALL AREA THROUGH THE MONTH OF MAY. THIS IS AGREEABLE TO US.

5. PUMP OIL STORAGE TANKS.
YOU ARE VERIFYING IF THIS HAS BEEN COMPLETED.

6. BATHROOM CEILING AT GEARLOCKER.
THE CEILING IS OPEN AND NEEDS TO BE CLOSED UP.

7. HEATER.
THE HEATER STILL DOES NOT WORK IN THE GEARLOCKER REMODELED OFFICE.

SOME OTHER ITEMS ARE:

8. PAVING.
NO DECISIN AS YET AS TO WHETHER P.O.P. WILL COMPLETE PAVING (04/21/89 FAX). THIS MIGHT BE A NICE TRADE-OFF FOR USE OF CEMENT WALL AREA.

9. LEAK.
THE ROOF LEAK (04/21/89 FAX) STILL LEAKS. THE LAST RAIN CREATED A SMALLER PUDDLE THAN BEFORE.

THANKS FOR THE HELP.

GDV/pag
cc: BOB MARACLE

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COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
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(206) 763-1130

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CC LV
CC CB

TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

06/28/89
SENT BY FAX TO POP/Salo
DATE 6/28/89 TIME 1:46

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

MYRON, I NEED YOUR ASSISTANCE ON SEVERAL OUTSTANDING JOBS. WHILE SOME ARE FAIRLY RECENT, OTHERS HAVE BEEN IN PROCESS FOR SOME TIME. IT MIGHT BE LESS TIME CONSUMING IF YOU COULD COME UP WITH SOME ESTIMATED DUE DATES ON THESE ITEMS.

CURRENTLY, I HAVE AS OUTSTANDING.	POP NOTIFICATION
1. FENCE IN LOFT AT GEARLOCKER NEEDS REPAIR.	04/24/89 FAX
2. ADDITIONAL LIGHTING OR REPAIR WHAT IS THERE (BERTHS 406, 407, 408).	02/24/89 FAX
3. LARGE HOIST AT GEARLOCKER NEEDS REPAIR. FIXED ONCE, NOW A BAD PUMP.	06/08/89 VASS/SALO
4. PAVING SOUTH ENTRANCE TO GEARLOCKER.	04/21/89 FAX
5. CLEARING THE CEMENT WALL AREA.	04/12/89 FAX
6. INCREASE SIZE OF SECURE AREA.	04/12/89 FAX
7. PIPE LEAK IN MEN'S RESTROOM AT SUPERINTENDENTS OFFICE AT BERTH 415.	06/14/89 VASS/SALO
8. TEAR OLD SHED DOWN NEAR GEARLOCKER.	*
9. THREE GATES TO PROVIDE SECURITY AT GEARLOCKER LOCATION. (THIS ONE IS CRITICAL. WE INITIALLY WERE ASKING FOR TWO GATES AND ONLY RECENTLY REQUESTED THREE.)	*
10. REGISTERING OF UNDERGROUND STORAGE TANKS. (RECEIVED YOUR REPLY 06/26 THAT R. KORVOLA WORKING ON.)	06/19/89 VASS/SALO
11. WASH DOWN LEFT PENCIL PITCH IN LOW AREAS BETWEEN HALL BUCK AND OUR GEARLOCKER. (YOU ASKED ME TO CONTACT HALL BUCK DIRECTLY AND THEY WOULD INTERFACE WITH YOU. I CALLED KERMIT PETRIE AND HE INDICATED HE WOULD ARRANGE TO HAVE IT CLEANED UP 06/28. I AM REALLY CONCERNED REGARDING THIS ONE AS IT COULD LEAD TO A HEALTH AND SAFETY/LABOR DISPUTE.)	06/27/89 VASS/SALO

I APPRECIATE YOUR HELP ON THE MANY OTHER JOBS THAT HAVE ALREADY BEEN COMPLETED AT TERMINAL 4 AND AM REQUESTING YOUR CONTINUED ASSISTANCE ON THOSE REMAINING.

*AGREED TO WITH POP VERBALLY PRIOR TO MOVING INTO GEARLOCKER 05/01/89.

BEST REGARDS,

Thanks

George

GV/pag
cc: DOUG BEEBER/BOB MARACLE
JEFF GARRETT

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER · OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND · WASHINGTON COAST
(206) 763-1130

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ACTION CO

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- ☐ PA
- ☐ SAFETY
- ☐ CLAIMS
- ☐ RRM
- ☐ CC LV
- ☐ CC CB
- ☐
- ☐

SENT BY FAX TO POP
DATE 7/12/89 TIME 3:40

07/12/89

TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

MYRON, AS WE DISCUSSED BY TELEPHONE THIS MORNING, I NEED YOUR ASSISTANCE IN COORDINATING THE REMOVAL OF THE TRANSFORMERS STORED IN THE YARD AT THE GEARLOCKER AT TERMINAL 4.

ABOUT A HALF DOZEN TRANSFORMERS WERE IN THE YARD WHEN WE MOVED IN MAY 1, 1989. WHILE THERE HAS BEEN SOME PCB CONCERN TO NOW, I HAVE ASSURED OUR PEOPLE THAT THE PORT WAS WORKING ON GETTING THESE REMOVED.

WE WERE PLEASED TO SEE WILHELM TRANSFER TRUCKS SHOW UP THIS MORNING BECAUSE WE THOUGHT THEY HAD COME TO REMOVE THE TRANSFORMERS. TO THE CONTRARY, THEY DELIVERED SEVEN (7) WET AND LEAKING TRANSFORMERS TO SIT ALONG SIDE THOSE ALREADY THERE. (I UNDERSTAND THE SEVEN NEW ONES CAME FROM THE AIRPORT.)

I AM SURE YOU CAN APPRECIATE THE CALLS I AM RECEIVING. I WOULD LIKE TO RESPOND WITH A REMOVAL DATE. THAT'S WHERE I NEED YOUR HELP. PLEASE SUPPLY ME WITH A DATE WHEN THESE WILL BE RETRIEVED BY THE PORT.

THANKS FOR YOUR HELP.

George

GV/pag

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TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

07/20/89

SENT BY FAX TO ROP
DATE 7/20/89 TIME 4:45

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

MYRON, THANKS FOR THE HELP ON ALL THE OUTSTANDING JOBS AT TERMINAL 4. RECENTLY COMPLETED WERE:

1. REPAIRED LARGE HOIST AT MECHANIC SHOP.
2. INCREASED SIZE OF SECURE AREA.
3. INSTALLED 3 GATES TO MECHANIC YARD.
4. REMOVED PENCIL PITCH SPILL.
5. REMOVED TRANSFORMERS.
6. PIPE LEAK IN RESTROOM AT BERTH 415.

STILL OUTSTANDING ARE:	POP NOTIFICATION
1. FENCE IN LOFT AT MECHANIC'S SHOP NEEDS REPAIR	04/24/89 FAX
2. LIGHTING AT BERTHS 406, 407 AND 408	04/24/89 FAX
3. PAVING SOUTH SECTION OF MECHANIC'S YARD	04/21/89 FAX
4. CLEARING THE CEMENT WALL AREA	04/12/89 FAX
5. TEAR DOWN OLD SHED IN MECHANIC'S YARD	*
6. REGISTERING OF UNDERGROUND STORAGE TANKS - COMPLIANCE DUE BY 08/01/89	06/19/89 VASS/SALO

IN TERMS OF PRIORITY, ITEMS 4, 5, AND 6 SHOULD BE COMPLETED BEFORE ITEMS 1, 2, AND 3.

I WOULD LIKE TO PASS ALONG ESTIMATED COMPLETION DATES TO MY BOSS AND TO BOB MARACLE. YOUR ASSISTANCE WOULD BE APPRECIATED.

Thanks -

George

*AGREED TO WITH POP VERBALLY PRIOR TO MOVING INTO MECHANIC SHOP 05/01/89.

GV/pag
cc: BOB MARACLE, JONES OREGON
cc: DOUG BEEBER, JONES OREGON
cc: JEFF FANTAZIA, OREGON TERMINAL

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DO NOT SAY IT - WRITE IT

TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

07/27/89

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

THANKS FOR YOUR FAX OF 07/24 WITH THE STATUS ON OUTSTANDING JOBS AT T-4.

I NEED YOUR HELP ON TWO ADDITIONAL ITEMS. (THAT'S WHAT YOU GET FOR DOING SUCH A GOOD JOB.)

1. THERE IS A ROOF LEAK IN THE WELDING AREA ATTACHED TO THE MECHANIC SHOP AT T-4. WHEN IT RAINS WATER LEAKS THROUGH ON THE INSULATION WHERE IT BECOMES ENTRAPPED. THE WEIGHT OF THE WATER CAUSES THE INSULATION TO SAG DRASTICALLY. IT IS INEVITABLE THAT THIS IS GOING TO EVENTUALLY BREAK THROUGH AND THE VOLUME OF WATER AND INSULATION IS LIKELY TO CAUSE INJURY.

2. WE ARE CURRENTLY USING OUR STEAM CLEANER AT THE PREVIOUSLY EXISTING P.O.P. STEAM CLEANING SITE. THIS IS ONLY TEMPORARY AND WOULD LIKE YOUR ASSISTANCE IN LOCATING A PERMANENT SITE. WE THINK EITHER BY THE FRONT GATE OF THE MECHANIC YEARD OR IN THE CEMENT WALL AREA. MY MAIN CONCERN IS CLOSE PROXIMITY TO SEWER TO DISPOSE OF THE CLEANSED WATER.

Thanks-

George

GV/pag

JONES OREGON STEVEDORING C
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JO S WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

ACTION COPY

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TO: PORT OF PORTLAND
ATTN: LEE ROUNDTREE
FAX: 231-5310

01/02/90
SENT BY FAX TO POP
DATE 1/3/90 TIME 2:13

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

RE: AVAILABILITY OF ELECTRICIAN SHOP AT TERMINAL 4 GEARLOCKER

JUST A QUICK NOTE TO CONFIRM OUR TELEPHONE CONVERSATION REGARDING THE AVAILABILITY OF THE ELECTRICIANS' SHOP AT THE TERMINAL 4 GEARLOCKER.

- I WISH TO USE THIS SPACE TO HOUSE SOME EQUIPMENT NECESSARY FOR OUR OIL SEPARATION OPERATION.

- YOU WILL BE MEETING WITH FELIX MORALES ON WEDNESDAY TO DISCUSS THIS SUBJECT.

- I PLAN TO KEEP THINGS MOVING FROM A CONSTRUCTION PLANNING STANDPOINT BECAUSE IT APPEARS OPTIMISTIC THE MOVE WILL BE TAKING PLACE.

- OUR BOB MARACLE IS ASSUMING RESPONSIBILITY FOR REVIEWING A CRANE MAINTENANCE PROCEDURE THAT JEFF FANTAZIA WAS PREVIOUSLY WORKING ON.

PLEASE CALL ME IF I HAVE MIS-STATED ANYTHING.

Thanks -

George

GDV/pag
cc: BOB MARACLE
cc: DAVE MADILL

JONES OREGON STEVEDORING CO
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

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- ☐ PA
- ☐ SAFETY
- ☐ CLAIMS
- ☒ RRM ✓
- ☐ CC LV
- ☐ CC CB
- ☐
- ☐

TO: PORT OF PORTLAND
ATTN: DAVE MADILL
FAX: 231-5493

01/23/90
SENT BY FAX TO POP
DATE 1/23/90 TIME 1:00

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

RE: ANNUAL INSPECTION

I HAVE SPOKEN WITH JON WALSH REGARDING OUR ANNUAL INSPECTION AND HE SUGGESTED THAT I REVIEW THE MANAGEMENT AGREEMENT TO SEE IF IT PROVIDED ANY INSIGHT TO THE REPAIR OF THE RAMP-LIFT AT THE GEARLOCKER. LISTED BELOW IS WHAT I FOUND.

EQUIPMENT - PAGE 7-8; IT DOES NOT APPEAR TO DEAL WITH ANYTHING EXCEPT THE TWO CRANES IN TERMS OF EQUIPMENT ON PREMISES AT THE TIME OF SIGNING THE AGREEMENT. ADDITIONAL EQUIPMENT "SHALL BE FURNISHED AND COMPLETELY MAINTAINED BY OTC."

MAINTENANCE - PAGE 10; "OTC SHALL KEEP AND MAINTAIN EQUIPMENT PROVIDED BY OTC," WHICH AGREES WITH THE WORDING IN "EQUIPMENT".

Good Summary for our position

WHAT ABOUT EQUIPMENT ALREADY IN PLACE? "THE PORT SHALL MAINTAIN THE PREMISES AT ITS OWN EXPENSE IN A CONDITION EQUAL TO THE CONDITION WHICH THE PORT PROVIDES THE PREMISES TO OTC."

PREMISES - PAGE 2; "THE PREMISES SHALL CONSIST OF . . . A GEAR-LOCKER BUILDING . . . "

THE CONTRACT SEEMS TO SAY THAT THE GEARLOCKER IS INCLUDED AS PART OF THE PREMISES. WHILE IT DOES NOT MENTION THE EQUIPMENT INSIDE THE GEARLOCKER, IT DOES MAKE SPECIFIC REFERENCE TO OTC MAINTAINING EQUIPMENT WHICH OTC FURNISHES THEREBY INFERRING A DIFFERENT MAINTENANCE PROCEDURE FOR PORT PROVIDED EQUIPMENT.

AS YOU STATED IN OUR TELEPHONE CONVERSATION, THE RAMP-LIFT DID WORK PROPERLY WHEN WE TOOK OVER THE GEARLOCKER. IT HAS BEEN SINCE THEN THAT NORMAL WEAR AND TEAR HAS CAUSED IT TO LEAK CREATING A SAFETY HAZARD UNLESS JACKS ARE USED.

AFTER YOU HAVE HAD A CHANCE TO LOOK AT THIS AND GIVE IT YOUR CONSIDERATION, PLEASE GIVE ME A CALL TO DISCUSS.

Thanks -

GV/pag

JONES OREGON STEVEDORING C
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
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SENT BY FAX TO RDP
DATE 4/16/90 TIME 11:25

04/16/90

TO: MR. DAVE MADILL
PORT OF PORTLAND
FAX: 231-5493

FROM: JONES OREGON STEVEDORING COMPANY - GEORGE VASS

Dear Dave:

In regard to your question of whether the mechanic shop at Terminal 4 uses the waste oil tank, the answer is yes.

I discussed this with Bob Maracle and he indicates they use it heavily. When it fills, he calls Spencer Environmental to come out and pump it out. Depending upon the price of crude oil, Environmental will charge, not charge, or pay us.

You indicated that you were planning to remove the underground tank in the future and would I be interested in purchasing an above the ground tank. I am hoping that page 10 of the contract will allow you to not charge me for the new tank (see attached).

Let me know what you think.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

George

G. D. Vass, Jr.
Manager, Administration

GDV/pag

P.S. Yes: Is the tank in the "premises"? If so, the guardshack is part of the premises.

OREGON STEVEDORING CO.
MBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
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(206) 763-1130

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☒ CCB Last

FROM: Corby Buswell 06/01/90

TO: Peggy Armstrong, Bob Maracle, Ron Dickinson

RE: Port of Portland Fuel Purchases

Starting June 1, we will provide the Port of Portland fueling privileges at Terminal 4. A probation period of 90 days has been established for this offering. An evaluation after this period will determine if we will continue to provide this service.

An outline of the procedure is as follows:

1. Fuel dispensing will be done by Mechanic Shop Personnel ONLY.

2. An accurate (legible) notation of meter readings will be entered, by Mechanic Shop personnel, into the appropriate fuel log along with:

   a. Port of Portland vehicle number.
   b. Legible signature of vehicle driver.
   c. The amount of fuel the Port purchases, expressed to the nearest 1/10th of a gallon (liter).
   d. Initial of JOS employee who dispensed fuel.
   e. Date.

3. Early each month the transactions made by the Port of Portland will be extracted from the fuel logs by JOS Administration personnel and clearly presented to the Accounting Department for billing.

4. Prices of fuel will be calculated by Peggy Armstrong based on what we paid for the fuel.

5. Road taxes, fuel taxes, refunds, etc. for fuel purchased by the Port of Portland is the responsibility of the Port of Portland. They need to file PUC reports, and the like, in the same manner they do now.

WE BUY & SELL PRE-TAX - WE PAY OUR TAX AFTER THE FACT BASED ON MILEAGE - [signature]

CCB/pag

WE will implement on a 90-DAY trial - [signature]

JONES OREGON STEVEDORING C
COLUMBIA RIVER - OREGON COAST
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JC S WASHINGTON STEVEDORING CO.
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- ☐

FROM: Corby Buswell 08/09/90

TO: Bob Maracle

RE: Port of Portland - Fuel Purchases

The fueling privileges that have been extended to the Port of Portland are generally going well. There is one concern, however, that should be addressed; the Port of Portland driver's signature.

In most cases the signature appears in the fuel log and is somewhat legible, but there are a couple of instances where this <u>important</u> feature is missing.

In the future, let's get <u>all</u> fuel purchases signed for and in a <u>legible</u> fashion. If this requires the person to print their name above or below their signature then implement a procedure to do this.

If you have any questions, please call.

CCB/pag

Jon,
This should eliminate the "N/A's" from the P.O.P. fuel purchase summary.
CB

Thanks

ADR Confidential Communication

DAVID C. BATSON, ESQ.
CONVENING NEUTRAL
5526 Uppingham Street
Chevy Chase, MD 20815-5508
202/494-8702 Fax 301/907-0240
dcbatson@erols.com

January 23, 2008

Mr. Clayton R. Jones III
Oregon Terminal Company
P. O. Box 10167
Portland, OR 97210

Re: Convening Meeting for Portland Harbor Superfund Site
February 13, 2008; Portland, Oregon

Dear Mr. Jones III,

I am writing to invite you or a representative of your company to an informational meeting of parties identified as associated with the Portland Harbor Superfund Site ("Site") located in the lower Willamette River near Portland, Oregon. The meeting will be held on February 13, 2008 in the 4th Floor Hospitality Room of NW Natural Company located at 220 NW 2nd Avenue in Portland, Oregon. Sign-in for the meeting will commence at 9:30, presentations will begin at 10:00, and the meeting will be completed by 4:00. After reading the information below, I hope that you will be interested in attending the meeting.

First, allow me to introduce myself. I am serving as a convening neutral (convenor) assisting parties to explore ways to support their common interests regarding the Site. As the convenor, I serve as a confidential neutral professional and assist parties to prepare for eventual negotiations with federal and state agencies through organizing into a group of potentially responsible parties (PRPs) and conducting an allocation of site costs among parties associated with the Site. I serve at the discretion of an initial group of parties (the "Convening Group") brought together by the U. S. Environmental Protection Agency ("EPA") for the purpose of exploring the creation of a PRP Group.

Site Background

In December of 2000, EPA listed the Site on the National Priorities List as a federal Superfund site. The study area for the Site encompasses a stretch of the lower Willamette River, from approximately river mile (RM) 2 to RM 11. A summary fact sheet regarding the Site is attached for your information. In that same month, EPA also sent out nearly seventy General Notice Letters ("GNLs) informing PRPs that they may be liable for money expended by EPA for response actions at the Site under the comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"). EPA sent additional GNLs in April 2006. EPA is continuing its PRP search and has stated that it intends to issue GNLs to additional parties during 2008.

In 2001, a remedial investigation and feasibility study (RI/FS) began at the Site and continues to the present. An extensive amount of information and data has been generated during the RI/FS concerning the nature, extent and sources of contamination at the Site. EPA has stated that it anticipates issuing a Record of Decision specifying necessary cleanup actions for the Site in late 2010.

EPA has stated that it intends to send out Special Notice Letters providing PRPs the opportunity to negotiate a Consent Decree to pay any outstanding EPA oversight or removal action costs and to perform or pay for the remedial action selected for the Site within 60 days of issuing the Record of Decision. Therefore, EPA counsel has advised the Convening Group that all PRPs associated with the Site need to be ready to enter into consent decree settlement negotiations with EPA by early 2011. The Agency has stated it will initiate enforcement action against non-settling parties.

Liability

As you may know, under Section 107(a) of CERCLA, PRPs may be held jointly and severally liable for all costs incurred by EPA and other PRPs (including interest) in responding to releases or threats of releases of hazardous substances at the Site. Under CERCLA, PRPs include a wide variety of parties associated with contamination found at the Site, include current and former owners and operators of facilities, persons who arranged for treatment and/or disposal of any hazardous substances, and persons who accepted hazardous substances for transport and selected where the hazardous substances were delivered. In addition under CERCLA, PRPs are responsible for costs associated with the restoration of natural resources damaged by hazardous substances at the site.

Under ORS 465.255, PRPs strictly liable for remedial action costs incurred by the state or any other person that are attributable to or associated with the Site and for natural resources damages. Parties are liable as PRPs if they owned or operated a facility at the time of the release of hazardous substances, they became the owner or operator after the time of the release but knew or reasonably should have known of the release when they first became the owner or operator, or who obtained actual knowledge of the release and subsequently transferred ownership or operation without disclosing such knowledge, or if they caused or exacerbated the release or unlawfully hindered or delayed entry to or investigation or removal activities at a facility.

Based on information obtained from the RI/FS currently being performed for the Site and other extensive data collection and evaluation efforts undertaken to date, one or more participants in the Convening Group believe that you or your company are potentially responsible for response costs incurred and being incurred at the Site under Section 107(a) of CERCLA and ORS 465.255. A narrative summary of information about your facility and its relationship to the Site is enclosed with this letter. Additional specific information regarding your relationship to the Site will be available for review at the February 13, 2008 convening meeting.

ADR Confidential Communication

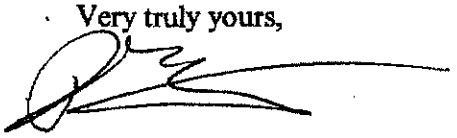
The February 13, 2008 Convening Meeting

Experience of PRPs at numerous Superfund sites has shown that the early organization of a PRP Group and the effective conduct of allocation discussions are important to successful negotiations with EPA, Natural Resource Trustees and State agencies. Likewise, experience has proven that coordinated efforts by PRPs through an organized PRP Group is often a much less expensive and a much more effective use of resources than litigation to resolve allocation and liability disputes. It is the intention of the members of the Convening Group to provide all parties an opportunity to participate in a fair and equitable process for allocating Site responsibilities and costs and to work together to meet the interests of all parties in future negotiations with federal and state agencies.

Toward these goals, the Convening Group is holding the February 13 convening meeting to provide you and other similarly situated parties the opportunity to learn more about the Portland Harbor Superfund Site and to consider joining in the formation of a PRP Group for the Site. At the meeting you will learn about Site conditions and contamination, EPA and Natural Resource Trustee intentions regarding cleanup of the Site and legal actions and how parties are associated with the Site. You will also learn about how PRPs have met their common interests by organizing and conducting an allocation process at similarly complex Superfund sites. There are no preconditions or commitments required for your attendance at the convening meeting; just your desire to learn about how to take advantage of the opportunity of joining other similarly situated parties in meeting your common interests.

I hope that you will take this opportunity to learn about the Site and pending actions that may affect you in the near future and to consider how to effectively address your potential liability for the Site. I look forward to seeing you on February 13 in Portland. If you have questions, please contact me at (202) 494-8702 (telephone), (301) 907-0240 (fax), or dcbatson@erols.com. All communications with me as a convening neutral are confidential and prohibited from disclosure by federal and state law. Thank you.

Very truly yours,

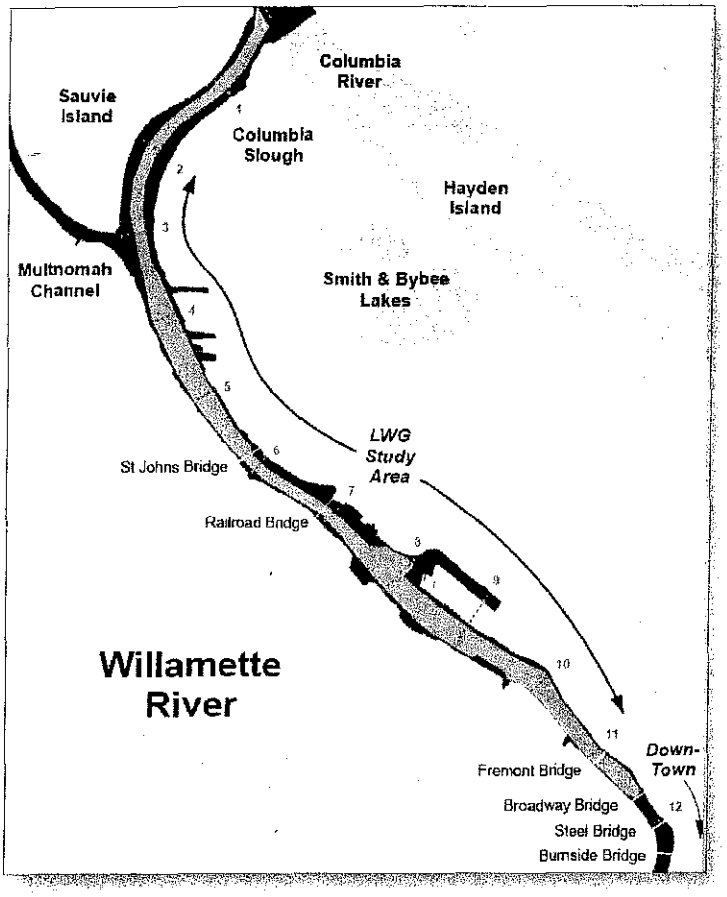


David C. Batson

Enclosures

Portland Harbor Site Fact Sheet
Narrative Summary of Party Specific Information

PORTLAND HARBOR SUPERFUND SITE



HARBOR INFORMATION

- Heavily industrialized
- Hundreds of outfalls
- Agricultural, industrial, and municipal activities upstream
- Most sediment contamination from historic practices

RIVER CONDITIONS

- 150 years of significant physical changes
- Areas redirected, straightened, filled or deepened by dredging
- Riverbank filled, stabilized and/or engineered for industrial or water-dependent operations
- Riprap, bulkheads and over-water piers and docks
- Federally maintained navigation channel to a level of minus 40 feet

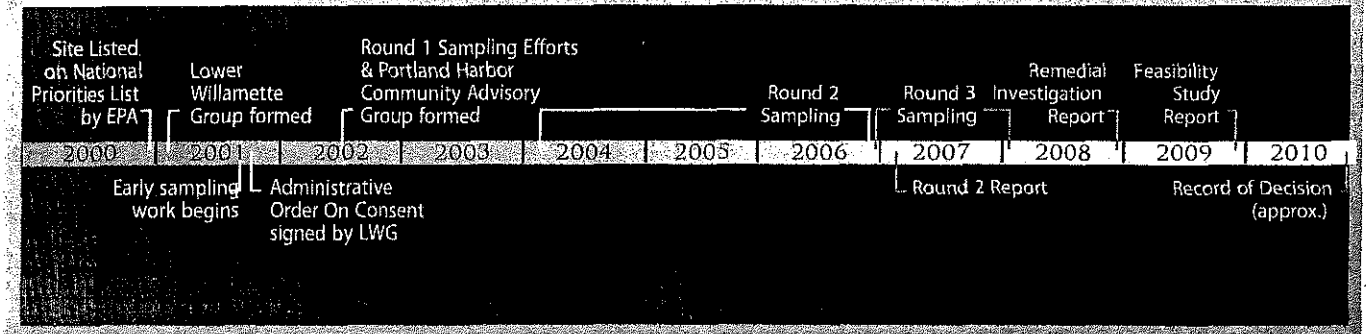
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS)

- Investigate the nature and extent of contamination for the in-water portion of the Site
- Assess potential risk to human health and the environment
- Develop and evaluate preferred remedial alternatives to reduce risks to acceptable levels
- Recommend preferred alternatives for cleanup

GOVERNMENT OVERSIGHT

- In 1997 a joint EPA and DEQ study of sediments in Portland Harbor identified contaminated river sediments.
- On December 1, 2000, the U.S. Environmental Protection Agency (EPA) added the Portland Harbor Site to the National Priorities List (NPL).
- EPA is the lead agency for overseeing the in-water work on contaminated sediments.
- DEQ is the lead agency for upland work and source control along the riverbanks.

TIMELINE



DATA SO FAR (ROUND 2 REPORT)

- 2,000 individual fish and invertebrate samples
- 1,660 surface sediment chemistry samples
- 1,800 subsurface sediment chemistry samples (from about 660 coring locations)
- Physical system data
- 233 Bioassays
- Habitat Surveys
- 225 transition zone water samples from 108 stations at nine sites
- 130 surface water samples from 25 point and transect stations

NEXT STEPS

- Complete data gathering and analysis
- Human Health and Ecological Risk Assessments
- Remedial Investigation Report
- Feasibility Study
- Record of Decision

ROUND 2 REPORT

The Round 2 Comprehensive Site Characterization Summary Report (Round 2 Report) was submitted to EPA and its partners on February 21, 2007. The Report evaluated the physical, chemical and biological information collected to date and identified remaining data gaps for completion of the RI/FS. The Report:

- Reviewed the investigative activities
- Described the upland and in-water physical characteristics of the Site
- Identified potential historical and current contaminant sources
- Evaluated how chemicals move through the physical system and into fish, wildlife and people
- Summarized the results of the Round 2 preliminary human health and ecological risk assessments (full assessments will be conducted in 2008)

RESULTS

Samples have been analyzed for more than 540 chemicals of interest. The data show Polychlorinated Biphenyls (PCBs) are an important class of chemicals of interest on a site-wide and area-specific basis. Other area-specific chemicals of interest include: arsenic, mercury, pesticides, polycyclic aromatic hydrocarbons (PAHs), petroleum, phthalates (found in plastics), dioxins and furans. The next steps will be to determine which chemicals are posing risks to human and ecological health through conducting more detailed Risk Assessments.

DEQ and Source Control

In December 2005 DEQ and EPA issued the Final Portland Harbor Joint Source Control Strategy. DEQ has identified more than 70 upland sites that may be potential sources of contaminants in the Portland Harbor. As of July 2007 DEQ categorized 76 sites into the following source control categories:

- High Priority Sites (8)
- Preliminary High Priority Sites (10)
- Medium Priority Sites (12)
- Low Priority Sites (25)
- Priority "To be Determined" Sites (5)
- Sites with Source Control Decisions (16)

DEQ and the City of Portland entered into an Intergovernmental Agreement in 2003 to work together to identify and control current sources of contamination to the Willamette River via the municipal stormwater system.

NATURAL RESOURCE DAMAGES

The natural resource trustees are the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Nez Perce Tribe, the U.S. Department of the Interior, Oregon Department of Fish and Wildlife and the National Oceanic and Atmospheric Administration.

The Natural Resource Damage trustees established a Trustee Council to conduct activities associated with a natural resource damage assessment for the site. The Trustee Council prepared a Preassessment Screen in January 2007 and issued a notice of intent to perform an Injury Assessment for the Portland Harbor Superfund Site in January 2008.

ADDITIONAL INFORMATION: Extensive information is available online at EPA and DEQ websites such as maps, facts, sheets, community involvement plans, general information and technical documents including the entire Round 2 Report.

EPA Region 10 Website for Portland Harbor: http://yosemite.epa.gov/r10/cleanup.nsf/webpage/Oregon+Cleanup+Sites

DEQ Website for Portland Harbor: http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/index.htm

CERCLA Section 104(e) Nomination Summary: Oregon Terminal Co.

Portland Harbor Superfund Site

I. Nominee and Corporate Status

Nominee	Contact Address
Oregon Terminal Co.	Clayton R. Jones III President Oregon Terminal Co. 2323 NW Suffolk St Portland, Oregon 97210

See Attachment 1 for corporate history.

II. Associated Parcel(s)

Parcel Number	Tax ID Number
231	R323818

See Attachment 2 (Base Map excerpt).

III. Period and Nature of Operations within Study Area[1]

Identified Date(s) of Operation: ~~1985~~-1996 ✓

1/3 1989 –

Operations: Operation of break-bulk berths & gearlocker

POP as Sandblast

IV. Hazardous Substances Released and Discharge Pathway

Oregon Terminal Co. (OTC) occupied the former blending and packaging building constructed at Terminal 4 at the head of Slip 3 by Quaker State in 1985. The facility was converted to use as a gearlocker and electrical shop. In 1988 OTC took over all break-bulk berths at Pier 2 (including Berth 408, the ro-ro dock and associated warehouses). At the time OTC took over Pier 2 operations, a rail-covered work pit was built adjacent to the gearlocker building. Further, two 4,000-gallon USTs were installed for dispensing of gasoline and diesel at a fueling station on the south side of the gearlocker building. Based upon corporate research this entity is likely linked with Jones Stevedoring Co. (See standalone Jones Stevedoring narrative report.) Both have the same president, operated at the former Quaker State building and left the property in 1996.

never used installation pre-dated OTC.

[1] Information reported in Sections III and IV is based on currently available documents.

V. Information Sources[2]

Blasland, Bouck & Lee, Inc. EE/CA Report, Public Review Draft. 2005.

[2] Supporting documents to be provided upon request.

JONES OREGON STEVEDORING C
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JC :S WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

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CC CB
CCB CRB

November 7, 1990

FROM: DAVE BOWMAN

TO: GEORGE VASS

RE: DISPOSAL OF T4 MECHANIC SHOP WASTE (#121)

1. Waste oil (used).
The bids for disposing of the waste engine oil are:

Firm	Per Gallon	Fee	Other
Chempro	500 + Gallons no charge	None	$.17 per gallon of water contained
Riedel	.30	$150	
Spencer	.35 to .50	$10	

2. Waste wash water and oil from steam cleaning operation.
New regulations effective last September classify this waste as hazardous due to the F and D listed solvents present and the possibility of benzene (from gasoline or diesel) contamination. After discussing this waste with five leading disposal firms I contacted the EPA and DEQ and learned that one firm's disposal methods violate regulations, three are borderline, and one, Chempro, clearly meets all requirements without a doubt.

I have contacted Chempro and asked them to send a contract for removal of both waste types (the contract in our possession was made obsolete by the new regulations).

DKB/jj

DAVE 11/7
good job - move ahead with Chempro
Thx George Concur/JW

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
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DO NOT SAY IT - WRITE IT READING FILE

March 26, 1991

FROM: DAVE BOWMAN

TO: GEORGE VASS

RE: GEARLOCKER WASTE OIL TANK REMOVAL (#125)

The tank decommissioning and clean up of the contamination is complete. Final cost is close to my original estimate of $8,000 - $9,000, which was made before the depth and degree of contamination was known. Costs were:

Tank decommissioning:	$3,458.00
Contamination clean-up:	5,974.14
Total	$9,432.14

The site has been certified clean by DEQ and Allied Tank is sending full clean up documentation to DEQ as well as us for record files. Allied Tank has done an outstandingly, thorough and high quality job from start to finish and I recommend them for future projects of this sort.

DKB/jj

ESTABLISHED 1908

READING FILE

JONES OREGON STEVEDORING COMPANY

Affiliated with

JONES WASHINGTON STEVEDORING COMPANY, SEATTLE, WASHINGTON

SERVING ALL OREGON AND WASHINGTON PORTS

P.O. BOX 10167 • PORTLAND, OREGON 97210 • 2323 N.W. SUFFOLK STREET • PHONE (503) 228-6601

May 7, 1991

Mr. Kent Ashbaker
Manager, DEQ Industrial and
On Site water Quality Department
811 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Kent:

This letter is to confirm our earlier conversations and to check and verify our understanding regarding the industries covered by the new storm water discharge/runoff regulation.

In the NPDES Final Regulation Summary (EPA October 31, 1990) Section IV part A titled: "Industries Covered by Regulation: (page 6) it specifically lists by Standard Industrial Classification (SIC) code number and/or by description, all the industrial facilities/activities that are subject to the new regulations. Based on this list and my discussions with you, it is our understanding that the only portion of water transportation facilities/activities (SIC code 44) that are subject to the new regulation are those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

As this is the only area/activities included regarding water transportation facilities/activities (SIC 44) it follows that the other areas/activities of a water transportation facility are not subject to the regulation. These areas/activities may include but are not limited to: docks, wharves, facility railcar switching yards, facility roads, warehouses, grain elevators, bulk loaders, nonhazardous material (ex: molasses) tank farms, truck and railcar loading areas, cargo sorting and storage areas for incoming/ outgoing freight such as autos, steel, lumber, container boxes, logs, chips, paper, cable, trucks, soda, alfalfa cubes, plywood, grain, heavy equipment, aluminum ingots, locomotives, etc. Our understanding as we discussed earlier, is that (for example) lumber/steel stacked at a sawmill/steel mill is subject to the new regulation; whereas lumber/steel stacked at a water transportation facility such as a terminal, is not. In general, the "industrial activity" this regulation appears to target is contaminant

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producing heavy industry and manufacturing, not freight or cargo handling water transportation facilities/activities (SIC code 44) except for those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

We greatly appreciate your written confirmation of our understanding of the new storm water discharge/runoff regulation and request that you note or correct any miscommunication or misinterpretation of the new regulation on our part. Please mail your response to:

Jones Oregon Stevedoring Company
Attn: Dave Bowman
P.O. Box 10167
Portland, Oregon 97210

Thank you for your time and assistance.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

READING FILE

May 11, 1991

FROM: DAVE BOWMAN

TO: GEORGE VASS

RE: STORM WATER DISCHARGE/RUNOFF PERMIT

Section A indicates that JOS must apply for and obtain a permit for those areas that are used for vehicle repair or servicing, such as the mechanics shop at T4.

Section B states that no permits are required for other areas of JOS operations at T4.

DKB/jj

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May 7, 1991

Mr. Kent Ashbaker
Manager, DEQ Industrial and
On Site water Quality Department
811 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Kent:

This letter is to confirm our earlier conversations and to check and verify our understanding regarding the industries covered by the new storm water discharge/runoff regulation.

In the NPDES Final Regulation Summary (EPA October 31, 1990) Section IV part A titled: "Industries Covered by Regulation: (page 6) it specifically lists by Standard Industrial Classification (SIC) code number and/or by description, all the industrial facilities/activities that are subject to the new regulations. Based on this list and my discussions with you, it is our understanding that the only portion of water transportation facilities/activities (SIC code 44) that are subject to the new regulation are those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

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producing heavy industry and manufacturing, not freight or cargo handling water transportation facilities/activities (SIC code 44) except for those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

We greatly appreciate your written confirmation of our understanding of the new storm water discharge/runoff regulation and request that you note or correct any miscommunication or misinterpretation of the new regulation on our part. Please mail your response to:

Jones Oregon Stevedoring Company
Attn: Dave Bowman
P.O. Box 10167
Portland, Oregon 97210

Thank you for your time and assistance.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj

JONES OREGON STEVEDORING
COLUMBIA RIVER · OREGON CO
(503) 228-6601

JONES WASHINGTON STEVEDORING CO
PUGET SOUND · WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT · WRITE IT

READING FILE

May 16, 1991

FROM: DAVE BOWMAN

TO: GEORGE VASS

RE: WRITTEN CONFIRMATION OF STORM WATER DISCHARGE REGULATIONS FOR FAY HARPER, PORT OF PORTLAND

Section A notes the highlighted critical distinctions in the attached "Industries Covered by Regulation" rules that result in the T4 mechanics shop being the only portion of T4 under Jones management that requires a permit.

Section B indicates that a copy of my letter requesting confirmation of the above from Kent Ashbaker, the DEQ manager in charge of enforcing the regulations, is attached along with his reply confirming our interpretation of the regulations.

Section C states that both the regulations and Mr. Ashbaker's confirmation indicate that the mechanics shop is the only portion of Terminal 4 under the Jones Oregon/Port of Portland joint management agreement which requires a storm water discharge permit and that Jones Oregon shall obtain that permit.

DKB/jj

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READING FILE

May 15, 1991

Ms. Fay Harper
Port of Portland
P.O. Box 3529
Portland, Oregon 97208

Dear Fay:

Attached is the "Industries Covered by Regulation" section of the NPDES Storm Water Discharge final regulation summary with the critical distinctions marked with highlighter. Regulated facilities/activities are distinguished by their Standard Industrial Classification (SIC) code number. Water transportation facilities/activities are classified as SIC code number 44. Items 1-7 are not applicable. Item 8 applies to the T4 mechanics shop. Items 9 and 10 are not applicable. Item 11 is not applicable because it specifically lists regulated facilities by SIC code and SIC code 44 is not included.

Also attached is a copy of my letter to Kent Ashbaker (Manager of the Industrial and On Site Section of Water Quality at DEQ and the top authority responsible for enforcing the new EPA regulations 229-6474) requesting confirmation and a copy of his affirmative reply.

The attached information indicates that the mechanics shop is the only portion of Terminal 4 under the Jones Oregon/Port of Portland joint management agreement which requires a storm water discharge permit. Jones Oregon shall obtain that permit.

If I can be of further assistance please contact me at 228-6601 extension 148.

Thank you for your time and consideration.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj
Attachments

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approve or deny a sampling plan. Part 2 must be submitted within 30 months of the date of publication of the final rule.

IV. REQUIREMENTS FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

A. Industries Covered by Regulation[5]

The term "storm water discharge associated with industrial activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant including:

NA ① Facilities subject to National effluent limitation guidelines;

NA ② Facilities classified as Standard Industrial Codes (SIC) 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323), 33, 3441, and 373. (These codes include lumber; paper mills; chemical; petroleum; rubber; leather tanning and finishing; stone, clay, and concrete; metal; enameled iron and metal sanitary ware; and ship/boat manufacturing facilities);

NA ③ Facilities classified as SIC codes 10 through 14 including active and inactive mining and oil and gas operations with contaminated storm water discharges, except for areas of coal mining operations which have been reclaimed and the performance bond has been released by the appropriate SMCRA authority, or non-coal mining operations which have been released from applicable State or Federal reclamation requirements after 30 days after publication of the final regulation (see the description of special application provisions for mining operations and oil and gas operations below);

NA ④ Hazardous waste treatment, storage, or disposal facilities;

NA ⑤ Landfills, land application sites, and open dumps that receive industrial wastes;

NA ⑥ Recycling facilities classified as SIC codes 5015 and 5093. (These codes include metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards);

NA ⑦ Steam electric power generating facilities (including coal handling sites);

THIS DOES APPLY

(8) Vehicle maintenance, equipment cleaning, or airport deicing areas of railroad, mass transit, school bus, trucking and courier services, postal service, water transportation, and airport facilities, and petroleum bulk stations;

NA

(9) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of sewage (including land used for the disposal of sludge located within the confines of the facility) with a design flow of 1.0 mgd or more or required to have an approved pretreatment program. This does not include farm lands, domestic gardens or lands used for beneficial reuse of sludge which are not physically located in the confines of the facility;

NA

(10) Construction activity (except for disturbances of less than 5 acres of total land area which are not part of a larger common plan of development or sale); and

NA

(11) Facilities where materials are exposed to storm water classified under SIC codes 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25 (These codes include food; tobacco; textile; apparel; wood kitchen cabinets; furniture; paperboard containers and boxes; converted paper/paperboard products; printing; drugs; leather; fabricated metal products; industrial and commercial machinery and computer equipment; electronic equipment; transportation equipment; measuring, analyzing, and controlling instruments and photographic, medical, and optical goods, and watches and clocks; glass; and certain warehousing and storage manufacturing facilities).

WATER TRANSPORTATION FACILITIES ARE NOT CLASSIFIED UNDER ANY OF THESE SIC CODES. WATER TRANSPORT FACILITIES ARE SIC CODE 44.

THESE CODES ARE FOR THE MANUFACTURING OF THESE PRODUCTS

Areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots are generally excluded from the definition of storm water discharge associated with industrial activity, as long as the drainage from the excluded areas is not mixed with storm water drained from areas with industrial activity.

B. Industrial Storm Water Permitting Strategy

EPA estimates that about 100,000 facilities are addressed by the regulatory definition of "storm water discharges associated with industrial activity". The large number of facilities addressed will place correspondingly large administrative burdens on EPA and States with authorized NPDES programs to issue and administer permits for these discharges. To provide a reasonable and rational framework to addressing this permitting task, EPA is developing a strategy for permitting storm water discharges associated with industrial activity. In developing this strategy, the Agency recognizes that the CWA provides flexibility

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May 7, 1991

Mr. Kent Ashbaker
Manager, DEQ Industrial and
On Site Water Quality Department
811 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Kent:

This letter is to confirm our earlier conversations and to check and verify our understanding regarding the industries covered by the new storm water discharge/runoff regulation.

In the NPDES Final Regulation Summary (EPA October 31, 1990) Section IV part A titled: "Industries Covered by Regulation: (page 6) it specifically lists by Standard Industrial Classification (SIC) code number and/or by description, all the industrial facilities/activities that are subject to the new regulations. Based on this list and my discussions with you, it is our understanding that the only portion of water transportation facilities/activities (SIC code 44) that are subject to the new regulation are those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

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MAY 09 1991
WATER QUALITY DIVISION
DEPT. OF ENVIRONMENTAL QUALITY

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producing heavy industry and manufacturing, not freight or cargo handling water transportation facilities/activities (SIC code 44) except for those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

We greatly appreciate your written confirmation of our understanding of the new storm water discharge/runoff regulation and request that you note or correct any miscommunication or misinterpretation of the new regulation on our part. Please mail your response to:

Jones Oregon Stevedoring Company
Attn: Dave Bowman
P.O. Box 10167
Portland, Oregon 97210

Thank you for your time and assistance.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

May 9, 1991

RECEIVED
MAY 15 1991
JONES OREGON STEVEDORING CO

Mr. David K. Bowman
Jones Oregon Stevedoring Company
P.O. Box 10167
Portland, OR 97210

Re: NPDES Permit for Transportation Industry

Dear Mr. Bowman:

As far as I can determine, your interpretation of the federal rules is correct. However, EPA is the final say on their rule interpretation. If there are any areas about which you are unsure, you may want to contact them. According to the way I interpret the federal rules, all of the categories of SIC codes specifically listed in the transportation facilities categories require a storm water permit only if there are areas associated with vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling. For example, is there is automobile dead storage, it would not be covered unless there is vehicle maintenance or cleaning at the site. If those activities did take place, it would be covered by the rules.

In the explanation in the rules as to what is covered at each industrial SIC code designated, it discusses "industrial plant yards; immediate access roads and rail lines; **material handling sites**; refuse sites; sites used for the application or disposal of process waste waters; **sites used for the storage and maintenance of material handling equipment**, sites used for residual treatment, storage, or disposal; **shipping and receiving areas**; manufacturing buildings; **storage areas (including tank farms)** and areas where industrial activity has taken place in the past". I assume that these areas listed would be covered if directly a part of or associated with a manufacturing facility, whether on site or remote. However, if the facilities were not owned or operated by the manufacturing facility covered by the rules, I do not believe that they would require a storm water permit.

Sincerely Yours,

Charles K. Ashbaker, Manager
Industrial & On-Site Waste Section
Water Quality Division

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696

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READING FILE

June 19, 1991

Mr. Dick Johnson
Riedel Environmental Technology, Inc.
P. O. Box 5007
Portland, OR 97208

Dear Dick:

Please find enclosed three maps of Terminal 4 for your files so that in the event of a spill, the Riedel Spill Response Team will have a reference map for locating the site.

Should you have any questions or concerns, please call me at 228-6601, extension 148. Thank you for your time and consideration.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/pag
Encls.

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June 20, 1991

Ms. Andrea Lindsay
EPA Region 10
1200 Sixth Avenue, W.D. 134
Seattle, WA 98101

Dear Ms. Lindsay:

This letter is to confirm our earlier conversation and to check and verify our understanding regarding the industries covered by the new storm water discharge/runoff regulations.

In the NPDES Final Regulation Summary (EPA, October 31, 1990), Section IV, Part A, titled: "Industries Covered by Regulations:" (Page 6), it specifically lists by Standard Industrial Classification (SIC) code number and/or by description, all the industrial facilities/activities that are subject to the new regulations.

Based on this list (copy attached), my discussion with the DEQ, written confirmation from Kent Ashbaker, and my earlier conversation with you, it is our understanding that the only portion of water transportation facilities/activities (SIC Code 44) that are subject to the new regulations are those areas that are associated with regular vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling.

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As the regulations specifically identify those facilities subject to the "where materials are exposed to storm water" rules by SIC code and does not include water transportation facilities (SIC Code 44), it appears to indicate that (for example) lumber/steel stacked at a sawmill/steel mill

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We greatly appreciate your written confirmation of our understanding of the new storm water discharge/runoff regulation and request that you note or correct any miscommunication or misinterpretation of the new regulation on our part. Please mail your response to:

Jones Oregon Stevedoring Company
Attn: Dave Bowman
P. O. Box 10167
Portland, Oregon 97210

Thank you for your time and assistance.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/pag

JONES OREGON STEVEDORING C...
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JC...S WASHINGTON STEVEDORING CO
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

READING FILE

June 27, 1991

FROM: DAVE BOWMAN

TO: GEORGE VASS

RE: EPA CONFIRMATION OF DEQ INTERPRETATION OF STORM WATER DISCHARGE REGULATIONS

Attached is a copy of my letter to Andrea Lindsay, the EPA Regional (PNW) Storm Water Coordinator, requesting confirmation of the Oregon DEQ interpretation of the storm water discharge regulations.

Also attached is a copy of the EPA's reply letter confirming the DEQ interpretation that the mechanics shop is the only portion of Terminal 4 under the Jones Oregon/Port of Portland joint management agreement which requires a storm water discharge permit (which will be obtained by Jones Oregon).

At the next POP meeting (July 11) I will give Fay Harper copies of each for her records.

DKB/jj

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June 20, 1991

Ms. Andrea Lindsay
EPA Region 10
1200 Sixth Avenue, W.D. 134
Seattle, WA 98101

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We greatly appreciate your written confirmation of our understanding of the new storm water discharge/runoff regulation and request that you note or correct any miscommunication or misinterpretation of the new regulation on our part. Please mail your response to:

Jones Oregon Stevedoring Company
Attn: Dave Bowman
P. O. Box 10167
Portland, Oregon 97210

Thank you for your time and assistance.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/pag

Environmental Protection Agency
200 Sixth Avenue Seattle WA 98101
Idaho Oregon Washington

EPA

JUN 24 1991

Reply To The
Attn Of: WD-134

David K. Bowman
Administration Department
Jones Oregon Stevedoring Company
Post Office Box 10167
Portland, Oregon 97210

Dear Mr. Bowman:

Thank you for your letter of June 20, 1991, regarding the National Pollutant Discharge Elimination System (NPDES) storm water regulations.

This letter confirms that application requirements apply only to those portions of a transportation facility which are "either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under [the definition of associated with industrial activity]" (see 40 CFR Part 122.26(b)(14)). I have included a copy of the pages in the regulation which provide a complete definition of "associated with industrial activity" for your information.

If you have any further questions regarding requirements for industrial storm water discharges, please feel free to contact me at (206) 553-8399.

Sincerely,

Andrea M. Lindsay
Regional Storm Water Coordinator

Enclosure

JOHNES OREGON STEVEDORING CO.
COLUMBIA RIVER · OREGON COAST
(503) 228-6601

JOHNES WASHINGTON STEVEDORING CO.
PUGET SOUND · WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

READING FILE

November 27, 1991

FROM: DAVE BOWMAN

TO: ANDY HATHAWAY

RE: NPDES STORM WATER DISCHARGE PERMIT

I have attached a copy of the completed NPDES Storm Water Discharge Permit application for the T4 mechanics shop which also contains the required site plan and certified land use compatibility statement. I will file the original permit application with the DEQ as soon as the $300.00 permit application fee check is prepared.

If I can provide any information or assistance regarding any JWS storm water discharge permits, please contact me. Storm water permit applications are due by January 1, 1992.

DKB/jj

SUBMIT APPLICATION TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY
Business Office
811 S.W. Sixth Avenue
Portland, OR 97204
(503) 229-5300

REGISTRATION APPLICATION FOR GENERAL STORM WATER PERMIT

STATE OF OREGON

(Attach additional sheets if necessary.)

OFFICIAL DEQ USE ONLY

Date Received: _____
Amount Received: _____
Application No.: _____
File No.: _____

I. FACILITY INFORMATION

FIRM NAME: This name will appear on the permit and must be the legal Oregon corporate name (i.e., Acme Products) or the legal representative of the company if the company operates under an assumed business name (i.e., John Smith, dba Acme Products).

A. Name and Address of Owner or Operator:
JONES OREGON STEVEDORING CO.
PO BOX 10167
PORTLAND, OR 97210

B. Site Address if Different than A:
TH MECHANICS SHOP
11040 N. LOMBARD
PORTLAND, OR

C. Facility Contact Person: DAVE BOWMAN
Phone: (503) 228-6601

D. Standard Industrial Classification (SIC) Code, Name, and Four Digit Number: MARINE CARGO HANDLING #4491

E. Other DEQ Permits Currently in Force for the Facility: NONE

F. Site Location:

Latitude:			Longitude:		
45°	36'	05"	122°	46'	13"
Deg.	Min.	Sec.	Deg.	Min.	Sec.

NOTE:

Please list the latitude and longitude of the approximate center of the regulated site to the nearest 15 seconds. In addition, attach a map to this application upon which the site location is identified. (For multiple rock pits or gravel mining sites, please attach an additional sheet.)

II. STORM WATER DISCHARGE INFORMATION

A. Briefly describe the various activities which take place at the site which may contribute to the contamination of storm water: Fuel pump, parked forklift trucks, attachments, vehicles, and other stevedoring equipment awaiting repairs, some outdoor assembly and disassembly of larger machines

B. Number of outfalls or channelized flows that run off your property (as shown on the site map in Part IV): Two (2)

C. Where does storm water discharge to?

- Municipal Storm Sewer System? No: X Yes: ___ (Name): _____

— OVER —

- Surface Waterbody? No: ___ Yes: X (Name): WILLAMETTE RIVER
- Seeps into Ground? No: X Yes: ___ (If "Yes" — Well: ___ Seepage Pit: ___ Pond: ___ Other: ___)

D. Has any storm water quality analytical data been collected? No: X Yes: ___ (If "Yes", please attach.)

E. Describe any storm water treatment and/or control facilities in use: STORM SEWERS

F. The NPDES industrial storm water regulations (40 CFR 122.26) require certification that all storm water outfalls associated with industrial activities have been evaluated for the presence of non-storm water discharges not otherwise covered by an NPDES Permit. **Your signature on this application provides that certification.** Describe the method used to evaluate for the presence of non-storm water discharges: VISUAL SITE INSPECTION AND REFERRAL TO PORT OF PORTLAND DRAIN AND STORM SEWER MAPS

G. If non-storm water discharges were discovered during the investigation required by item F., which are currently not covered by an NPDES permit, please list the wastewater source(s): NONE

H. Have any leaks or spills or other instances of storm water contamination occurred at the facility within the last three (3) years? No: X Yes: ___ (If "Yes", describe:) ___

III. DISCHARGES OTHER THAN STORM WATER

A. Are other permitted discharges using any of the storm water outfalls? No: X Yes: ___ (Describe:) NOTE: ONE DRAIN EMPTIES INTO THE NEIGHBORING TENANTS SYSTEM AND MUST THEREFORE BE TESTED AT THE DRAIN GRATE

If so, give NPDES Permit Number? ___

IV. SITE DRAINAGE MAP

A. Attach a site map which includes the following items.

- Outline of drainage areas served by each outfall.
- Location of storm discharge outfalls.
- Runoff conveyance structures — storm sewer, ditch, etc.
- Areas where activities are, or have been conducted, material stored, or where spills have occurred which could affect the quality of the storm water.
- Location of impervious areas.
- Facility's property lines.

V. SIGNATURE

I HEREBY CERTIFY THAT THE INFORMATION THAT IS INCLUDED IN THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE, AND THERE ARE NO WASTEWATERS BEING DISCHARGED TO THE STORM SEWER SYSTEM WHICH HAVE NOT BEEN IDENTIFIED IN THIS APPLICATION.

DAVID K. BOWMAN
Name of Owner
(Or Legally Authorized Representative)

ADMINISTRATIVE ASSISTANT
Title

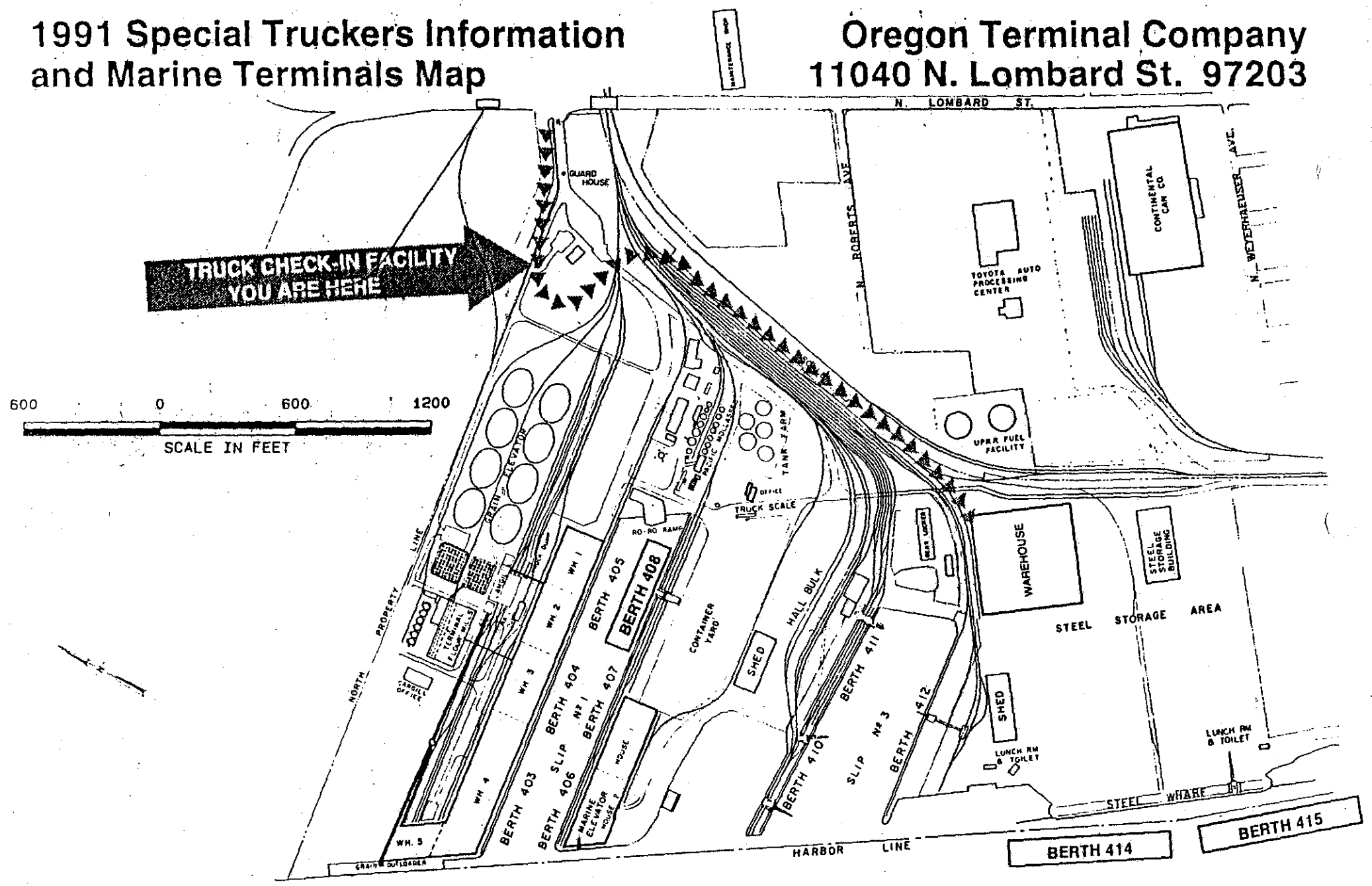
David K. Bowman
Signature

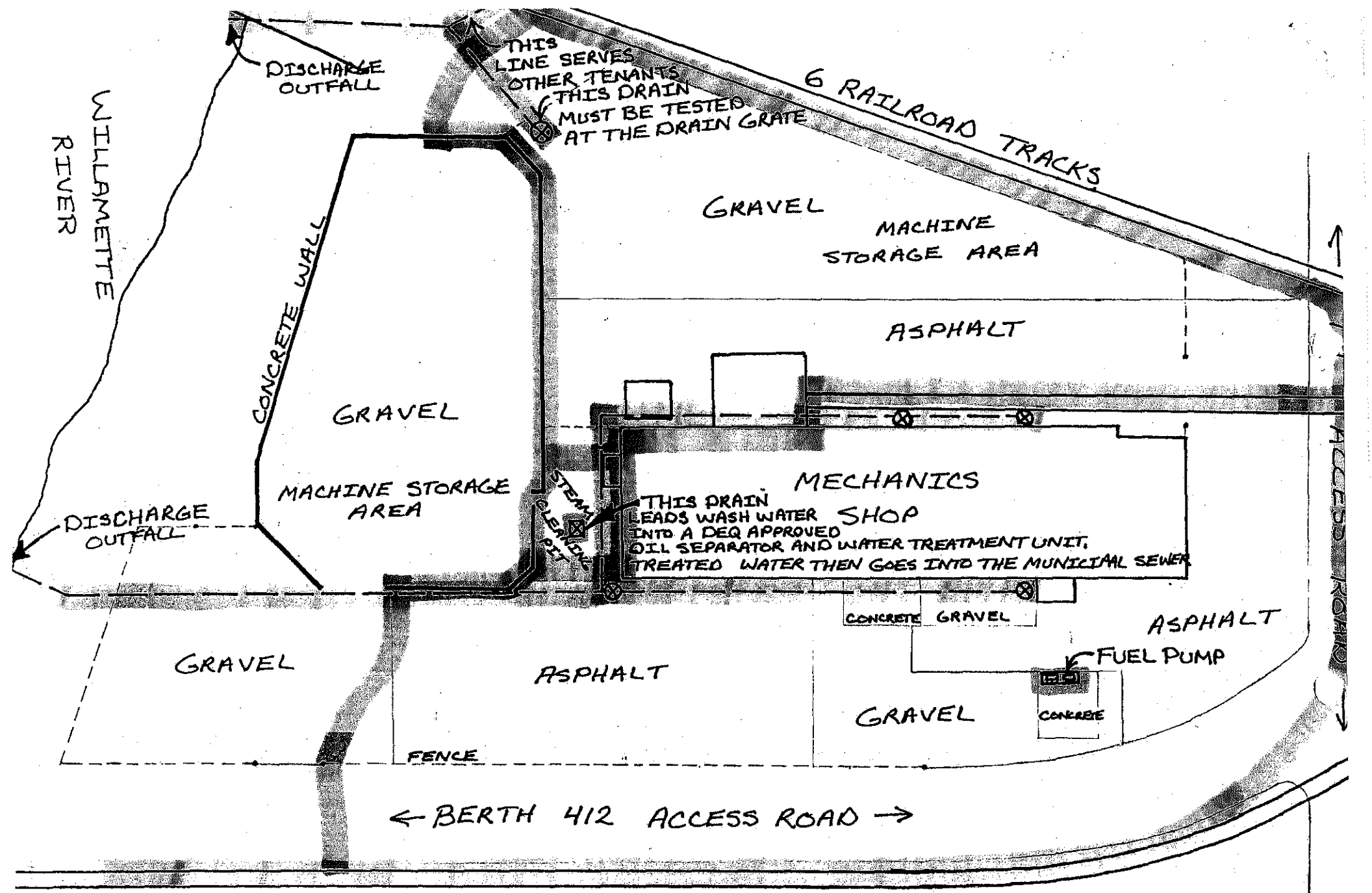
11-26-91
Date

Fees in the amount of $300 are required with this application. (Make your check payable to the Department of Environmental Quality.) Unless the DEQ has a Land Use Compatibility statement on file for this facility, one must be filed with this application.

1991 Special Truckers Information and Marine Terminals Map

Oregon Terminal Company 11040 N. Lombard St. 97203





T4 MECHANICS SHOP SITE PLAN

SCALE: 1 INCH = 25 FEET (APPROX)

11-26-91

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
811 S.W. Sixth Avenue
Portland, OR 97204-1390

DEQ OFFICE USE ONLY

LAND USE COMPATIBILITY STATEMENT

APPLICANT	ADDRESS	PHONE
JONES OREGON STEVEDORING	P.O. BOX 10169 PORTLAND OR 97210	228-6601

DESCRIBE THE NATURE AND LOCATION OF THE PROPOSED NEW OR EXPANDED FACILITY SITE
(Include appropriate legal description and zoning designation)
This is an existing facility used for the maintainance and repair of forklift trucks, vehicles, and other stevedoring equipment. See attached map, Tax plot maps, and legal descriptions for location. Property is zoned Heavy Industrial, Willamette Industrial.

FACILITY/SITE LOCATION (check one)

- [X] INSIDE CITY
- [ ] INSIDE URBAN GROWTH BOUNDARY OUTSIDE CITY LIMITS
- [ ] OUTSIDE URBAN GROWTH BOUNDARY

STATEMENT OF COMPATIBILITY FROM APPROPRIATE LAND USE AUTHORITY
(An equivalent statement may be provided in lieu of this form)

If the Comprehensive Plan is not acknowledged, check one of the following:

- [ ] THE PROPOSAL IS CONSISTENT WITH THE STATEWIDE PLANNING GOALS
- [ ] THE PROPOSAL IS NOT CONSISTENT WITH STATEWIDE PLANNING GOALS

Attach additional findings which reference statewide planning goals and state how the proposed activity is compatible with them.

If the Comprehensive Plan is acknowledged, check one or more of the following:

THE PROPOSED ACTIVITY:

- [ ] IS ALLOWED OUTRIGHT BY THE PLAN
- [ ] IS ALLOWED BY THE PLAN BUT IS SUBJECT TO FUTURE GOAL CONSIDERATION BY AN AGENCY
- [x] IS ALLOWED BY THE PLAN BUT IS SUBJECT TO STANDARDS IN SITING, DESIGN, CONSTRUCTION AND/OR OPERATION
- [ ] IS NOT ADDRESSED OR CONTROLLED BY THE PLAN
- [ ] IS ALLOWED BY THE PLAN BUT SUBJECT TO FUTURE GOAL CONSIDERATION BY THE LOCAL JURISDICTION
- [ ] IS PROHIBITED BY THE PLAN
- [ ] DURING THE PERIODIC REVIEW THE PLAN WAS NOT FOUND TO BE IN COMPLIANCE WITH THE STATEWIDE PLANNING GOALS

Attach additional findings which reference the specific plan policies criteria or standards which are relied on and state why the compatibility finding is justified based on plan policies, criteria or standards and whether all necessary local approvals have been obtained. If the activity is not addressed by the plan, attach additional findings which reference statewide planning goals and state how the proposed activity is compatible with them.

LAND USE AUTHORITY		
City of Portland Planning Bureau		
SIGNED	TITLE	DATE
Michael P Robinson	Senior Planner	11-25-91

USE THE FOLLOWING SIGNATURE BOX FOR CITY/COUNTY CONCURRENCE IF INSIDE URBAN GROWTH BOUNDARY AND OUTSIDE CITY LIMITS

LAND USE AUTHORITY		
SIGNED	TITLE	DATE

(LUCS 8/8/89)

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		CODE
ACCT. NO. 96102-1100	~~128.84~~	Portland		1Jt				001
OWNER Port of Portland 766/897	128.74							
CONT. TO	TOTAL	DEEDED 70 OUT OF TL 38						

DATE	BOOK	PAGE	DESCRIPTION (Parcel 15) (Annie L. Malarkey) Section
V70-11222 12-31-70	766	897	(1970) Beginning at the intersection of the northerly boundary of the tract of land conveyed to Amos M. Roberts by deed dated March 29, 1878, and recorded on page 207 of Volume 33 of Records of Deeds of Multnomah County, which tract is hereinafter called the "Roberts Tract" with the Westerly boundary of the right of way conveyed to the Oregon Railroad and Navigation Company by deed dated May 31, 1905 and recorded on page 348 of Volume 337 of Records of Deeds of said Multnomah County, which is hereinafter called the "Right of Way"; thence South 83° West along said Northerly boundary of said"Roberts Tract"about 1090 feet to a point in the middle of Gatton's Slough, passing in this course through the middle of an ash tree 20 inches in diameter at the corner of William Gatton's land; thence down the middle of said Gatton's Slough, following the meanderings thereof in a general Westerly direction to the Willamette River - the middle of the mouth of said Gatton's Slough being South 21° East, 10 1/2 chains from the Northwesterly corner of the James Loomis DLC; thence up the right bank of the Willamette River 1850 feet more or less, to the northerly boundary of that certain tract of land conveyed to the Oregon Railroad and Navigation Company by deed dated January 31, 1906 and recorded on page 444 of Volume 350 of records of Deeds of said Multnomah County, which is hereinafter called the"OR&N Strip"; thence along said northerly boundary of said "OR&N Strip" North 61° East about 1134 feet to the westerly boundary of said "Right of Way"; and thence in a northerly direction, tracing the Westerly boundary of said "Right of Way" to the place of beginning; together with all and singular the enements and hereditaments and appurtenances thereunto belonging or in anywise appertaining; and particularly all of the right and title and interest of every name and nature of said vendors in and to any and all land that may lie between the land above described and the low water mark of the Willamette River and in and to any and all tide and overflow land abutting or lying in front of the above described land, and also any and all rights and privileges and title and interest which said vendors have or hold, as riparian owners or otherwise in and to and over said Willamette River in front of the above described lands. (Continued on page 2)

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		CODE
ACCT. NO. 96102-1100								
OWNER PORT OF PORTLAND								
		DEEDED						
CONT. TO	TOTAL	OUT OF						

DATE	BOOK	PAGE	DESCRIPTION

continued from page 1:

EXCEPTING AND EXCLUDING from parcel #15 the so-called Terminal No. 4, Fireboat three premises, being more particularly described as follows:

Beginning at a point on the new Harbor Line, on the east side of the Willamette River, as established by the U.S. Corps of Engineers at Terminal No. 4, Portland, Oregon, which point is the intersection of the east-west slip line as extended of Pier No. 2, Terminal No. 4 and the aforesaid new Harbor Line; thence South 24°15'36.9° East (South 155°44'23.1" East) along said new Harbor Line a distance of 333.0 feet to the true point of beginning; thence East 90° a distance of 345.0 feet to a point, thence South 180° a distance of 65.0 feet to a point; thence East 90° a distance of 80.0 feet to a point; thence South 180° a distance of 180.0 feet to a point; thence West 270° a distance of 300.0 feet to a point on the aforesaid new Harbor Line; thence Northwest West along said new Harbor Lin a distance of 280.0 feet to the true point of beginning.

Parcel #16 (S. I. Ogden & wife)

Situated in the James Loomis DLC and beginning at the northwest corner of said claim and running thence southeasterly up the Willamette River, 10 chains; thence North 60° East 40 chains; thence Northerly parallel with the river bank 10 chains, to the north boundary line of said claim of James Loomis; thence along the north boundary of said James Loomis DLC 40 chains to the place of beginning, containing 40 acres and being the same tract of land conveyed to Geo J. Watts by James Loomis and wife by deed dated January 13, 1858,

Also all that certain other tract of land in said DLC described and bounded by beginning at a point on the bank of the Willamette River 10 chains Southerly from the Northwest corner of said James Loomis Claim; thence North 60° East along the south boundary line of the above described 40 acre tract to a slough known as Gatton Slough; thence southerly following the middle line of said slough to the south boundary line of said 40 acre tract at a point about 120 rods easterly from the place of beginning; being all of said James Loomis DLC lying

(Continued on page 3)

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		CODE
ACCT. NO. 96102-1100								
OWNER Port of Portland								
		DEEDED						
CONT. TO	TOTAL	OUT OF						

DATE	BOOK	PAGE	DESCRIPTION (Continued from page 2)

north of said slough and South of said 40 acre tract and containing 10 acres, and being the same tract of land conveyed to Geo J. Watts by said Loomis by deed dated April 14, 1859, all of said lands being in Section 2, T1N R1W and in Secti 35, T2N R1W of the W.M. together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, and particularly all of the right title and interest of every nature of said vendors in and to any and all land that may lie between the land above described and the low water mark of the Willamette River and in and to any and all tide and overflow land abutting or lying in front of the above described premises, and also any and all rights, privileges, title and interest which said vendors have or hold as riparian owners or otherwise in, to, and over the Willamette River in front of the above described lands and particularly the wharf rights upon the rive in front of said premises.

EXCEPTING from Parcel 15 and 16 that certain parcel conveyed by the City of Portland to the United States of America by deed recorded November 1, 1949 in Book 1368, Page 45, Deed Records.

Parcel #17 (William Gatton)

Beginning at the intersection of the northerly boundary of the tract of land conveyed to Amos M. Roberts by deed dated March 29, 1878, and recorded on page 207 of volume 33 of Records of Deeds of said Multnomah County, which tract is hereinafter called the "Roberts Tract", with the Westerly boundary of the right of the right of way conveyed to the Oregon Railroad and Navigation Company by deed dated May 31, 1905, and recorded on page 348 of volume 337 of Records of Deeds of said Multnomah County, which is hereinafter called the "Right of way"; thence South eighty-three (83°) degrees west along said Northerly boundary of said Roberts Tract which is also the northerly boundary of a certain tract conveyed by said Amos M. Roberts and his wife to Annie L. Malarkey and others by deed recorded on page 424 of Volume 361 of Records of Deeds of said Multnomah County, to a point in the middle of Gatton's Slough"; and thence up the middle of said Gatton's Slough, following the meanderings thereof in a general northerly direction, to the southerly boundary line of what is now known as the Ogden Tract";

(Continued on page 4)

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		COL
ACCT. NO. 96102-1100								
OWNER								
		DEEDED						
CONT. TO	TOTAL	OUT OF						

DATE	BOOK	PAGE	DESCRIPTION

Continued from page 3:

and thence Easterly along said southerly boundary of "Ogden Tract" to the County Road; and thence southerly along said County Road to the northerly boundary of said "Right of Way" and thence on a curve in a general southwesterly direction along the northerly and westerly boundary of said "Right of Way" to the place of beginning. (The above described tract may be otherwide identified in a general way as being bounded on the North by said "Ogden Tract"; and on the East by said"Count Road"; and on the South by said "Right of Way" and said "Roberts Tract"; and on the West by said"Gatton's Slough".

Parcel #22 (Elizabeth and Wm. Shenker)

That certain tract of land lying and being in Section 35, Township 2 North of Range 1 West of the Willamette Meridian and in Section 2, Township 1 North of Range 1 West of the Willamette Meridian, Multnomah County, Oregon, more particularly described as follows:

Beginning at the point of intersection of the harbor line along the right or easterly side of the Willamette River with the extension or projection of the South line of Section 35, Township 2 North of Range 1 West of the Willamette Meridian; thence North 26°17'40" West along said harbor line, a distance of 24.01 feet to a point which is 21.5 feet North of the point of beginning when measured on a line drawn at right angles to the extension or projection of the south line of Section 35 aforesaid; thence South 89°53' East along a line parallel with and 21.5 feet North from the south line of said Section 35 as extended or projected, a distance of 684.60 feet to a point on a line drawn parallel to and 11.0 feet Sout of the Southerly line of the Wm, Gatton D.L.C.; thence South 59°29'35" West along said line drawn parallel to the Southerly line of the Wm. Gatton D.L.C. a distance of 63.48 feet to a point; thence North 89°18'30" West 18.85 feet to a point thence North 65°07' West a distance of 25.37 feet to a point in the south line of Section 35 aforesaid; thence North 89°53' West along the South line of Section 35 aforesaid, a distance of 577.39 feet to the point of beginning.

(Continued on page 5)

FORM ASSESSOR 39—TAX LOT DESCRIPTION

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		CODE
ACCT. NO. 96102-1100								
OWNER								
		DEEDED						
CONT. TO	TOTAL	OUT OF						

DATE	BOOK	PAGE	DESCRIPTION Continued from page 4:
(Tax Lot 41)			EXCEPT the following: Beginning 135.83 feet North and 99.21 feet West from U.S. Harbor Monument #27; thence North 0°42'20" East 17 feet; thence North 89°17'40" West 64.71 feet for a beginning point; thence North 0°42'20" East 259 feet; thence North 89°17'40" West 270 feet; thence South 0°42'20" West 259 feet; thence South 89°17'40" East 270 feet to the place of beginning. Except 17 feet right of way East and West through said Tract.
(Tax Lot 103)			EXCEPT the following: House #6, Pier #1, Terminal #4 described as follows: Beginning at Northwest corner of NE quarter of Section 2 1 N, 1 W; thence North 81°09'02" West 614.91 feet to most Southerly corner of Gatton DLC; thence South 30°43'25" East 158.5 feet to Northeast corner of House #8; thence North 89° 17'40" West 400 feet to Northeast corner of House #6 and true beginning of tract to be described; thence continuing North 89°17'40" West 25 feet; thence South 26°17'40½" East 160.87 feet parallel to Harbor Line; thence South 89°17'40" East 177 feet more or less to point South 0°42'20" West of beginning; thence North 0° 42'20" East 143.34 feet to the beginning.
(Tax Lot 96)			EXCEPT the following: Beginning at the Northwest corner of the Northeast quarter of Section 2, 1 North, 1 West; thence North 81°09'02" West 614.91 feet to the most Southerly Gatton DLC corner; thence South 30°43'25" EAst 158.5 feet to the Northeast corner of House 8; thence North 89°17'40" West 220 feet which point is the Northeast corner of the tract to be described and true point of beginning; thence North 89°17'40" West 180.0 feet; thence South 0°42'20" West 143.34 feet; thence South 89°17'40" East 160 feet; thence North 0°42'20" East 72 feet; thence South 89°17'40" East 20 feet; thence North 0°42'20" East 71.34 feet to the true point of beginning.
(Tax Lot 91)			EXCEPT the following: Beginning at the Northwest corner of the Northeast quarter of Section 2, Township 1 North Range 1 West; thence North 81°09'02" West a distance of 614.91 feet to the most Southerly Gatton DLC corner, thence South 30°43'25" East a distance of 158.5 feet to the Northeast corner of House 8 which point is the Northeast corner of the tract to be described and the true point of beginning. thence North89°17'40" West a distance of 200 feet; thence South 0° 42'20" West 11.34 feet; thence North 89°17'40" West 20 feet; thence South 0° 42'20" West 120 feet; (Continued on page 6)

TAX LOT 110 SEC. 2 T 1N R 1W	ACRES	CITY	PORT	SD	WD	RFPD		COD
ACCT. NO. 96102-1100								
OWNER								
		DEEDED						
CONT. TO	TOTAL	OUT OF						

DATE	BOOK	PAGE	DESCRIPTION
			Continued from page 5:
			thence South 89°17'40" East 20 feet; thence South 0°42'20" West 12 feet; thence South 89°17'40" East 200 feet; thence North 0°42'20" East 72 feet; thence South 89°17'40" East 18 feet; thence North 0°42'20" East 60 feet; thence North 89°17'40" West 18 feet; thence North 0°42'20" East 1134 feet to the true point of beginning.
PCM 1979-186	79-	0684	✓ Except 0.10 acres in partof TL 119 (1979). New balance is 128.74 acres (1979).

TAX LOT 42 SEC 2 T 1N R 1W	ACRES	CITY	PORT	SD	MD	REPD	CODE
ACCT. No. 02 1114 042 96102-0420	~~6.75~~	Portland	In	1			
OWNER ~~Portland, City of~~	6.25						
PORT OF PORTLAND 766 E93	6.08						
		REMARKS 70					
CONT TO	TOTAL	OUT OF					

DATE	BOOK	PAGE	DESCRIPTION
			All of that tract conveyed by A. M. Roberts to O. W. R. & N. Company (Book 350, Page 444) lying south and west of a line drawn parallel to and 50' distant, southwesterly measured at right angles from center line of main tract of O.W.R.& N. as same is now located over and across Section 2. Including riparian rights out to habbor line. Except 0.50 acres in Tax Lot 102 (1955). New balance is 6.25 acres (1955).
Memo 818-55			
PCM 1979-186	79-0699		Except 0.17 acres in part of TL 119 (1979). New balance is 6.08 acres (1979).

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER - OREGON CO/
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

December 11, 1991

FROM: DAVE BOWMAN

TO: FILE

READING FILE

RE: POTENTIAL HAZARD AREAS IN GEARLOCKER

The quarterly (in abeyance for March, June, September, December) review of the potential hazard areas listed below will include checking for items stacked on or against the potential hazard and checking for excessive dust, lint, trash or other debris on or around the listed item that might constitute a fire hazard. If cleanup is required, a memo to the gearlocker manager requesting the cleanup will be sent.

Potential hazard areas include:

- Large hoist (cover box) - posted "Do Not Stack"
- Small hoist
- Air compressor - posted "Do Not Stack"
- Fuse box area
- Electrical junction box area (next to spare engine storage shelves)
- Welding room
- Gas unit heaters - 6 (includes WFS wall mount unit posted "Do Not Stack")

DKB/jj

IN SEATTLE, WA
JONES WASHINGTON
Phone (206) 763-1130
ITT TLX NO. 474-0124
FAX NO. (206) 763-1139

IN PORTLAND, OR
JONES OREGON
Phone (503) 228-6601
TWX NO. 910-464-5191
FAX NO. (503) 228-0273

12/12/91

Bob -

To consolidate responsibilities, can one of your people take over this quarterly review? (It takes about 10 minutes every 3 months) - attached is an updated description. Thanks

Dave

COMPLETE STEVEDORING SERVICES

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER · OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND · WASHINGTON COAST
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DO NOT SAY IT - WRITE IT

READING FILE

December 11, 1991

FROM: DAVE BOWMAN

TO: GREG McKENZIE

RE: ALERTING KEY DOCK PERSONNEL OF PREPARATIONS FOR POSSIBLE POLLUTANT/CONTAMINATE ACCIDENTS AT TERMINAL 4

Copies of the contaminant spill preparations and emergency procedures have been distributed to the following key dock personnel.

Jones Oregon Stevedoring Superintendents
Oregon Terminal Company Supervisory Personnel
T4 Security Guards
T4 Walking Bosses

A copy of the Superintendents notice is attached.

DKB/jj

COL ...ON STEVEDORING C
... RIVER - OREGON COAST
(503) 228-6601

JC S WASHINGTON STEVEDORING C
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT READING FILE

December 10, 1991

FROM: DAVE BOWMAN

TO: JONES OREGON STEVEDORING SUPERINTENDENTS

RE: PREPARATIONS FOR POSSIBLE POLLUTANT/CONTAMINATE ACCIDENTS AT TERMINAL 4

Attached are copies of the:

1. Preparations for a pollutant accident/spill (training policies) to be reviewed twice yearly.

2. Emergency procedures for a pollutant accident/spill. These procedures have been distributed to all T4 gearlockermen and personnel and will be reviewed at every April 1 and October 1 emergency procedure training session.

3. Emergency numbers for a pollutant accident/spill (to be posted at all emergency equipment locations).

In addition:

The Port of Portland has encircled all storm drains with white paint for improved visibility and easier location in emergency situations.

DKB/jj

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER - OREGON CO.
(503) 228-6601

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READING FILE

December 10, 1991

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RE: PREPARATIONS FOR POSSIBLE POLLUTANT/CONTAMINATE ACCIDENTS AT TERMINAL 4

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3. Emergency numbers for a pollutant accident/spill (to be posted at all emergency equipment locations).

In addition:

The Port of Portland has encircled all storm drains with white paint for improved visibility and easier location in emergency situations.

DKB/jj

PREPARATIONS FOR POLLUTANT ACCIDENT/SPILL

A twice yearly (April 1 and October 1) instruction and training of all personnel and gearlockermen shall include:

1. Review of the Emergency Procedures for a Pollutant Accident/Spill.

2. Learning the locations and proper use of spill equipment including booms, pads, and absorbent.

3. Learning the location of the emergency call list and nearest telephone.

4. A "Spill Drill" walk through of a phony spill to provide "experience" with the emergency procedures.

DKB/jj

EMERGENCY PROCEDURES
FOR POLLUTANT ACCIDENT/SPILL

1. In the event of a hydraulic line break or tank rupture **SHUT DOWN THE MACHINE IMMEDIATELY <u>UNLESS</u> IT IS DIRECTLY OVER OR NEAR A STORM DRAIN GRATE OR IN A LOCATION WHERE THE LEAKING HYDRAULIC FLUID MAY REACH THE RIVER** in which case move the machine the shortest possible distance to a safer location before shutting it down.

2. Notify the supervisor.

3. Try to contain the spill with the emergency booms, pads, and absorbent.

4. Notify the Port of Portland environmental hotline (24 hr.) at 335-1111.

5. In the event of a major spill where pollutant is entering or will enter the river, contact Riedel Environmental Services (24 hr.) at 286-4656.

Remember - fast action is critical to limiting the damage caused by a spill - the difference between a mess and a disaster is often a matter of minutes.

DKB/jj

EMERGENCY NUMBERS FOR POLLUTANT ACCIDENT/SPILL

(To be Posted at Emergency Equipment Locations)

1. Notify supervisor immediately.

2. Port of Portland Environmental Hotline (24 hr) 335-1111.

3. For major spills (entering or will enter the river) call Riedel Environmental Services (24 hr.) at 286-4656 or 1-800-334-0004.

DKB/jj

 Ex. #1

EE/CA Report
Public Review Draft

PORT OF PORTLAND

Port of Portland
Portland, Oregon

May 31, 2005

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1 x 3

Year	Entity and Event
1989	Second railcar dumper added to grain facility. Two pipes added at Pier 1 for liquid bulk storage facility.
1990	House 4 condemned.
1991	Guard station constructed.
1992	Four of the steel ASTs for grain storage (east of the storage bins to the north of Slip 1) modified.
1992-93	Downstream row of tanks at original liquid bulk storage facility removed.
1994-95	All but five of the tanks remaining at liquid bulk storage facility removed.
1995	Soda ash storage building constructed at Pier 4.
1996	House 6, House 7, Berth 406, and Berth 407 at Pier 2 dismantled.
1996	Oregon Terminal Company's diesel and gasoline USTs removed.
1997	Pipeline for liquid bulk storage facility rebuilt under Berth 408.
1997-98	Portions of Union Pacific's decommissioned/abandoned St. Johns Tank Farm pipeline removed from under Berth 412 and elsewhere.
1999	Houses 3, 4, and 5 and Berths 403 and 404 demolished. Mechanical/electrical building and bridge to Berth 401 constructed.

2.2.3.2 Historical Terminal Operations

Tenant operations at Terminal 4 are discussed here by operating areas, further subdivided by the piers and berths the tenants used.

Union Pacific Railroad

Union Pacific and its predecessor, OWR&N Co., built, maintained and operated a fuel oil dock, 10-inch steel pipeline, and the St. Johns Tank Farm and tank car loading facility near Pier 5 on the south (upstream) side of Slip 3 beginning in at least 1906 to 1907. The tank farm and loading facility included two 55,000-barrel aboveground storage tanks (ASTs) for oil and associated pumping and heating facilities. The tanks and the pumping and heating facilities were adjacent to the terminal on the bluff beyond the rail trackage east of Pier 5. The pipeline was used to transfer diesel fuel and, prior to 1955, Bunker C oil from marine vessels to the storage tanks, which delivered fuel oil via a loading rack on the main rail line above the terminal to locomotive steam engines and to rail tank cars for distribution to other facilities elsewhere in Union Pacific's system. Track scales were built to avoid having to transport cars to the railroad yard, which was some distance away. The track scales were operated under the supervision of the Weighing and Inspection Department of the Transcontinental Freight Bureau.

The City CPD purchased two parcels of land from Union Pacific that contained the pipeline and dock at Terminal 4, Pier 5 but not the tank farm: approximately 5 acres in 1920 and approximately 20 acres in 1948. The 1920 and 1948 deeds retained an easement for the existing pipeline that served the St. Johns Tank Farm

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on Union Pacific's property east of the terminal. The easement granted the railroad and its successors the right to operate and maintain the pipeline and associated dock.

From 1922 to 1939, General Petroleum Corporation leased the St. Johns Tank Farm from Union Pacific and operated a facility near Slip 3 for delivery of bunker fuel and unloading of fuel oil from vessels. Included in their operation was an approximately 30-ft AST used for fuel oil and two associated buildings, one of which was a designated pump house. All three structures were located along the area of the pipeline to the south of Slip 3 (Sanborn Fire Insurance Map, 1924). Neither the date of construction nor the date of demolition of these structures could be verified.

In 1952, Union Pacific requested an area for cleaning railcars and was offered the use of Track 10½ by the City CPD.

In 1969, Union Pacific leased the St. Johns Tank Farm and associated pipeline to Standard Oil Company of California (now known as Chevron). The arrangement provided that Standard Oil would supply Union Pacific with oil for its tank cars.

In 1971, Union Pacific abandoned the pipeline because of leaks. A new pipeline was then constructed parallel to the old one, but farther to the south across the adjoining 19.5-acre parcel. Standard Oil continued to operate the tank farm and replacement pipeline until 1983, when fuel transfer operations ceased altogether. The tanks were removed in 1987. In 1997, during removal of the dock at Berth 412, the under-dock portions of the pipeline were drained, cleaned, and removed. In 1998, other portions of the pipeline were drained and removed.

Cargill Grain Facility

The grain elevator and its operating house were completed in 1920 and were operated by the City CPD. The facility contained a conveyor belt system that carried sacked grain to the elevator for cleaning and storage. Northwest sacked wheat was susceptible to a wheat fungus known as smut. An initial lime scouring method for cleaning was later replaced when Wolf-Dawson wheat washers were installed. Dust collecting and sweeping systems controlled airborne particulates. A two-belt shipping gallery could load two vessels with bulk grain simultaneously. Track facilities were provided in the front and rear of the pier; the rear tracks had placement for 105 cars. The pier had cargo masts along its entire face, electric elevators, and electrically operated ramps for handling freight to and from river steamers and barges. The grain elevator had capacity to handle 1,053,800 bushels in eight hours. After the construction of the grain elevator annex in 1930, its grain-storing capacity of 2,000,000 bushels exceeded that of any other grain elevator on the Lower Columbia (Merchants Exchange Journals, 1932).

Barge delivery of bulk wheat to the grain elevator began to supplant sack delivery in 1939. The following year, the City CPD installed a Fuller Airveyor vacuum system for unloading grain barges in Slip 1. Another, higher-capacity vacuum system was added in 1957. Eight grain storage silos are located east of the grain terminal. When these were built and put into operation in 1954, the grain storage capacity at Terminal 4 increased to 7,400,000 bushels. To more readily accommodate grain delivery at the enhanced storage facility, a new box car unloader was added.

In 1942, Terminal 4 and operation of the grain facility were turned over to the U.S. Army Transport Service (USATS). In 1947, the facility was returned to the City CPD, which entered into a lease agreement with Kerr-Gifford. Kerr-Gifford operated the grain elevator at Pier 1 from 1947 until 1954. In 1953, Cargill agreed to purchase all of the stock of Kerr-Gifford, and in November 1954, Kerr-Gifford was merged into Cargill as the

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Kerr Gifford Division. It was at that time that Kerr-Gifford's lease of the grain terminal was assigned to Cargill.

Table 2-2 summarizes the facilities Cargill used in connection with their operation of the grain facility.

Table 2-2
Cargill Operating Areas at the Grain Facility at Terminal 4

Cargill Facility	Location(s)	Constructed	Use/Former Use	Status
Operating House (grain elevator)	South of Storage Annex	1920	Transfer of grain	Present
Track Shed	South of Operating House	Prior to 1953	Cover for rail trackage	Present
Office Building (Building 168)	West of Flour Mill	1975	Administrative offices	Present
Conveyor Building (Building C-10)	West of Office Building	1970s	Conveyor equipment	Present
Longshoremen's Lunchroom	Adjacent to Berth 401	1980s	Longshoremen's facility	Present
Truck Shed (Building 178)	North of Building C-10	1976	Covered way for trucks	Present
Truck Dumper	East of Track Shed	Prior to 1953	Unloading trucks	Present
Gearlocker	South of Railcar Tipper north of Berth 405	Not confirmed	Storage of equipment	Present
Grain Storage Silos (8)	East of Operating House	Circa 1954	Grain storage	
Blacksmith Shop	South of Grain Storage Silos	Not confirmed	Not yet confirmed	Removed
Millwright Shop	West of Operating House	1958	Not yet confirmed	Removed
Pellet Mill	East of Storage Annex	1994	Processing beet pellets	Present
Maintenance Shop	East of Operating House	1970s	Equipment maintenance	Present
Oil Shack	North of Maintenance Shop	Not confirmed	Not yet confirmed	Not available
Bull Pen	Not yet confirmed	Not confirmed	Not yet confirmed	Unknown
Transformer House	Southeast of Pellet Mill between the Operating House and Storage Silos	1917	Transformer storage	Razed in 1977
Electrical Distribution Center	Adjacent to Berth 405	Not confirmed	Transformer storage	Removed
Electrical Transformers	Various locations	Varies	Energy conversion	PCB-containing transformers replaced in 1988
Railcar Tipper (installed circa 1954)	South of Track Shed	Prior to 1953	Unloading grain from railcars	Present
Work Pit	Beneath Railcar Tipper	Not confirmed	Not yet confirmed	Present
Deep Water Well	Southeast of Storage		Turbine pump	Abandoned

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Cargill Facility	Location(s)	Constructed	Use/Former Use	Status
	Annex (northeast of Operating House)			and filled in 1992
Fueling Facility	Between Buildings 152 and 160	Not confirmed	Fueling equipment	Removed
Diesel UST (1,000-gallon) (T4-20)	West of Operating House	Not confirmed	Diesel storage	Removed 1989
Fuel oil UST (1,000-gallon) (T4-21)	West of Operating House	Not confirmed	Fuel oil storage	Removed 1989
Fuel oil UST (500-gallon) (T4-22)	Beneath the Operating House	Not confirmed	Fuel oil storage	Removed 1993
Used oil UST (T4-85)	North of Compressor House	Not confirmed	Used oil storage	Removed 1993
Diesel AST (500-gallon) (T4-45)	West of Car Shed	Not confirmed	Diesel storage	Removed September 2003
Diesel AST (675-gallon) (T4-47)	Southwest of Operating House	Not confirmed	Fueling locomotives and equipment	Removed September 2003
Used oil AST (250-gallon) (T4-48)	North of Maintenance Shop	Not confirmed	Used oil storage	Removed September 2003
Conveyor to Berth 405	Extends south of the Operating House to Berth 405	Prior to 1940	Grain transport	Present
Conveyor to Berth 401	Extends west from the Operating House to Berth 401	1975	Grain transport	Present
UIC Dry Well	Near Berth 401	1999	Stormwater Discharge	Present
Rail trackage	Throughout the leasehold	Varies	Transport of railcars and materials	Present
Sumps	Railcar Tipper, Building 141, Truck Dump, Building Basements	Not confirmed	Discharge	Present
Hydraulic equipment	Building C-10, near Track Shed, and west of Railcar Tipper	Not confirmed	Various uses	Present

Cargill maintained preferential berthing rights throughout their occupancy at Berths 401 and 405. Cargill transported materials to and from Berth 401 via railcars that moved along trackage located between Berth 401 and the track shed. Materials were transported to and from Berth 405 utilizing the conveyor system.

Cargill is in the process of terminating its lease of the grain facility.

Cold Storage Plant

The cold storage plant and ventilated storage warehouse, constructed at Pier 1 in 1923, provided refrigeration space for transit shipments of apples received for export. The facility, immediately north of the Pier 1 warehouses, was a concrete and brick structure divided into three compartments (Houses 6, 7, and 8).

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The 1923 addition of the cold storage plant in the eastern third of the apple storage warehouse led to a five-year storage contract with the Apple Growers Association of Hood River (City CPD, 1923). The cold storage plant was 100 ft by 200 ft and had a capacity of 105,000 boxes. The ventilated apple storage warehouse adjoined the cold storage plant and had a capacity of 350,000 boxes. The Port of Portland led the ports of the Pacific in the shipment of apples; during an average year in the mid-1920s, approximately 1 million boxes were shipped.

H.N. Leckenby

In 1923, H.N. Leckenby constructed a fumigation plant near the head of Slip 1 (just in front of the modern International Raw Materials [IRM] tank location, see Figure 2-2). In 1924, Mr. Leckenby began fumigating Oriental cotton received at the Port and other commodities (e.g., peanuts, rice, beans, and other foodstuffs). The plant reportedly had a capacity of 250 tons per day. City CPD minutes from the 1930s indicate that the plant operated under the name of NW Pesticide Company. During World War II, the Army may have used the fumigation plant in connection with its operations (further discussed below). According to City CPD minutes (City CPD, 1949), after the military had vacated the terminal, arrangements were made in 1946 for Mr. Leckenby to enter into a lease with the City CPD and continue operating the plant. The plant continued in operation until sometime in the mid-1950s.

Liquid Bulk Storage

In 1919, a liquid bulk storage facility was constructed at the head of Slip 1. By 1931, additional bulk storage tanks were added and the facility included a City CPD-operated warehouse, tank car cleaning facility, and an edible-oil cleaning pit. In 1947, the facility was leased to Pacific Molasses (which later became PM-Ag). Products handled included liquid fertilizer, molasses, molasses products, tallow, urea, caustic soda, and fats. By 1966, the liquid bulk storage facility had been upgraded to include 14 steel tanks on a concrete foundation. Liquid bulk materials were pumped directly from vessels to the tanks via one of two 8-inch pipelines at Pier 1 and Pier 2. The liquid bulks could then be weighed on a 60-ton-capacity scale and pumped into railcars at the filling platform. Up to 10 tank cars could be filled at one time. Pacific Molasses also made use of a car cleaning pit and a steam cleaning area northwest of its tanks to clean food products out of the railcars prior to their filling.

PM-Ag formerly utilized an approximately 8,000-gallon underground storage tank (UST) for storing diesel. The UST was decommissioned by removal in 1991.

Between 1992 and 1995, all of the original public tanks were removed; five private tanks remain in use at present. In 1995, the lease for the liquid bulk storage facility was assigned to IRM, which continues to operate the facility.

The Port removed an approximately 3,000-gallon diesel UST from the IRM leasehold in 1995. Based on confirmatory sampling, the DEQ subsequently issued a No Further Action determination for the UST.

IRM also utilizes an approximately 15,000-gallon heating oil UST located next to the boiler house.

Flour Mill

A 1919 agreement between the City CPD and the Eagle Flour Mills Company for the construction of a flour mill north of Slip 1 was transferred to Terminal Flour Mills Company in 1923. A flour production and storage

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facility was completed and in operation at Terminal Flour by 1925. Terminal Flour operated the facility until 1992, at which time Terminal Flour's lease was assigned to Cereal Food Processors, which continues to operate the facility.

The mill originally consisted of a concrete building and an adjoining concrete grain and flour warehouse (Donovan and Associates, 1997). An annex was added at a later date (circa 1924 to 1950). A system of conveyors, which originally provided the mill with grain from the neighboring grain storage facility, was abandoned in 1966, and a track pit was added to the facility to accommodate hopper bottom railcars. In addition, two rail spurs running between the eight grain storage tanks served to accommodate delivery of bulk flour from the mill. Sacked flour was loaded directly onto vessels docked at Pier 1 using a conveyor belt system. In 1925, the flour mill had a capacity of 1,500 barrels a day. The output was nearly all for export. The export of flour ceased following World War II when Terminal Flour modified its operation and began milling flour for U.S. consumption. Grain was brought into the silos by rail, milled, and sold either in bulk or in sacks. At present, Cereal Food Processors mills flour for Portland-area customers and sells its product in bulk, exporting the flour from the facility via truck or rail.

Terminal Flour Mills formerly utilized an approximately 10,000-gallon fuel oil UST located north of the flour mill, an approximately 1,000-gallon diesel UST located south of the flour mill, and an approximately 1,000-gallon fuel oil UST located south of the flour mill. All three USTs were reportedly decommissioned by removal by Terminal Flour Mills. However, based on currently available information, neither the date of installation nor the date of removal of the USTs has been confirmed.

Oregon Sulphur Company

Oregon Sulphur Company operated on the east side of Slip 3 at Pier 5, importing bulk sulfur beginning in at least 1920. In photographs from 1920, there appears to be an open storage area, and sulfur was unloaded via clamshell bucket using a locomotive crane. The material was placed on the pier adjacent to the bunkers, where it likely remained until being loaded into railcars.

Matson Lines

Warehouses 6 and 7 at Pier 2, called the "Old Matson Warehouse," were constructed in 1922 and were used in Matson Navigation Company's Hawaiian trade (City CPD, 1947). Matson operated a freight dock at Slip 1 from 1955 to 1985. Matson initiated containerized cargo operations in 1964 at Berth 408, which was formerly used for the loading of scrap iron. This location fits within space designated as Berths 406 to 408. Pacific Northwest products, such as refrigerated meat, fresh fruit, potatoes, other vegetables, and canned goods, were shipped in containers to Matson's Hawaiian terminals on a biweekly basis. Return containers delivered commodities such as sugar, pineapple (fresh and canned), and tuna. Molasses shipped in vessel holds was used for ballast. Matson Navigation's agreement with the City CPD gave it preferential berthing at Pier 2 and provided for exclusive use of a paved portion of the yard south of the pier for Matson's container operations. Matson used space at Terminal 4 until expiration of the agreement in March 1982, at which time it transferred its container operations to Terminal 6 and discontinued the shipment of liquid molasses.

Quaker State

In 1953, Quaker State constructed an oil packaging (motor oil bottling) facility at the head (to the east) of Slip 3. The facility included an underground transfer pipeline, three 220,000-gallon tanks, one 42,000-gallon tank, four 10,000-gallon tanks, a main blending and bottling building, and a storage building. Bulk oil was brought in via railcars on the north side of the facility or via ships berthed at Pier 5, Berth 412. The oil was pumped

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directly to the tanks from the railcars or directly from vessels into the transfer pipeline that traversed from Pier 5 to the eight ASTs. The tanks, which were located west of the packaging plant building, were connected to the packaging plant via pipeline. Quaker State bottled motor oil in 1-quart containers; some of the oil was blended at the facility with detergent and with motor oils of different weights. Once the oil was packaged, it was loaded onto trucks or railcars via a spur track on the north side of the packaging plant (Figure 2-3).

Port drawings indicate that Quaker State also utilized a waste oil UST and a used oil AST located southeast of their main blending and bottling building. The UST was decommissioned in 1991. The date of removal of the AST has not been confirmed.

Quaker State continued its operations through 1985, when the ASTs and the abandoned underground pipeline were removed. The building was converted in 1985 to a new gearlocker building and electrical shop for Oregon Terminal Company. Port drawings indicate that a rail-covered shop work pit was constructed west of the gearlocker building and two USTs were installed east of the gearlocker building at that time.

Rail Development at Terminal 4

Terminal 4 had approximately 10 miles (of a projected 17 miles) of railroad line when operations began there in 1920. After the addition of the cold storage facility in 1922, approximately 15 miles of rail trackage served the terminal. City CPD annual reports (City CPD, 1927, 1931) subsequent to 1926 described the rail network as having a working capacity of 425 cars (130 at ship side) with the ability to accommodate up to 800 cars.

The USATS made additions to the terminal's rail network during its tenure between 1943 and 1947, constructing or repairing approximately 22 miles of rail trackage. The high-capacity movement of defense materiel through the Portland Sub-Port of Embarkation created railcar holding backlogs on the main lines. The War Department responded to this by leasing land adjacent to Terminal 4 and building a railcar storage yard to accommodate cargoes awaiting transshipment.

Following the facility's return to the City CPD, improvements were made in 1947 when additional trackage was installed for the new bulk outloader built by the City CPD at Pier 5, Berth 412 for handling expected coal and phosphate cargo. Rail improvements continued at Terminal 4 in the 1950s, including a spur track constructed in 1953 to serve the Quaker State oil packaging plant at the head of Slip 3, rail modifications to accommodate the addition of the Cargill grain storage tanks in 1954, the 1959 addition of rail lines for Pier 4 when it was developed, and improvements in 1964 at the time of Matson's container terminal operation. More recently, in 1996 Hall-Buck Marine required modification of the rail network to accommodate its soda ash export facility.

In 1964, when Matson Navigation began container terminal operations at Pier 2, the rail infrastructure was assessed for container operations. In 1985, the north throat and grain leads into Terminal 4 were reconstructed. In 1987 and 1996, Hall-Buck Marine's lease operations required modification of the rail network near Slip 3. Maps depicting rail lead designations are illustrated on Figure 2-4.

Exported freight is the railroad company's responsibility until facility operators take delivery with their locomotive, as is the case with Kinder Morgan Bulk Terminals (KMBT). Responsibility remains with KMBT and the longshoremen while product is transferred to a ship's hold. When the ship's hatches are closed, responsibility for the cargo is transferred to the vessel owners and operators. The same process applies to imported cargo. While the product is in the ship's hold, it is the vessel owner/operator's responsibility. During transfer, the responsibility shifts to the terminal operator (tenant) and its agents (longshoremen). This status is in effect while the railcar is shifted to another siding and an empty car takes its place. Union Pacific,

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or another railroad company, assumes responsibility when the completed load is hooked up and pulled out of the terminal.

Army Transport Service Sub-Port of Embarkation

In January 1942, the USATS leased all of Terminal 4 for use as the Portland Sub-Port of Embarkation, and municipal shipping activities were shifted to City CPD Terminal 1 and old Terminal 2. The facility was used to embark troops for overseas, as well as to store equipment and materials, house Army personnel, refuel ships, and load ships for transport overseas. The War Department in turn leased property and buildings to subtenants (e.g., Northwestern Ice and Cold Storage Company), providing services at the Portland Sub-Port of Embarkation. During its tenure at Terminal 4, the USATS operated the facilities described below.

Disinfestation/Fumigation Plant. Between May and September 1943, the USATS constructed a disinfestation (fumigation) plant to the east of Warehouse 1 for delousing soldiers and prisoners of war prior to their embarkation or debarkation. (Maps and drawings from the war years refer to a House 1 on both Piers 1 and 2. A report from February 1944 notes that the disinfestation plant was located in the former Water Division repair shop, but that location has yet to be verified.) The disinfestation plant was designed to delouse 150 men and their clothing and belongings per hour. The prisoners of war were reportedly held at Warehouse 1 (including a "delousing area") prior to being transferred elsewhere. The materials used in the disinfestation process have not been confirmed. An Army directive of August 19, 1944 instructed military installations to use methyl bromide for disinfestation and fumigation.

Salvage Yard. The USATS established a small salvage yard at Terminal 4 for scrap metal (including scrap iron and ferrous metal) and rubber. A report from March 1943 noted the sale of more than 38,000 pounds of scrap iron and steel from salvage operations. The total tonnage of materials scrapped at the terminal during the USATS's tenure was close to 350 tons, with most of that sold in 1944. Some of the materials were sold to the Zidell Manufacturing & Supply Company, Alaska Junk Company, and California Bag & Metal Company. Aerial photographs indicate that the USATS filled the salvage yard area sometime around 1945.

Auxiliary Oil Pipeline. In February 1944, the USATS completed construction of an auxiliary pipeline at Pier 5, Slip 3. The pipeline extended 340 ft to the slip side of the pier. The Army also constructed two standpipes adjacent to the slip to accommodate the auxiliary pipeline. The new line was built to permit tankers to transfer oil to upland facilities while other ships took on coal from the adjacent bunkers.

Other USATS Facilities. Two other facilities are of potential interest: a gasoline station and a sulfur plant. The gas station was located along the south side of Carroll Road (the entrance road to the terminal) slightly northeast of the vegetable oil storage tanks east of Slip 1. The gas station utilized an approximately 2,000-gallon gasoline storage tank and pump in connection with the processing of military vehicles. It is not known whether the storage tank was above or below ground. The sulfur plant was located east of the bulk storage bunkers on Pier 5 (corresponding with the former location of the Oregon Sulphur Company).

Terminal 4 was returned to the City CPD in February 1946. In 1947, the War Assets Administration purchased the northern portion of the City CPD terminal occupied by Oregon Shipbuilding Corporation in exchange for property on the west bank of the river that the City CPD later developed as Terminal 2.

Ore and Concentrate Handling

Pre-1950. From its inception, Terminal 4 was designed to handle imports and exports of bulk cargo. Rail transport by OWR&N Co. and its successor, Union Pacific, was the chief means of conveyance for import and

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export cargo. Ores and concentrates were an important element of this traffic beginning in 1921 with the completion of Pier 5 on the southern edge of Slip 3. A large area for open storage, to the east and south of Pier 5, lay adjacent to eight covered concrete bunkers with sloping interiors, which were serviced by a series of belt conveyors. This was the mineral bulk-handling facility at Terminal 4, details of which are provided in Table 2-3 based on information known to date.

Table 2-3
Chronology of Pre-1950 Mineral Bulk Handling at Terminal 4

Ore	Status	Transfer Method	Storage	Period
Phosphate rock	Export	Railcar from siding unloaded to either track hopper or cradle unloader to bunkers or cars; contents were discharged to open area storage. Material traveled by conveyor belt from bunkers to loading towers on the harbor face (Berth 414) of Pier 5, where it was loaded directly into ships' holds.	Open storage or covered bunker	1921-1950
Sulfur	Import	Ships unloaded by Terminal 4 locomotive crane onto Slip 3 side of Pier 5 (Berths 412 and 413).	Open storage	1921-1945
Manganese ore	Export	Same method as used for phosphate rock.	Open storage or covered bunker	1924-1925
Zinc concentrate	Export	Same method as used for phosphate rock.	Open storage or covered bunker	1925-1928
Coal	Ship fuel	Same method as used for phosphate rock.	Open storage or covered bunker	1923-1931, 1935-1936, 1940-1950
Chrome ore	Import	Same method as used for phosphate rock. Unloaded at Pier 5 in 1925 and at Pier 2 (Berths 406-408) in 1937-1941.	Open storage or covered bunker	1925, 1937, 1940-1941

Post-1950. At the end of World War II, the City CPD regained use of Pier 5 and constructed a new bulk outloader on the Slip 3 side of the pier (Berth 412) for handling expected cargoes of coal and phosphate. Starting in 1955, lead and zinc concentrates were directly transferred from ships in Slip 1 to open Union Pacific gondola railcars by two gantry cranes at Pier 2 equipped with clamshell buckets. The transfer of lead and zinc concentrates at Terminal 4 was relocated to Slip 3 (Berths 410 and 411) in 1961 with the completion of Pier 4 and the Dravo bulk unloading tower. The Dravo unloading tower remained in service until 1998, when it was decommissioned. Soda ash, initially exported from Pier 5, Berth 412, became a major export in 1988, when loading was transferred to Pier 4, Berths 410 and 411, where a new bulk outloader was constructed by Hall-Buck. Based on currently available information, details of these operations are summarized in Table 2-4.

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Table 2-4
Chronology of Post-1950 Mineral Bulk Handling at Terminal 4

Ore	Status	Transfer Method	Storage	Period
Lead concentrate	Import	Gantry crane clamshell removed ore concentrate from ship hold to open railcar on Pier 2 (Berths 406-408) until 1961; Dravo unloading tower removed ore concentrates from ship hold to open railcar on Pier 4 (Berths 410 and 411) from 1961-1971. Railcars were spotted on Tracks 4-10, 4-11, 4-12, and 4-15. Cars were then pulled west to Tracks 4-2 and 4-3 for pushing under the Dravo loader. Loaded cars exited to the ladder tracks at the east of the pier for switching.	No storage	1955-1971
Coal	Export	Berth 412 bulk unloader; gantry cranes at Pier 2 also unloaded coal from barges.	Pier 5 storage bunkers	1952-1958
Zinc concentrate	Import	Same method as used for lead, same time frame.	No storage	1955-1971
Soda ash	Export	Bulk outloader; Pier 5-loaded railcars dumped soda ash into Berth 412 outloader, direct transfer to vessel. Pier 4-loaded railcars traveled along face of dock, in strings of six cars, through one of two dumper buildings. Soda ash was either transported directly to ship via conveyor or taken to storage building for later shipment. Ships could be simultaneously loaded from storage and rail.	30,000-ton A-frame storage building at Pier 4 since 1993; no storage at Pier 5 (direct transfer from rail to ship only)	1988-Present
Sulfur	Export	Transfer from railcars to barges by bulk unloader at Berth 412. After 1961, transferred by Pier 4 Dravo tower.	No storage	1955-1967
Alumina/Bauxite	Import	Gantry cranes at Pier 2 (Berths 406-408) removed ore from ship hold to Union Pacific railcars. After 1961, ships were unloaded at Pier 4 (Berths 410 and 411) by the Dravo unloading tower.	No storage	1955-1956, 1963
Ammonium sulfate	Import	Transferred from ship hold by Dravo tower into dump trucks.	Storage building south of Pier 5	1970
Bentonite clay	Export	Direct transfer from railcar to ship via Pier 5, Berth 412 bulk outloader via conveyor belt from railcars until new outloader constructed at Pier 4.	No storage	1967
Sodium sulfate	Export	Direct transfer from railcar to ship via	No storage	Not available

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Ore	Status	Transfer Method	Storage	Period
		bulk outloader at Pier 5 until new outloader built at Pier 4.		
Soybean meal	Export	Direct transfer from railcar to ship via bulk outloader at Pier 5 until new outloader built at Pier 4.	No storage	Not available
Chromite	Import	Gantry cranes at Pier 2 removed ore from ship holds to Union Pacific railcars.	No storage	1956-1957
Ferro-phosphorous iron ore	Export	Transferred by Pier 2 gantry cranes from railcars (originating in Idaho) to SS *Jotunfjell* for shipment to Rotterdam, Holland.	No storage	1955-1957
Limestone	Import	Transfer from barge hold to railcar.	No storage	1966-1967
Manganese	Import	Gantry cranes at Pier 2 removed ore from ships to railcars.	No storage	1958
Potash	Export	Transferred from railcars to ships at Berth 412.	Storage bunkers	1959
Rutile ore sand (titanium oxide)	Import	Transferred from ship holds by Berth 412 bulk loader.	Storage bunkers	1970
Talc	Export	Transferred from Burlington Northern railcars to ship holds by Berth 412 bulk outloader (Berth 401).	Storage bunkers	1966
Tricaphos (tri-calcium phosphate)	Import	Discharged by a marine leg and conveyor belts at Pier 1.	Storage bunkers at Pier 1	1961

The Bunker Hill Company and Hecla Mining Company's Sullivan Electrolytic Zinc Plant were the major consignees for lead and zinc ore concentrates during the 1955 to 1971 period. Anaconda Mining Co. (a former ARCO subsidiary) and American Smelting & Refining Co. (known as ASARCO) also imported ores through Terminal 4. The American National Soda Ash Consortium (known as ANSAC) has supplied Wyoming soda ash to the KMBT (formerly Hall-Buck Marine) facility at Terminal 4 from 1988 to the present day.

Pencil Pitch Handling

Pencil pitch is a coal tar distillate used as anode material at aluminum refineries throughout the Pacific Northwest. It is manufactured by extruding finger-width coal tar pitch "pencils." Available Port records indicate that pencil pitch was handled at Terminal 4 from 1978 to 1998. The pencil pitch was manufactured in Germany and China and purchased from Koppers Industries, Inc. Ships carrying the pencil pitch were moored at Berth 411 in Slip 3. Longshoremen removed the pencil pitch from the ships' holds by means of the clamshell-equipped Dravo unloading tower on Pier 4 and loaded it directly onto truck trailers or railcars adjacent to the pier.

In 1978, 13,161 short tons of pencil pitch arrived at the Port in several ships and were transferred to rail and truck carriers at Pier 4. In 1979, Jones Oregon Stevedoring Co. signed an agreement to handle bulk pencil pitch cargo at Terminal 4. That agreement was renewed in September 1982. In 1987, the Port leased the bulk

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cargo handling operations to Hall-Buck Marine, Inc. At that time, the Port was using the Dravo unloading tower to transfer an estimated 25,000 to 35,000 tons of pencil pitch annually. Hall-Buck Marine modified the Dravo mechanism in 1988 and the rear section of the loading hopper enclosure in 1992 to improve operations. Statistics indicate that 182,748 short tons of pencil pitch were unloaded from at least 28 ships between 1978 and 1989. Port records register 11 ships calling between January 1997 and June 1998. Ten of those vessels were affiliated with General Steamship Corporation, Ltd. In 1998, Hall-Buck Marine ended bulk import of pencil pitch at Terminal 4. The Dravo unloading tower was decommissioned that same year.

General Cargoes

Terminal 4 was chiefly designed to handle bulk (as opposed to break-bulk) cargo. The grain elevator, vegetable oil and molasses tanks, and the bulk mineral facility at Pier 5 have been prominent elements of the bulk cargo handling at Terminal 4. Other bulk cargoes imported or exported through Slip 1 and its adjacent piers and warehouses were wool, cotton, and natural rubber. The entities handling these cargoes and the time frames involved are not presently known. Some break-bulk cargoes were processed through Terminal 4, including automobiles exported to the Far East beginning in 1925.

Prior to and during the terminal's use as a container station by Matson Navigation Company, the terminal was used to process whole log bundles for export to Japan.

In addition to the bulk storage plant for handling coal, phosphate rock, and other bulk products, the rear of the quay dock at Pier 5 had a 3.5-acre storage space available for lumber, logs, sulfur, and steel. The equipment used for loading and unloading these materials included two traveling towers, hoppers, tripper, chutes, bins, and automatic scales. The quay dock was removed from Pier 5 in 1962, and the bulk handling facility was demolished between 1968 and 1969. The bulk outloader on the slip side of Pier 5 was decommissioned and removed between 1990 and 1992.

City of Portland

The City of Portland owns a parcel of land adjacent to Wheeler Bay commonly known as the fire boat station parcel. When the Port and the City CPD were consolidated in 1971, the CPD's properties and functions were transferred to the Port. However, the fire boat station parcel was specifically exempted from the transfer of property. The exemption was recorded correctly, but the parcel was erroneously located on Multnomah County tax maps at Slip 1 instead of in Wheeler Bay. That error was corrected in 2002.

The City of Portland operated a fire boat station at Terminal 4 from a pier into Wheeler Bay from approximately 1960 through approximately 1986. At one point, the fire boat station was located on the upstream end of Wheeler Bay, attached to Berth 410. In approximately 1980, the Multnomah County Sheriff's Department moved a boat house and houseboat just inside the area closer to the head of the slip from the fire boat station. The City of Portland formerly utilized an approximately 1,000-gallon UST for the storage of gasoline. The former UST was decommissioned in 1995 and, following sampling of soil and groundwater, DEQ issued a No Further Action determination. The City of Portland relocated its fire boat moorage to the Port's Terminal 1 facility in 1995, at which time Carr Marine leased the ramp and floating dock to tie up barges. That lease ended in 1999. The fire boat parcel has been vacant since that time.

In 1986, the City of Portland constructed a municipal stormwater sewer conveyance system that drains properties located along North Lombard Street and North Roberts Avenue. The stormwater piping traverses the northern portion of the Slip 1 Upland Facility and ultimately discharges to Slip 1. The City of Portland refers to the outfall discharging to Slip 1 as Outfall 52C. According to City of Portland records, Outfall 52C is

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a 36-inch municipal storm drain with a catchment area of approximately 24 acres located above the railroad tracks east of the terminal.

Other Facilities

A gearlocker building, constructed as a one-story building in 1932, housed shops for carpentry, painting, blacksmithing, and repairs. In 1942, during the USATS's tenure, an internal, second-story loft was added to the building.

Oregon Terminal Company

In 1988, the Port ceded control of overall operations at Pier 2 under a management agreement with Oregon Terminal Company (OTC) for operation of all break-bulk berths. OTC handled Berth 408, the ro-ro dock, and associated warehouses. In addition, OTC operated the old Quaker State building as a gearlocker. A rail-covered work pit was constructed west of the gearlocker building at that time. In addition, one 4,000-gallon UST for diesel and one 4,000-gallon UST for gasoline were installed with a fueling station on the south side of the gearlocker building. An equipment wash station was installed on the slip side of the building; the wash station drained to the sanitary sewer. Both the USTs and the wash station were removed when the management agreement ended in 1996.

2.2.3.3 Current Terminal Operations

Throughout the 1980s and 1990s, some of the buildings, equipment, and docks at Terminal 4 became obsolete and were removed. Slip 1 is not presently deep enough to accommodate deeper-draft modern vessels and current Port plans do not call for such deepening in the foreseeable future. In the late 1980s and early 1990s, Warehouse 4 was condemned and removed, and the original tanks at the bulk liquid storage facility near the head of Slip 1 were removed. In 1996, Berths 406 and 407 and their associated docks and warehouses were dismantled. The demolition of Berths 403 and 404 and associated Houses 3 and 4 followed in 1999. Bulk operations at Berth 412 (Pier 5) were terminated in 1989, and the wharf at Berth 412 was removed in 1997.

Cargill

Cargill Grain, Inc. terminated its lease for approximately 15.1 acres at the grain terminal facility in 2003 (the Port received a Notice of Early Termination on May 6, 2003). Also included in the lease are the deck and fender system for Berths 401 and 405, rail tracks from the frog, and Cargill's share of the cost for Port maintenance of common-area rail and road. Cargill is currently in "hold over" status pending final investigation and cleanup of its leasehold and is in the process of implementing an exit audit of the facility. CLD Pacific Grain was a sublessee of Cargill.

Cereal Food Processors

Cereal Food Processors, Inc. (formerly known as Terminal Flour Mills) is currently in the last four years of a lease for approximately 1.6 acres at the flour mill facility at Terminal 4.

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International Raw Materials

IRM is currently in year three of a 10-year lease (with two five-year option periods) for approximately 6.3 acres at the liquid bulk storage facility, excluding a Port building. The previous lease for the facility was assigned from PM-Ag to IRM in 1995.

Rogers Terminal

Rogers Terminal & Shipping (a division of Cargill Marine) is currently in "hold over" status with a lease of improved space east of Slip 1. The lease is for less than 1 acre and encompasses an 11,712-square-ft warehouse with 406 square ft of office space and a 15,451-square-ft yard. Rogers, a terminal service company, originally leased the space for stevedoring services supplied to Cargill's operation. Since Cargill is in the process of exiting its lease and is no longer operating at Terminal 4, Rogers is currently utilizing the leasehold for storage purposes. Rogers' initial lease agreement with the Port dates from 1983.

Rogers formerly utilized an aboveground used oil tank in connection with its operations. In addition, the Port removed an approximately 10,000-gallon gasoline UST from the Rogers leasehold in 1990. Sampling during decommissioning of the UST confirmed that there were no releases associated with the UST.

Kinder Morgan Bulk Terminals

In 1998, Hall-Buck was acquired by Kinder Morgan and renamed KMBT. KMBT continues to export soda ash through Slip 3. KMBT currently leases 6.56 acres adjacent to Berths 410 and 411 for ship loading of soda ash and/or unloading of bulk cargo from rail. The lease area includes rails, associated buildings, a storage dome, and utilities.

Additional agreements affecting Kinder Morgan's lease area include:

- a Portland General Electric easement for underground line;
- a Pipeline Crossing Agreement, Union Pacific (licensor) to Hall-Buck (licensee), allowing Hall-Buck to construct, maintain, and operate a pipeline; and
- a Revenue Sharing Agreement with Union Pacific.

KMBT currently utilizes an approximately 5,000-gallon diesel UST located north of the Rail Dump building, an approximately 675-gallon AST located in the eastern portion of the facility, and an approximately 2,000-gallon sulfuric acid AST located within Building 432. In addition, KMBT utilizes an approximately 43,000-gallon open settling tank for soda ash wash-down water.

Schnitzer

The Port has a moorage agreement with Schnitzer Investment Corporation for a portion of the mooring dolphin that extends onto submerged lands adjacent to property owned by Schnitzer at the Berth 401 grain elevator.

Rail Usage

The rail trackage within the confines of Terminal 4 is owned by the Port. The Port leases portions of the rail trackage to individual tenants as part of their facility leases. The Terminal 4 rail system is designated as capacity that the Port will afford a tenant under terms of the lease. Older, renewable leases, such as the one

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currently in effect with KMBT, subsume the particulars of car movement and loading under the general term of "operations." Newer facility leases deal with all aspects of terminal transfer operations in detail.

Although not specifically addressed in lease language, there are recognized responsibilities regarding rail activities at Terminal 4. KMBT's soda ash operations furnish an example. Union Pacific, or any other railroad company involved in car transit and delivery, is responsible for the line haul of consigned product from origin to destination. This includes delivery of the cars to the terminal. At the point when Union Pacific pulls away from the train, the Port's lessee, KMBT, takes charge of the cargo with its own locomotive. Under KMBT's original 1987 lease agreement that governs use of the facility, longshoremen provide the labor for product movement and transfer.

2.2.4 Dredging and Filling History

Dredging activity at Terminal 4 began with the work that provided fill for the general terminal space and created Slips 1 and 3 between 1917 and 1921. In the process, the former Gatton's Slough and adjacent Willamette River shoreline were reconfigured (see Section 2.2.2). Port of Portland dredges provided the dredged material for the City CPD's facility. Maintenance dredging of the slips and improvements to the terminal's harbor face occurred periodically in ensuing years. Based on currently available information, Table 2-5 summarizes the chronology of dredging events at Terminal 4.

Table 2-5
Chronology of Dredging Events at Terminal 4

Year	Location	Description
1917	St. Johns Elevator and Terminal	Slip excavation performed by Dredge Portland and "special channel" work performed by Dredge Willamette.
1918	St. Johns Terminal	Slip excavation performed by Dredge Portland and channel work performed by Dredges Columbia, Willamette, and Tualatin.
1919	Harbor Channel	Dredge Willamette dredged material from the harbor channel and applied fill to Terminal 4 during three separate time periods.
1919	Slips	Dredge Portland worked on slips during several time periods.
1920	Terminal and Harbor Channel	Dredge Willamette dredged material from the harbor channel and slips and applied fill to Terminal 4 during three separate time periods.
1920	Slips and Filling	Dredge Portland dredged material from slips and applied fill to terminal during three separate time periods.
1921	Slips and Filling	Dredge Portland dredged material from slips and applied fill to Pier 3 and Pier 4 areas during three separate time periods.
1922	Harbor Channel	Dredge Portland worked the shipping channel at Terminal 4 and deposited dredged material on an unspecified "east side" location in August.
1923	Harbor Channel	Job No. 1087: Dredged material discharged on Terminal 4 beach.
1924	Pier 5	Job No. 1100: Dredged material discharged on bank upstream from Terminal 4.

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Year	Location	Description
1942	Slip 1	USATS maintenance dredging of Slip 1.
1948	Terminal 4	Dredging of Slip 3.
1957	Slip 3	Widening of Slip 3, dredge and fill.
1962	Slip 1	Dredging.
1968	Slip 1	Dredging.
1975	Slip 1	Dredging of Berths 403-405.
1977	Slips 1 and 3	Dredging of Berths 407-408 (Slip 1) and Berth 410 (Slip 3)
1984	Slip 3	Maintenance dredging.
1988	Slip 1	Maintenance dredging, Berths 403-408.
1994	Slip 3	Dredging associated with consent decree remediation.
1997	Slip 3	Maintenance dredging.
2002	Slip 3	Maintenance dredging.
2003	Slip 3	Maintenance dredging.

2.2.5 Adjacent Property Ownership and Operations

Terminal 4 is bordered to the north by Schnitzer Steel Industries and Northwest Pipe and Casing; to the north/northeast by the Burgard Industrial Park; to the south by the Terminal 4 auto storage area, which is occupied by Toyota; to the east by Union Pacific rail tracks, beyond which is the Toyota processing yard and Toyota processing center; to the southeast by the Toyota upper lot; and to the west by the Willamette River. The Schnitzer Steel, Northwest Pipe and Casing, Burgard Industrial Park, and Toyota auto storage area are discussed below.

2.2.5.1 Schnitzer Steel Industries

Schnitzer Steel Industries (Schnitzer), located at 12005 North Burgard Street, borders Terminal 4 on the north. Schnitzer processes, stores, and exports scrap metal (e.g., automobiles, appliances, and ferrous metal products) from its facility. Schnitzer also operates a deep marine terminal for bulk commodities. The property was the site of Oregon Shipbuilding Corporation's shipyard from approximately 1943 through 1945; from the late 1960s through 1972, Schnitzer operated a ship scrapping facility at the property. Schnitzer Steel Industries is listed as DEQ Environmental Cleanup Site Information (ECSI) #2355 and is currently under a Voluntary Cleanup Program (VCP) Agreement for remedial investigation of the site, which is ongoing.

2.2.5.2 Northwest Pipe and Casing

Northwest Pipe and Casing (also known as Northwest Pipe Company), located at 12005 North Burgard Street, borders Terminal 4 on the north. Northwest Pipe and Casing operates a welded steel pipe and coating manufacturing facility. Historically, the Oregon Shipbuilding Corporation shipyard, which operated from

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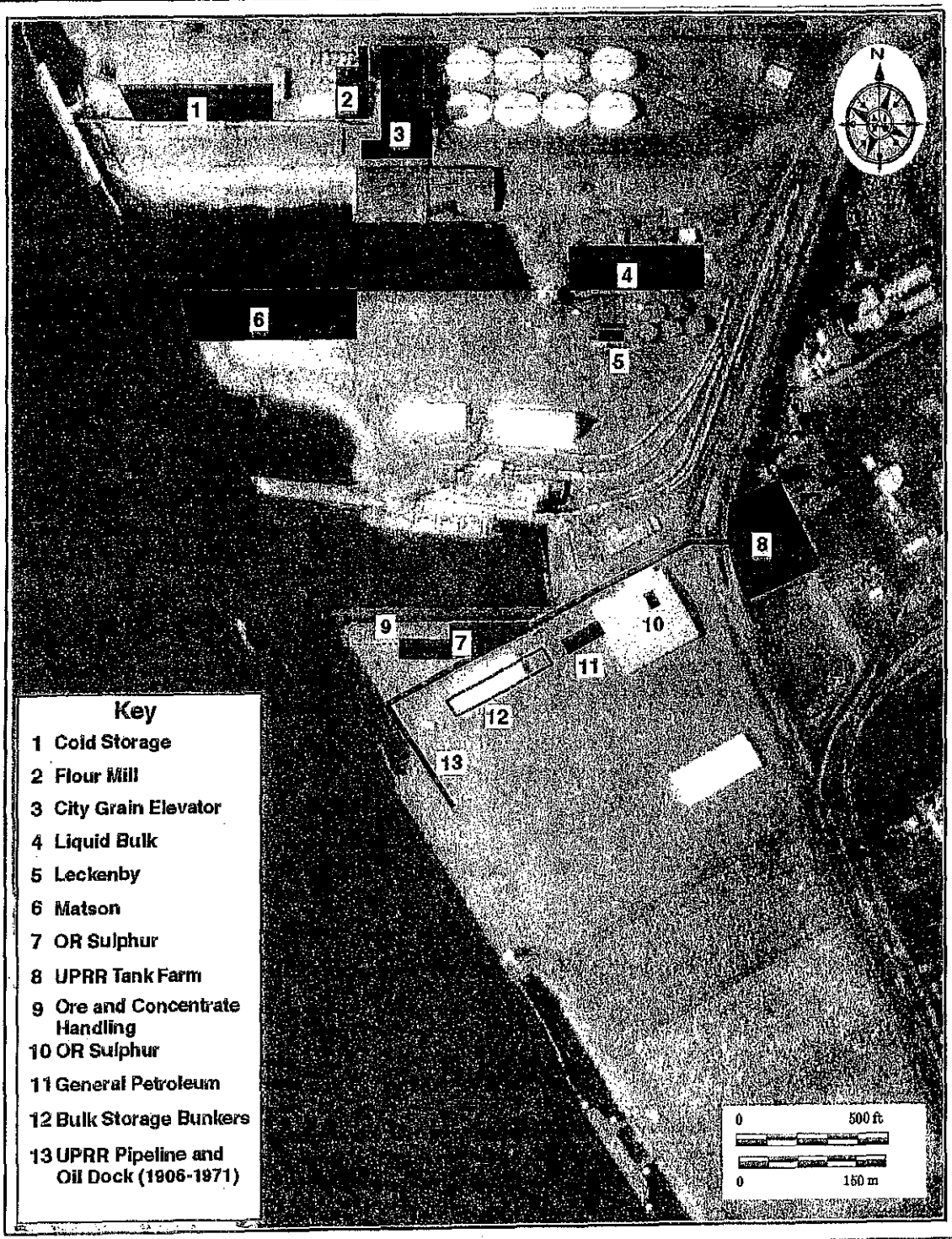


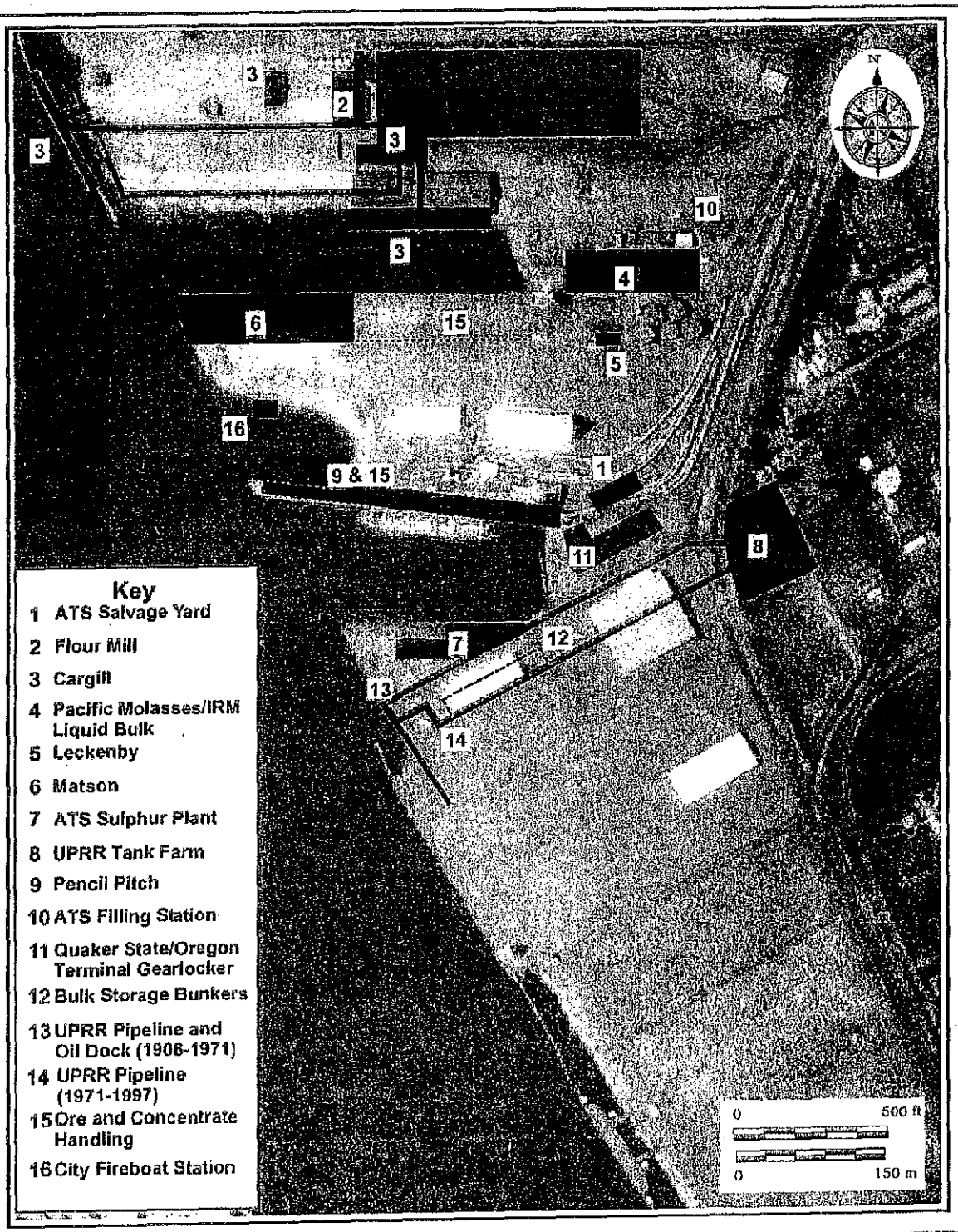
PORT OF PORTLAND
PORTLAND, OREGON
TERMINAL 4 EARLY ACTION WORK PLAN

PRE-WORLD WAR II DEVELOPMENTS

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
2-2

PUB009372



PORT OF PORTLAND
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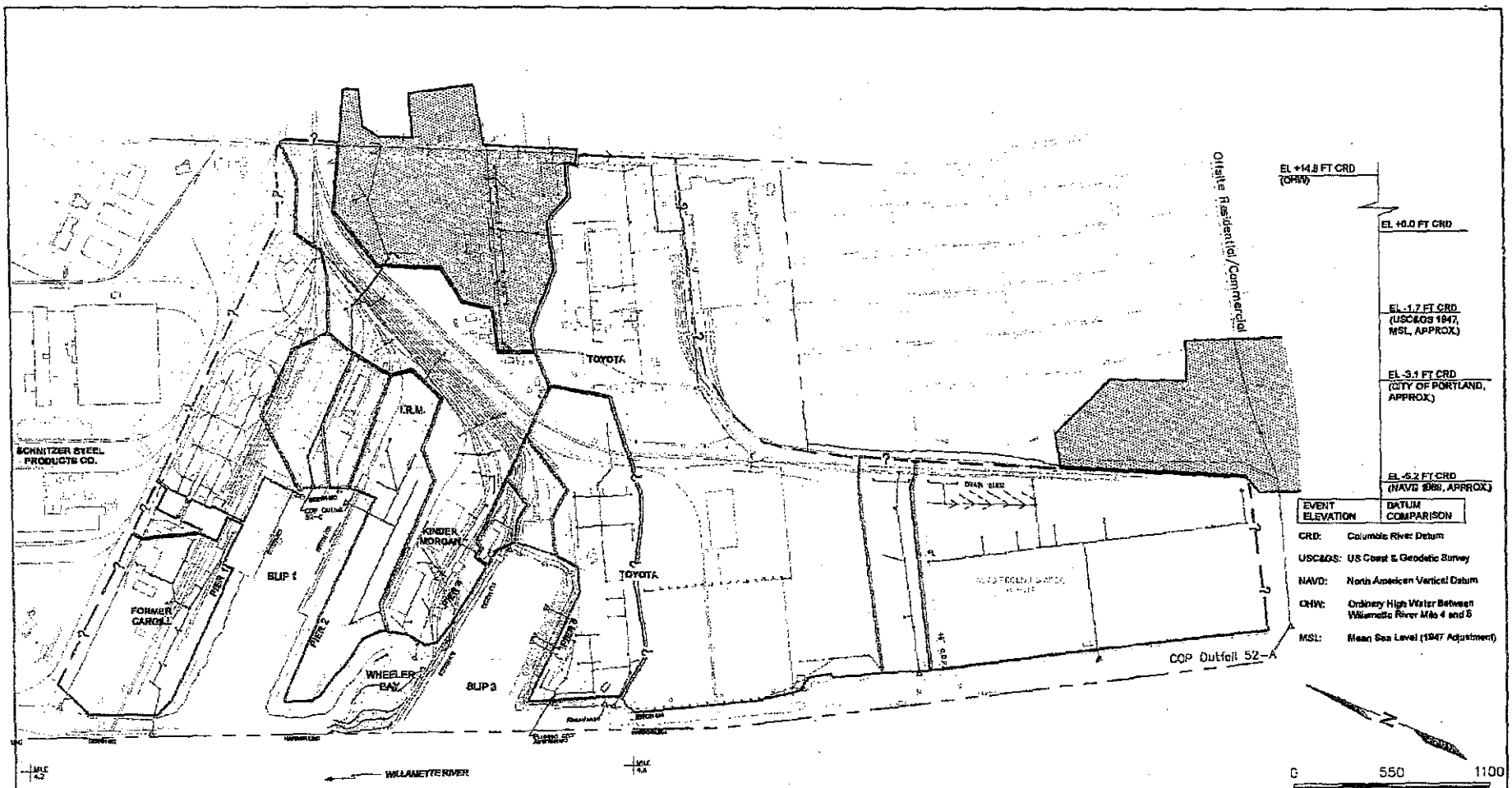
TERMINAL 4 EARLY ACTION WORK PLAN

POST-WORLD WAR II DEVELOPMENTS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 2-3

PUB009373



Notes:

1. Upland topographic vertical datum is MSL; Bathymetric vertical datum is CRD
2. Site Plan is based on drawings provided by the Port of Portland.
3. Shoreline boundary for Ordinary High Water is approximate.
4. Willamette River Mile Reference Marks are approximate.
5. Diurnal tide range during low river stages is 2.2 feet at St. Johns and 2.4 feet at Portland.
6. Datum conversion tables to CRD provided by Port of Portland.
7. Drainage basins for Outfalls 52A and 52C were provided by the City of Portland (see legend).

Existing Piers

Approximate Drainage Basin Incorporating City of Portland Stormwater Subbasin

DWG NAME: G:\project\Clients\BBL\Terminal 4\t4_012.dwg
DATE: 02/17/04 12:40pm

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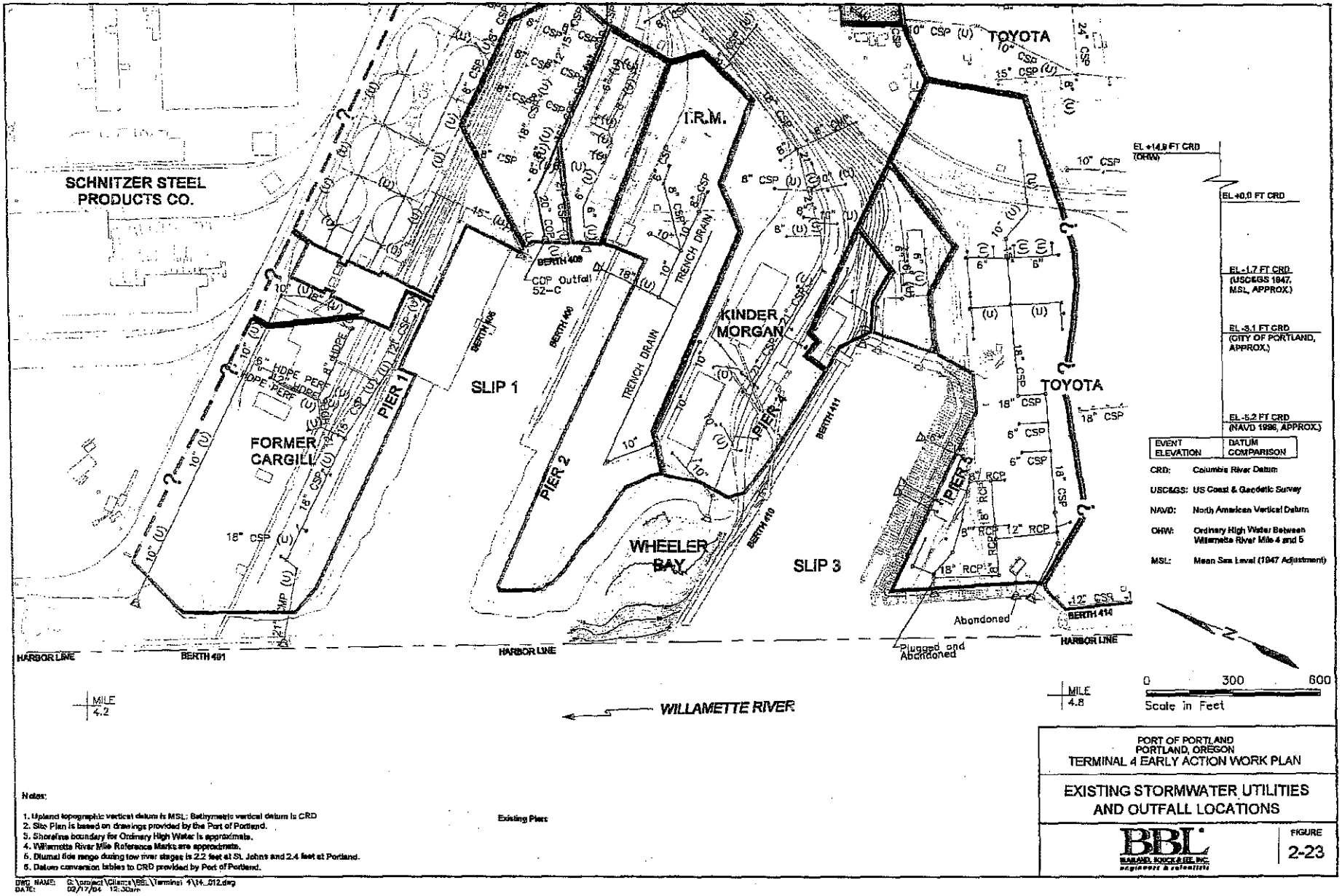
TERMINAL 4 EARLY ACTION WORK PLAN

EXISTING STORMWATER DRAINAGE BASINS

BBL BLAUVELT, BOUCK & LEE, INC. ENGINEERS & SCIENTISTS

FIGURE 2-22

PUB009392



Notes:

1. Upland topographic vertical datum is MSL; Bathymetric vertical datum is CRD
2. Site Plan is based on drawings provided by the Port of Portland.
3. Shoreline boundary for Ordinary High Water is approximate.
4. Willamette River Mile Reference Marks are approximate.
5. Diurnal tide range during low river stages is 2.2 feet at St. Johns and 2.4 feet at Portland.
6. Datum conversion tables to CRD provided by Port of Portland.

Existing Piers

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DATE: 02/17/04 10:30am

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TERMINAL 4 EARLY ACTION WORK PLAN

EXISTING STORMWATER UTILITIES AND OUTFALL LOCATIONS

BBL BLAUVELT, BOECK & LEE, INC. engineers & scientists

FIGURE 2-23

PUB009393

Table 3-1
Summary of Potential Contamination Sources
for the Terminal 4 Removal Action Area[1]

Potential Contaminant Source	Substances Potentially Released	Known Spills or Releases
Potential Contaminant Sources Located at Terminal 4 (including Slip 1 and Slip 3 Uplands)		
Cargill hydraulic oil release at Conveyor Building (C-10) [2]	Hydraulic oil	• Remediation of impacted soils initiated at Building C-10 but not complete. Excavations exposed during June 2003 site walk. 11/2003 excavation left contaminated soil onsite due to inaccessibility. • PAH and TPH constituents confirmed in verification samples.
Reported Cargill releases to Slip 1[2]	Gear grease	• In 1984, Cargill had a release of gear grease to Slip 1; cleanup was conducted by Riedel. • In September 1993, approx. ½ gallon of hydraulic oil was released to Slip 1; cleanup was conducted by Riedel.
Cargill Fuel Storage and Handling Area near Building 152[2]	Petroleum constituents	Area groundwater discovered to contain oil in 1992. This area drains to the head of Slip 1.
Cargill fuel oil UST (T4-22) [1]	Fuel oil	None known.
Former Cargill fuel/ oil UST (T4-85) [2]	Used oil	None known.
Former Cargill diesel AST (T4-45) [2]	Diesel	Cat litter observed on ground near tank during October 2003 walk-through indicates past fuel spills have occurred.
Former Cargill diesel AST (T4-47 & 48) [2]	Diesel/used oil	Cargill discovered oil on groundwater in this area in 1992. The area drains to the head of Slip 1.
Cargill hydraulic pumps (west of Railcar Tipper) [2]	Hydraulic oil (staining around units observed)	None known.
Cargill pesticide and rodenticide applications[2]	Weed control chemicals, poisoned bait for rodent control, malathion, phostoxin, weevilcide (liquid form, including carbon tetrachloride and carbon disulfide)	Weed control chemicals applied to ground.
Multiple Cargill sumps[2]	Waste oil, hydraulic oil	• Sump in work pit beneath Railcar Tipper contained discolored and odorous liquid during October 2003 walk-through. • In 01/1989, Spencer Environmental removed 475 gallons of waste oil pumped from the Truck Dump sump (Cargill drawing shows a hose in the Truck Dump broke). • Between 1990 and 1999, Spencer pumped and disposed of approx. 2,045 gallons of oil for recycling and 32 gallon

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Potential Contaminant Source	Substances Potentially Released	Known Spills or Releases
		garbage cans of hydraulic oil-soaked wheat and absorbent pads.
Cargill Maintenance Shop[2]	Hydraulic oil, lube oils, lubricants, paints, thinners, solvents, antifreeze, aluminum fiberglass coating, soluble oil, industrial cleaners, epoxies, gear grease, transmission fluid, and motor oils	None known.
Former Cargill Transformer Building[2]	Polychlorinated biphenyls	None known.
Former Cargill Diesel Tanks (T4-23)[2]	Diesel	None known.
Waste piles[2]	Waste piles containing tires, scrap metal, railroad ties, and debris observed during the October 2003 walk-through	None known.
Cargill deep water well[2]	Unknown oil	• Well filled in 1992; field notes indicated 7 feet of oil on top of water between 27 and 34 feet below ground surface. • Spencer Environmental removed 307 gallons of "product" from the well (PCB tests were negative).
Former Cargill Machinery Shop[2]	Chemical storage	None known.
Cargill former Blacksmith Shop[2,4]	Chemical storage	None known.
Cargill "Bull Pen"[2]	Trichloroethylene, primer, paint wastes	Cleanup of bull pen reportedly conducted by Van Waters and Rogers in February 1998.
Cargill Rail Trackage between Rail Track Shed and Berth 401[2]	Contaminants associated with locomotive maintenance operations	Stained soils observed during October 2003 walk-through and reflected in Cargill exit audit of area. Rail area drains to Slip 1.
Rogers AST[3]		Soil staining was observed at the base of the AST in 1989.
IRM Fertilizer AST (T4-79)[3]	Liquid fertilizer	A liquid fertilizer spill from the AST located within the tank containment area occurred around 1984. In 1996, samples taken in the area of the spill revealed that nitrate levels in the soil were non-detect or below 1 mg/kg in all samples.
IRM Boiler Fuel UST (T4-17)[3]	Boiler Fuel	None known.
Former ASTs at Port Maintenance Facility (T4-81, T4-82, T4-83)[4]	Diesel, used oil	None known.
Former USTs at Port Maintenance Facility (T4-16, T4-26, T4-44)[4]	Diesel, gasoline	None known.

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Potential Contaminant Source	Substances Potentially Released	Known Spills or Releases
KMBT UST North of Rail Dump Building (T4-43)[4]	Diesel	None known.
Former Tank Car Cleaning Pit at Liquid Bulk Facility[4]	Unknown	None known.
Ore/Concentrate Handling Areas[4]	Metals	None known.
Former Fumigation Plant[4]	Pesticides	None known.
Former USATS Disinfestation Plant[4]	Pesticides	None known.
Former USATS Salvage Yard[4]	Unknown	None known.
Former USATS gasoline fueling station along Carroll Road[4]	Petroleum constituents	None known.
Hazardous material storage at gearlockers and maintenance buildings[4]	Unknown	None known.
Hazardous material storage at former Blacksmith Shop and former Machinery Shop[4]	Unknown	None known.
Former below-ground gas line and fueling station at Boiler House[4]	Petroleum constituents	None known.
Union Pacific Pipeline[4]	Oils, fuels	• 1970 release from leaking valve seal on the Union Pacific pipeline; Standard Oil recovered about 200 gallons of diesel fuel from an overflowing manhole; four sections of piping along the northern pipeline replaced, presumably due to leaks. • Five oil leaks discovered in the original Union Pacific pipeline on November 13 and December 6, 12, and 15, 1970. December 15, 1970, leak occurred during Union Pacific's pipeline repairs when oil flowed through the sand and escaped into the water. • 1971 oil seep into Willamette River from southern bank of Slip 3. Union Pacific recovered some of this oil by digging a

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Potential Contaminant Source	Substances Potentially Released	Known Spills or Releases
		trench along the bank of Slip 3 at the place where the oil seepage occurred. Union Pacific also pumped oil out of the ground from several wells that it dug at Terminal 4.
Slip 3 slicks and seeps, possibly associated with Union Pacific pipeline[4]	Oils	• In late 1972 and early 1973, oil slicks began appearing at the head, or eastern end, of Slip 3 • Oil seeping from the head of Slip 3 discovered in 1991.
Former Pencil Pitch Handling[4]	Polycyclic aromatic hydrocarbons.	• Between 1979 and 1988, 25 illegal discharges allegedly occurred through stormwater and directly to the Willamette River when pencil pitch was unloaded by clam shell from ship holds. The Dravo clamshell's outloader protective tents were replaced in 1986. Hall-Buck modified Dravo mechanism in 1988 to better control spillage and wash water. • In 1992 Jones Oregon Stevedoring Co. complained of uncontrolled pencil pitch dust generated by unloading of MV Agness on February 25; dust settled on break-bulk cargo facilities operated by Jones Oregon and interfered with ship unloading. Hall-Buck responded by improving a rear section of the loading hopper enclosure and installing a top cover. • Port warned Hall-Buck in 1996 about repeated pencil pitch spills. Hall-Buck asserts existence of settling sump for capture of contaminated stormwater.
Oil Release at in Slip 3[5]	Oil	• According to the National Response Center, an unknown quantity of oil was released in the vicinity of Berths 410, 415, and 416 on March 18, 1985. No additional information was available.
Diesel Release to Willamette River[5]	Diesel	• According to the National Response Center, approximately 15 gallons of diesel was released to the Willamette River at Terminal 4 on May 2, 1985. No additional information was available.
Vessel Sinking at Slip 1[5]	Unknown	• According to the U.S. Coast Guard, a vessel sinking at Pier 2 on April 14, 1996 caused a sheen on the water in Slip 1. No additional information was available.
Vessel Astypalea, at Slip 1	Oil	• In April 2001, approximately 50 gallons of oil were released when the Astypalea was moored at Slip 1. The U.S. Coast Guard responded and the oil was

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Potential Contaminant Source	Substances Potentially Released	Known Spills or Releases
		cleaned up using absorbent materials. The Astypalea was carrying liquid fertilizer (Port of Portland, 2001).
Stormwater Discharges	Unknown	• Permitted stormwater discharges from Port-owned stormwater systems at Slip 1 and Slip 3. • Stormwater discharges from City of Portland-owned stormwater system at Slip 1 (outfall 52c).
Terminal 4 Railyard Operations	Unknown	• Not yet evaluated.
Potential Contaminant Sources on Upland Property Adjacent to Terminal 4		
Schnitzer Steel	Unknown	• Not yet evaluated.
Electrical Substation	Unknown	• Not yet evaluated.
Crown Cork and Seal	Unknown	• Not yet evaluated.
Former Union Carbide site	Unknown	• Not yet evaluated.
Light industrial area (Port marine facility, ChemCentral, Borden, Flint Ink)	Unknown	• Not yet evaluated.
Toyota facility	Unknown	• Not yet evaluated.
Union Pacific auto rail yard	Unknown	• Not yet evaluated.
Harvest Homes	Unknown	• Not yet evaluated.
Various wrecking yards	Unknown	• Not yet evaluated.
Potential Contaminant Sources on the Willamette River and Property Up and Down River from the Removal Action Area		
Cascade General/ Portland Ship Yard	Unknown	• Not yet evaluated.
Triangle Park – Reidel site	Unknown	• Not yet evaluated.
McCormick and Baxter site	PAH	• Not yet evaluated.
Willamette Cove	Unknown	• Not yet evaluated.
Arco	Unknown	• Not yet evaluated.
Exxon/Mobil	Unknown	• Not yet evaluated.
Gasco	Unknown	• Not yet evaluated.
Wacker Siltronic	Unknown	• Not yet evaluated.
Atofina	DDT	• Not yet evaluated.
Gunderson	Unknown	• Not yet evaluated.

Notes:

1 – As is true for the information discussed in Section 2.2, the information in this table is based on the best information available at the time this work plan was prepared. However, this table should be viewed as a work in progress. Additional research, such as that being conducted as part of the upland source control activities described in Sections 1, 2.2, and 3.3.1, may uncover new findings that will augment or supersede the information presented here. Such new information will be incorporated into the EE/CA.

2 – ATC Associates, Inc., 2003.

PUB009399

except for pencil pitch—were not carried forward as COPCs. Compounds that were occasionally detected, such as VOCs and TBT, were also not carried forward as COPCs because of the low probability that these constituents are present in sediment at concentrations of concern. The VOCs were infrequently detected; petroleum products known to have been handled at Terminal 4, such as diesel fuel, lube oil, and Bunker C fuel, generally do not contain the range of petroleum hydrocarbons that includes the VOCs. Similarly, butyltin compounds (e.g., TBT) are not expected to be common contaminants in the Removal Action Area sediments given the site history. Because TBT is an antifouling agent used in marine ship-hull paint, it is often detected in shipyard sediments impacted by paint chips from shipbuilding and ship repair. The available history indicates that shipyard activities have not occurred at Terminal 4. Although TBT may leach from ship-hull paint and become entrained in the sediment column, such an effect is not considered a likely ongoing source of contamination to sediment in the Removal Action Area because the International Maritime Organization has banned TBT antifoulants in marine paint; the ban will take effect in 2008 (http://www.imo.org/home.asp). The low frequency of detection and the low detected concentrations of pesticides (except tDDT), SVOCs (except phthalates), miscellaneous organics (except pencil pitch), VOCs, and butyltins indicate they are unlikely contaminants in the Removal Action Area and they will not drive cleanup.

Based on the existing data, metals, PAHs, phthalates, tDDT, tPCB, and petroleum hydrocarbons are the COPCs for sediment in the Removal Action Area. These COPCs were determined on the basis of frequency of detection, range of detected concentrations, lateral and vertical trends in concentrations, comparison to sediment quality guidelines, site uses, and sources. The list of COPCs may be revised when additional data proposed for collection in this work plan have been reviewed.

4.6 Summary of Sediment Toxicity Testing Data

Sediment toxicity testing data are available for the Removal Action Area from the Slip 3 Remedial Investigation Report (Hart Crowser, 2000a). Sixteen sediment samples from Slip 3 and the immediate vicinity were tested: 14 from Slip 3, one from Wheeler Bay, and one from the Pier 5 area just upstream of the Slip 3 mouth (Figure 4-5). In addition, two reference area samples were collected from the Columbia River downstream of the Willamette River confluence. Two reference samples were needed to account for the range in grain size of the Slip 3 sediment samples. Test sediments with less than 59.5% fines were compared to reference sample Ref-C; those with greater than 59.5% fines were compared to reference sample Ref-B. The study area and reference sampling locations were approved by DEQ.

The toxicity tests were conducted according to standard test protocols (USEPA, 1994b; ASTM, 1995). The tests employed were:

- acute 10-day amphipod survival test (*Hyallela azteca*);
- acute 10-day midge survival test (*Chironomus tentans*); and
- chronic 10-day midge growth test (*Chironomus tentans*).

Results of the tests are shown in Tables 4-7, 4-8, and 4-9 as they appeared in Hart Crowser (2000a). Decision criteria were based on the Dredge Management Evaluation Framework for the Lower Columbia River Management Area (USACE et al., 1998). For amphipod survival, tests were considered to fail if the mortality in the test samples exceeded that of reference samples by more than 15% and results in test samples were statistically different from reference (alpha $\leq$ 0.05). Similarly, midge survivorship bioassays failed if mortality in test samples exceeded reference samples by more than 20% and test sample results were statistically different from reference (alpha $\leq$ 0.05). The midge growth test failed if test sample biomass was less than 60% of reference and test sample results were statistically different from reference (alpha $\leq$ 0.05).

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Appendix A

Summary of Area History and Current Uses

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Appendix A – Summary of Area History and Current Uses

This appendix summarizes the history and current uses of the Terminal 4 Removal Action Area. The information presented is excerpted from the detailed account that was provided in the work plan (BBL, 2004) and incorporates any new information discovered since that time.

A.1 Removal Action Area and Terminal 4 Boundaries

The Port of Portland's Terminal 4 facility, located at 11040 North Lombard Street, Portland, Oregon, is within or adjacent to the Portland Harbor Superfund Site. The Terminal 4 Removal Action Area is bordered to the north by Schnitzer Steel Industries and Northwest Pipe and Casing; to the north/northeast by the Burgard Industrial Park; to the south by the Terminal 4 Auto Storage Area, which is occupied by Toyota; to the east by Union Pacific rail tracks; to the southeast by a Toyota lot; and to the west by the Willamette River.

The Removal Action Area is that portion of the Portland Harbor Superfund Site adjacent to and within Terminal 4 that extends west from the ordinary high water line on the northeast bank of the lower Willamette River to the edge of the navigation channel and south from the downstream end of Berth 414 to the downstream end of Berth 401, including Slip 1, Slip 3, and Wheeler Bay.

A.2 Cultural Resources

Information presented in this section is summarized from A Cultural Resources Reconnaissance Survey of the Port of Portland's Terminal 4, Portland, Oregon (Final Draft) (AINW, 2003), which was prepared by Archaeological Investigations Northwest. The complete report has not yet been approved for public release.

Copies of the draft cultural resources report for Terminal 4 were provided to all six Tribes on August 11, 2003, and a meeting was held with Tribal representatives to discuss the Terminal 4 cultural resources report on October 7, 2003. No comments or concerns regarding the report or cultural resources at Terminal 4 were expressed at the October 7 meeting. Letters requesting Tribal concurrence with the report and its findings were sent to the Tribes on February 10, 2004, and responses were received. The Port will revise the cultural resources report as appropriate, and prepare an Archeological Monitoring Protocol after USEPA selects the remedy.

A.2.1 Native American Cultural Resources

Terminal 4 lies within the traditional homeland of the Chinookan peoples who occupied most of the lower Columbia River valley at the time of Euroamerican contact. The present Portland area was historically occupied by groups speaking two Upper Chinookan dialects, Multnomah and Clackamas. The confluence of the Willamette and Columbia rivers and the Lower Willamette River were major resource locations and regularly drew native peoples from throughout the Columbia River drainage for seasonal fishing and trading expeditions (French and French, 1998; Silverstein, 1990).

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William Clark of the Lewis and Clark Expedition made a brief exploration up the Lower Willamette River in April 1806. He and his men camped near a small Chinookan village on the east bank of the Willamette. Clark's description and maps of the location indicate this village may have been in the vicinity of Terminal 4. The village, designated "Ne-mal-quin-ner's," had an estimated population of 200. The residents of the village were absent at the time of Clark's visit and he was told by his Indian guide that the Ne-mal-quin-ner's people usually lived at Willamette Falls, moving to the lower river settlement "when they Come down to the Valley to gather Wappato" (Moulton, 1990, 1991).

There are no written references to the Ne-mal-quin-ner village or any settlement at that location after the time of the Lewis and Clark Expedition; a well-known archaeological site at the mouth of Gatton's Slough (the lower course of the slough was buried by construction of Terminal 4) is likely to be the remains of Ne-mal-quin-ner's village. Prior to construction of Slip 1, Gatton's Slough was formerly a natural surface drainage feature discharging to the Willamette River. John Wacheno, a Clackamas Indian, told an anthropologist in 1934 of a village in the St. Johns area known as wÜxsûn, the residents of which fished for sturgeon at the mouth of the Willamette River (Drucker, 1934). Treaties in 1855 led to the relocation of many Chinookans, and other native peoples who had traditionally used the Lower Willamette River, onto reservations. Accounts of early settlers in the St. Johns area indicate, however, that some Indians remained along the river through the 1850s and into the 1860s (Dickson, 1976; Singleterry, 1976). Other Indians are known to have left the reservations seasonally to visit traditional resource locations.

Other than the archaeological site at the mouth of Gatton's Slough, the only reported archaeological resources at Terminal 4 are a few artifacts apparently collected in the 1960s and 1970s by a former worker at the terminal. One of these artifacts was a net weight collected from under Pier 5 in Slip 3 (Schenkenberger, 1981).

An archaeological reconnaissance survey of Terminal 4 conducted in January 2003 included an examination of the accessible banks and beaches. The bank exposures indicated that they are composed of dredged sands and silts. No evidence of any archaeological resources associated with American Indian use or occupation was observed (AINW, 2003). However, the alignment of the historical-period Willamette River bank and the banks of the former Gatton's Slough have been identified as high-probability areas for archaeological resources associated with American Indian use and occupation of the Terminal 4 area (AINW, 2003).

A.2.2 Early Euroamerican Activity

Few non-Native uses of the location prior to 1917, when construction of Terminal 4 began, have been documented. A Donation Land Claim encompassing the future Terminal 4 location was settled in 1846 by James Loomis and his family, who built a cabin along the bank of the Willamette River (although this occupation was probably short-lived). By the 1890s, however, the only use of the Terminal 4 location appears to have been for grazing cattle and possibly growing hay. The future Terminal 4 location was purchased in 1897 by the Ogden family, but the new owner did not develop the area, opting instead to build a home on higher ground to the northeast.

More intensive development occurred in the years before World War I. A dock where ships transferred oil to the Union Pacific Railroad and an associated pipeline were built in approximately 1906-07 along the south side and to the east of the future location of Slip 3 and in approximately 1907-08, the railroad was constructed along

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the eastern edge of the floodplain. These are the only known uses of the Terminal 4 location prior to construction of Terminal 4, which began in 1917.

A.3 Physical History of the Terminal 4 Area

The landscape and physical features of the Terminal 4 area have changed significantly in the past century. The rural landscape began changing in the first decade of the 1900s, when what was once Willamette River floodplain was modified by grading, dredging, and filling as early as 1906 to 1907.

Prior to development, the banks of the terminal location were lined with trees, and Gatton's Slough (which discharged to the Willamette River) traversed the northern portion of the property (U.S. Coast and Geodetic Survey, 1895). A small stand of trees was located on the floodplain immediately south of the slough, beyond which were several small swales and ponds. The remainder of the area was occupied by grasslands, which were probably wet prairies. A U.S. Coast and Geodetic Survey (USC&GS) map from 1895 depicts a building (possibly a farmhouse) located at the eastern edge of the floodplain (southeast of the location of the now-removed Warehouse 6) along with a series of trees suggestive of a small orchard.

In 1897, the Ogden family purchased the land around lower Gatton's Slough. They built a house on the higher ground overlooking the floodplain, probably close to the modern entrance to Terminal 4 on North Lombard Street. In addition to farming, the Ogden family reportedly drilled for oil near the mouth of the slough, without success (Minkler, 1976).

The rural landscape portrayed in the 1895 map began changing in the first decade of the 1900s. The first developments at Terminal 4 occurred between 1906 and 1908, when the Oregon-Washington Railroad and Navigation Company (OWR&N, a Union Pacific Railroad affiliate and part of the Union Pacific system, hereafter referred to as Union Pacific) constructed the railroad along the eastern edge of the floodplain (the railroad alignment now serves as the eastern boundary of Terminal 4) and a pipeline and oil dock along the south side of the modern Slip 3. By 1912, Union Pacific had completed its oil-supply facility for fueling locomotives, to include the St. Johns Tank Farm, which was adjacent to Terminal 4 on the east slope above the rail tracks. Photographs from 1917 indicate that an oil pipeline extended east from the river across the floodplain to the tank farm. The oil pipeline later became an underground structure, and was presumably buried when the area of Slip 3 was filled and graded for development, however, the date of burial has not been confirmed. The pipeline alignment was along the south side of where Slip 3 would later be constructed and the oil was pumped uphill from the oil-supply dock to the tank farm.

In 1917, site preparation for the development of Terminal 4 began. Trees and other vegetation were removed over most of the floodplain in the northern Terminal 4 area, and dredged fill material was deposited across the low-lying ground and then leveled by horse teams. Most of lower Gatton's Slough was filled at this time as well. Beginning about the same time, fill was also placed into the offshore shallows to extend the riverbank out into the channel. The 1895 U.S. Coast and Geodetic Survey map labeled the offshore area as "Linton Shoal," with water less than a meter deep in places. Filling this area was relatively easy and provided the new Terminal 4 with a larger land base. As described in more detail below, the northern Terminal 4 facilities were Piers 1 and 2 at Slip 1 and Pier 5 at Slip 3. A Slip 2 was planned and partially excavated but never completed. The remnant Slip 2 is known today as "Wheeler Bay." Photographs taken in 1917 trace the rapid transformation of this landscape (Port of Portland, 1917).

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Pre- and post-construction maps and plans for Terminal 4 indicate substantial changes occurred in the landscape from 1917 to approximately 1921 (AINW, 2003). First, construction of the terminal involved placement of fill that extended 650 to 975 feet from the original riverbank. Second, the construction of Slips 1, 2, and 3 also required excavations into the original shoreline. Slip 1 was located at the entrance to Gatton's Slough, and the head of the slip extended up to 650 feet inland from the original riverbank. These excavations probably removed much of the upriver portion of the mouth of the slough; the downriver portion of the slough entrance was covered by Houses 1 and 2 at Pier 1 and portions of the grain complex. The inland excavations for Slips 2 and 3 extended from 440 to 565 feet back from the original shoreline. (Slip 2 was never completed, and the remnant of Slip 2 is known today as Wheeler Bay.) The northern portion of Terminal 4 was thus developed through a combination of fill outward from the original riverbank and excavations into the original floodplain. All traces of lower Gatton's Slough were lost either through burial under fill or removal for the creation of Slip 1.

According to Port records, Slip 2 was filled in two stages by the City of Portland Commission of Public Docks (City CPD). The first stage occurred in July 1948. At that time, the City CPD requested the Port conduct dredging operations south of Pier 5 in connection with the construction of an oil dock for Richfield Oil Company. The City CPD made available the head of Slip 2 for the disposal of dredged material. Also in July 1948, the City CPD contracted with General Construction for dredging Slip 3; however, the disposal location for dredged material generated from that event has not been verified.

The second stage of filling Slip 2 occurred in 1957-58 in conjunction with the widening of Slip 3. The widening of Slip 3 was part of the overall plan for the construction of Pier 4, which was sited on the north side of Slip 3. The City CPD contracted with a private entity, General Construction Company, for the widening of Slip 3, which included dredging and construction of a hydraulic fill. City CPD drawings indicate the hydraulic fill was placed at the head of Slip 2, which thus created the upland as it is configured today.

A.4 Chronology of Ownership and Operations

A.4.1 Property Acquisition and Development History at Terminal 4

Originally called the St. Johns Municipal Terminal, Terminal 4 was developed by the City CPD as a result of the push by the City to become a world-class shipping port and to capitalize on growth in the shipping industry following the opening of the Panama Canal in 1914 (Donovan and Associates, 1997). Following the physical preparation of the land, the City CPD initiated construction for development of the property as a marine terminal.

The main building construction and other physical developments at Terminal 4 are summarized in Table A-1. Note that warehouses at Pier 1 were called "houses," while those at Pier 2 were called "warehouses."

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Table A-1
Chronology of Development at Terminal 4

Year	Entity and Event
1906-07	St. Johns Tank Farm (with storage tanks and a pipeline to a terminal dock) constructed by Union Pacific at the future location of Slip 3; the facility handled Bunker C fuel oil for fueling steam locomotives south of modern Slip 3.
1917	$3,000,000 bond levy approved on June 17, 1917, for land purchase and development. City CPD purchases 117.55 acres of upland and purportedly 36 acres of submerged land centered on Gatton's Slough.
1917-20	Slips 1 and 3 dredged and Pier 1 (Berths 403-405), grain elevator, operating house, storage bins, track shed, and Warehouses 1-5 constructed. Spur tracks from existing Union Pacific lines constructed.
1919	Liquid bulk storage facility constructed at the head of Slip 1; House 4 constructed.
1919-20	Pier 2 and Berths 406-408 constructed. Vegetable oil weighing house constructed east of Slip 1.
1920	4.94-acre parcel acquired from Union Pacific adjacent to Slip 3; however, parcel developments (pipeline, oil supply tanks, and fuel oil dock) remained under ownership of Union Pacific. Flour mill, adjoining concrete warehouse for grain and flour, and Berth 409 constructed. Houses 1 and 2 constructed on the upstream side of Slip 1. Boiler house and service buildings (including an administration building, cafeteria/restaurant, and welfare building) constructed east of Slip 1.
1920-21	Substructure for Piers 3, 4, and 5 constructed (although Pier 3 was never completed). Quay dock, bulk handling facility, and Berths 412 and 413 completed on the upstream side of Slip 3. Union Pacific pipeline extended to service Berth 412 at Pier 5, Slip 3.
1920-24	Filling platform for liquid bulk storage facility constructed east of Slip 1.
1921	Storage bunkers constructed east of Slip 3.
1921-22	Warehouses 6 and 7 constructed on Pier 2, Slip 1 serviced by Berths 406 and 407.
1922	House 5 constructed perpendicular to House 4 along the river.
1923	Houses 6, 7, and 8 were constructed perpendicular to House 5 as a cold storage plant and ventilated warehouse. 150,000-gallon elevated water tank constructed. H.R. Leckenby fumigation plant constructed.
1930	Grain storage annex constructed north of the grain elevator.
1931	Tanks added to liquid bulk storage facility.
1932	Gearlocker building constructed north of the liquid bulk storage facility.
1940-41	Berth 401 and Airveyor system for unloading bulk grain from barges constructed on the harbor side of Houses 4 and 5 at Pier 1 for grain unloading.

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Year	Entity and Event
1942	At the onset of WWII, the U.S. Army Transport Service (USATS) leased Terminal 4 from City CPD for Portland's Sub-Port of Embarkation. USATS added a second story to the gearlocker building. The USATS rehabilitated the loading apron at Pier 1, replaced decking and rehabilitated railroad track at Pier 2, and rehabilitated the slip side of Pier 5.
1944	Auxiliary pipeline constructed by the USATS at Slip 3 Pier 5.
1946-47	The USATS relinquished Terminal 4 to City CPD. Bulk loading facility constructed at Berth 412 on the slip side of Pier 5.
1948	20-acre parcel south of Pier 5 acquired from Union Pacific. Head of Slip 2 partially filled following dredging for construction of Union Pacific oil dock located along the Willamette River south of Pier 5. Slip 3 dredged.
1951	A railcar dumper and a hydraulic truck unloading hoist and dust collection system added to the grain facility at Pier 1.
1953	Oil packaging plant constructed and eight aboveground storage tanks (ASTs) and an underground transfer pipeline installed at the head of Slip 3 by Quaker State for oil storage.
1954	Eight steel ASTs for grain storage constructed east of the grain storage buildings at Slip 1. Electric elevator system at grain elevator modernized.
1955	Pier 2 rehabilitated and two gantry cranes added. Fumigation plant removed.
1957	Berth 401 renovated.
1957-58	19.64-acre parcel upstream of Pier 5 acquired from Multnomah County. Slip 3 widened for the construction of Pier 4 and filling of head of Slip 2 completed.
1958	Second gallery for grain loading added at Pier 1.
1959-60	Pier 4 (Berths 410 and 411) constructed on the downstream side of Slip 3.
1962	Pier 5 harbor-side wharf and Berth 409 at the head of Slip 1 removed. Dravo bulk unloader installed at Pier 4.
1963	Head of Slip 1 developed as small boat landing.
1966	Five tanks constructed by Pacific Molasses added to liquid bulk storage facility.
1968	Warehouse 4 constructed at Pier 2. Matson Navigation Co. installed 33-ton-capacity container crane on Pier 2. Three 36-ton revolver cranes purchased and installed at Pier 4.
1968-69	Berths 404 and 405 reconstructed (Berth 405 to handle offloading of barges for grain). Coal bunkers removed at Pier 5.
1971	Grain elevator remodeled; Union Pacific abandoned existing pipeline to St. Johns Tank Farm and installed a replacement pipeline; Port and City CPD consolidated; except for City's fire boat station, CPD properties and functions transferred to Port.

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Year	Entity and Event
1973	Land purchased from Broadway Holding Company. House 8 demolished at Pier 1. Berth 417 constructed southwest and upstream of Slip 3.
1975	Berth 401 reconstructed to handle ships, adding grain loading equipment and conveyor system.
1978	Cold storage plant and ventilated warehouse (Houses 6 and 7) at Pier 1 removed.
1983	Union Pacific's operation of the St. Johns Tank Farm tanks and replacement pipeline ceased.
1984	Boat landing at the head of Slip 1 removed and ro-ro dock, called Berth 409, constructed in its place. Service buildings removed, including an administration building, cafeteria/restaurant, and welfare building. Whirley cranes removed from Berths 410 and 411.
1985	Quaker State ASTs and underground pipeline removed.
1986	City of Portland began construction of Outfall 52C and the associated storm sewer system serving Lombard Street properties.
1987	Bulk outloading facility constructed at Pier 4 by Hall-Buck Marine. Construction of City drainage system and Outfall 52C at the head of Slip 1. Tanks removed from Union Pacific's St. Johns Tank Farm.
1988	Diesel and gasoline underground storage tanks (USTs) and fueling station installed by Oregon Terminal Company.
1989	Second railcar dumper added to grain facility. Two pipes added at Pier 1 for liquid bulk storage facility.
1990	House 4 condemned.
1991	Guard station constructed.
1992	Four of the steel ASTs for grain storage (east of the storage bins to the north of Slip 1) modified.
1992-93	Downstream row of tanks at original liquid bulk storage facility removed.
1994-95	All but five of the tanks remaining at liquid bulk storage facility removed.
1995	Soda ash storage building constructed at Pier 4.
1996	House 6, House 7, Berth 406, and Berth 407 at Pier 2 dismantled.
1996	Oregon Terminal Company's diesel and gasoline USTs removed.
1997	Pipeline for liquid bulk storage facility rebuilt under Berth 408.
1997-98	Portions of Union Pacific's decommissioned/abandoned St. Johns Tank Farm pipeline removed from under Berth 412 and elsewhere.

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Year	Entity and Event
1999	Houses 3, 4, and 5 and Berths 403 and 404 demolished. Mechanical/electrical building and bridge to Berth 401 constructed.

A.4.2 Historical Terminal Operations

Tenant operations at Terminal 4 are discussed here by operating areas, further subdivided by the piers and berths the tenants used.

Union Pacific Railroad

As discussed above, Union Pacific and its predecessor, OWR&N Co., built, maintained and operated a fuel oil dock, 10-inch steel pipeline, and the St. Johns Tank Farm and tank car loading facility near Pier 5 on the south (upstream) side of Slip 3 beginning in at least 1906 to 1907. The tank farm and loading facility included two 55,000-barrel aboveground storage tanks (ASTs) for oil and associated pumping and heating facilities. The tanks and the pumping and heating facilities were adjacent to the terminal on the bluff beyond the rail trackage east of Pier 5. The pipeline was used to transfer diesel fuel and, prior to 1955, Bunker C oil from marine vessels to the storage tanks, which delivered fuel oil via a loading rack on the main rail line above the terminal to locomotive steam engines and to rail tank cars for distribution to other facilities elsewhere in Union Pacific's system. Track scales were built to avoid having to transport cars to the railroad yard, which was some distance away. The track scales were operated under the supervision of the Weighing and Inspection Department of the Transcontinental Freight Bureau.

The City CPD purchased two parcels of land from Union Pacific that contained the pipeline and dock at Terminal 4, Pier 5 but not the tank farm: approximately 5 acres in 1920 and approximately 20 acres in 1948. The 1920 and 1948 deeds retained an easement for the existing pipeline that served the St. Johns Tank Farm on Union Pacific's property east of the terminal. The easement granted the railroad and its successors the right to operate and maintain the pipeline and associated dock.

From 1922 to 1939, General Petroleum Corporation leased the St. Johns Tank Farm from Union Pacific and operated a facility near Slip 3 for delivery of bunker fuel and unloading of fuel oil from vessels. Included in their operation was an approximately 30-ft AST used for fuel oil and two associated buildings, one of which was a designated pump house. All three structures were located along the area of the pipeline to the south of Slip 3 (Sanborn Fire Insurance Map, 1924). Neither the date of construction nor the date of demolition of these structures could be verified.

In 1952, Union Pacific requested an area for cleaning railcars and was offered the use of Track 10½ by the City CPD.

In 1969, Union Pacific leased the St. Johns Tank Farm and associated pipeline to Standard Oil Company of California (now known as Chevron). The arrangement provided that Standard Oil would supply Union Pacific with oil for its tank cars.

In 1971, Union Pacific abandoned the pipeline because of leaks. A new pipeline was then constructed parallel to the old one, but farther to the south across the adjoining 19.5-acre parcel. Standard Oil continued to operate

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the tank farm and replacement pipeline until 1983, when fuel transfer operations ceased altogether. The tanks were removed in 1987. In 1997, during removal of the dock at Berth 412, the under-dock portions of the pipeline were drained, cleaned, and removed. In 1998, other portions of the pipeline were drained and removed.

Cargill Grain Facility

The grain elevator and its operating house were completed in 1920 and were operated by the City CPD. The facility contained a conveyor belt system that carried sacked grain to the elevator for cleaning and storage. Northwest sacked wheat was susceptible to a wheat fungus known as smut. An initial lime scouring method for cleaning was later replaced when Wolf-Dawson wheat washers were installed. Dust collecting and sweeping systems controlled airborne particulates. A two-belt shipping gallery could load two vessels with bulk grain simultaneously. Track facilities were provided in the front and rear of the pier; the rear tracks had placement for 105 cars. The pier had cargo masts along its entire face, electric elevators, and electrically operated ramps for handling freight to and from river steamers and barges. The grain elevator had capacity to handle 1,053,800 bushels in eight hours. After the construction of the grain elevator annex in 1930, its grain-storing capacity of 2,000,000 bushels exceeded that of any other grain elevator on the Lower Columbia (Merchants Exchange Journals, 1932).

Barge delivery of bulk wheat to the grain elevator began to supplant sack delivery in 1939. The following year, the City CPD installed a Fuller Airveyor vacuum system for unloading grain barges in Slip 1. Another, higher-capacity vacuum system was added in 1957. Eight grain storage silos are located east of the grain terminal. When these were built and put into operation in 1954, the grain storage capacity at Terminal 4 increased to 7,400,000 bushels. To more readily accommodate grain delivery at the enhanced storage facility, a new box car unloader was added.

In 1942, Terminal 4 and operation of the grain facility were turned over to the U.S. Army Transport Service (USATS). In 1947, the facility was returned to the City CPD, which entered into a lease agreement with Kerr-Gifford. Kerr-Gifford operated the grain elevator at Pier 1 from 1947 until 1954. In 1953, Cargill agreed to purchase all of the stock of Kerr-Gifford, and in November 1954, Kerr-Gifford was merged into Cargill as the Kerr Gifford Division. It was at that time that Kerr-Gifford's lease of the grain terminal was assigned to Cargill. Table A-2 summarizes the facilities Cargill used in connection with their operation of the grain facility.

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Table A-2
Cargill Operating Areas at the Grain Facility at Terminal 4

Year Constructed	Cargill Facility	Location(s)	Use/Former Use	Status
1917	Transformer House	Southeast of Pellet Mill between the Operating House and Storage Silos	Transformer storage	Razed in 1977
1920	Operating House (grain elevator)	South of Storage Annex	Transfer of grain	Present
Prior to 1940	Conveyor to Berth 405	Extends south of the Operating House to Berth 405	Grain transport	Present
Prior to 1953	Track Shed	South of Operating House	Cover for rail trackage	Present
Prior to 1953	Truck Dumper	East of Track Shed	Unloading trucks	Present
Circa 1954	Grain Storage Silos (8)	East of Operating House	Grain storage	
Circa 1954	Railcar Tipper	South of Track Shed	Unloading grain from railcars	Present
1955	Deep Water Well	Southeast of Storage Annex (northeast of Operating House)	Turbine pump	Abandoned and filled in 1992
1958	Millwright Shop	West of Operating House	Not confirmed	Removed
1970s	Conveyor Building (Building C-10)	West of Office Building	Conveyor equipment	Present
1970s	Maintenance Shop	East of Operating House	Equipment maintenance	Present
1975	Office Building (Building 168)	West of Flour Mill	Administrative offices	Present
1975	Conveyor to Berth 401	Extends west from the Operating House to Berth 401	Grain transport	Present
1976	Truck Shed (Building 178)	North of Building C-10	Covered way for trucks	Present
1980s	Longshoremen's Lunchroom	Adjacent to Berth 401	Longshoremen's facility	Present
1994	Pellet Mill	East of Storage Annex	Processing beet pellets	Present
1999	UIC Dry Well	Near Berth 401	Stormwater Discharge	Present
Various Dates	Electrical Transformers	Various locations	Energy conversion	PCB-containing transformers replaced in 1988
Various Dates	Rail trackage	Throughout the leasehold	Transport of railcars and materials	Present

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Year Constructed	Cargill Facility	Location(s)	Use/Former Use	Status
Not confirmed	Gearlocker	South of Railcar Tipper north of Berth 405	Storage of equipment	Present
Not confirmed	Blacksmith Shop	South of Grain Storage Silos	Not confirmed	Removed
Not confirmed	Oil Shack	North of Maintenance Shop	Not confirmed	Not available
Not confirmed	Bull Pen	Not confirmed	Not confirmed	Unknown
Not confirmed	Electrical Distribution Center	Adjacent to Berth 405	Transformer storage	Removed
Not confirmed	Work Pit	Beneath Railcar Tipper	Not confirmed	Present
Not confirmed	Fueling Facility	Between Buildings 152 and 160	Fueling equipment	Removed
Not confirmed	Diesel UST (1,000-gallon) (T4-20)	West of Operating House	Diesel storage	Removed 1989
Not confirmed	Fuel oil UST (1,000-gallon) (T4-21)	West of Operating House	Fuel oil storage	Removed 1989
Not confirmed	Fuel oil UST (500-gallon) (T4-22)	Beneath the Operating House	Fuel oil storage	Removed 1993
Not confirmed	Used oil UST (T4-85)	North of Compressor House	Used oil storage	Removed 1993
Not confirmed	Diesel AST (500-gallon) (T4-45)	West of Car Shed	Diesel storage	Removed September 2003
Not confirmed	Diesel AST (675-gallon) (T4-47)	Southwest of Operating House	Fueling locomotives and equipment	Removed September 2003
Not confirmed	Used oil AST (250-gallon) (T4-48)	North of Maintenance Shop	Used oil storage	Removed September 2003
Not confirmed	Sumps	Railcar Tipper, Building 141, Truck Dump, Building Basements	Discharge	Present
Not confirmed	Hydraulic equipment	Building C-10, near Track Shed, and west of Railcar Tipper	Various uses	Present

Cargill maintained preferential berthing rights throughout their occupancy at Berths 401 and 405. Cargill transported materials to and from Berth 401 via railcars that moved along trackage located between Berth 401 and the track shed. Materials were transported to and from Berth 405 utilizing the conveyor system. Cargill leased the grain facility until 2004.

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Cold Storage Plant

The cold storage plant and ventilated storage warehouse, constructed at Pier 1 in 1923, provided refrigeration space for transit shipments of apples received for export. The facility, immediately north of the Pier 1 warehouses, was a concrete and brick structure divided into three compartments (Houses 6, 7, and 8).

The 1923 addition of the cold storage plant in the eastern third of the apple storage warehouse led to a five-year storage contract with the Apple Growers Association of Hood River (City CPD, 1923). The cold storage plant was 100 ft by 200 ft and had a capacity of 105,000 boxes. The ventilated apple storage warehouse adjoined the cold storage plant and had a capacity of 350,000 boxes. The Port of Portland led the ports of the Pacific in the shipment of apples; during an average year in the mid-1920s, approximately 1 million boxes were shipped.

H.N. Leckenby

In 1923, H.N. Leckenby constructed a fumigation plant near the head of Slip 1 (just in front of the modern International Raw Materials [IRM] tank location). In 1924, Mr. Leckenby began fumigating Oriental cotton received at the Port and other commodities (e.g., peanuts, rice, beans, and other foodstuffs). The plant reportedly had a capacity of 250 tons per day. City CPD minutes from the 1930s indicate that the plant operated under the name of NW Pesticide Company. During World War II, the Army may have used the fumigation plant in connection with its operations (further discussed below). According to City CPD minutes (City CPD, 1949), after the military had vacated the terminal, arrangements were made in 1946 for Mr. Leckenby to enter into a lease with the City CPD and continue operating the plant. The plant continued in operation until sometime in the mid-1950s.

Liquid Bulk Storage

In 1919, a liquid bulk storage facility was constructed at the head of Slip 1. By 1931, additional bulk storage tanks were added and the facility included a City CPD-operated warehouse, tank car cleaning facility, and an edible-oil cleaning pit. In 1947, the facility was leased to Pacific Molasses (which later became PM-Ag). Products handled included liquid fertilizer, molasses, molasses products, tallow, urea, caustic soda, and fats. By 1966, the liquid bulk storage facility had been upgraded to include 14 steel tanks on a concrete foundation. Liquid bulk materials were pumped directly from vessels to the tanks via one of two 8-inch pipelines at Pier 1 and Pier 2. The liquid bulks could then be weighed on a 60-ton-capacity scale and pumped into railcars at the filling platform. Up to 10 tank cars could be filled at one time. Pacific Molasses also made use of a car cleaning pit and a steam cleaning area northwest of its tanks to clean food products out of the railcars prior to their filling.

PM-Ag formerly utilized an approximately 8,000-gallon underground storage tank (UST) for storing diesel. The UST was decommissioned by removal in 1991.

Between 1992 and 1995, all of the original public tanks were removed; five private tanks remain in use at present. In 1995, the lease for the liquid bulk storage facility was assigned to IRM, which continues to operate the facility.

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The Port removed an approximately 3,000-gallon diesel UST from the IRM leasehold in 1995. Based on confirmatory sampling, the DEQ subsequently issued a No Further Action determination for the UST.

Flour Mill

A 1919 agreement between the City CPD and the Eagle Flour Mills Company for the construction of a flour mill north of Slip 1 was transferred to Terminal Flour Mills Company in 1923. A flour production and storage facility was completed and in operation at Terminal Flour by 1925. Terminal Flour operated the facility until 1992, at which time Terminal Flour's lease was assigned to Cereal Food Processors, which continues to operate the facility.

The mill originally consisted of a concrete building and an adjoining concrete grain and flour warehouse (Donovan and Associates, 1997). An annex was added at a later date (circa 1924 to 1950). A system of conveyors, which originally provided the mill with grain from the neighboring grain storage facility, was abandoned in 1966, and a track pit was added to the facility to accommodate hopper bottom railcars. In addition, two rail spurs running between the eight grain storage tanks served to accommodate delivery of bulk flour from the mill. Sacked flour was loaded directly onto vessels docked at Pier 1 using a conveyor belt system. In 1925, the flour mill had a capacity of 1,500 barrels a day. The output was nearly all for export. The export of flour ceased following World War II when Terminal Flour modified its operation and began milling flour for U.S. consumption. Grain was brought into the silos by rail, milled, and sold either in bulk or in sacks. At present, Cereal Food Processors mills flour for Portland-area customers and sells its product in bulk, exporting the flour from the facility via truck or rail.

Terminal Flour Mills formerly utilized an approximately 10,000-gallon fuel oil UST located north of the flour mill, an approximately 1,000-gallon diesel UST located south of the flour mill, and an approximately 1,000-gallon fuel oil UST located south of the flour mill. All three USTs were reportedly decommissioned by removal by Terminal Flour Mills. However, based on currently available information, neither the date of installation nor the date of removal of the USTs has been confirmed.

Oregon Sulphur Company

Oregon Sulphur Company operated on the east side of Slip 3 at Pier 5, importing bulk sulfur beginning in at least 1920. In photographs from 1920, there appears to be an open storage area, and sulfur was unloaded via clamshell bucket using a locomotive crane. The material was placed on the pier adjacent to the bunkers, where it likely remained until being loaded into railcars.

Matson Lines

Warehouses 6 and 7 at Pier 2, called the "Old Matson Warehouse," were constructed in 1922 and were used in Matson Navigation Company's Hawaiian trade (City CPD, 1947). Matson operated a freight dock at Slip 1 from 1955 to 1985. Matson initiated containerized cargo operations in 1964 at Berth 408, which was formerly used for the loading of scrap iron. This location fits within space designated as Berths 406 to 408. Pacific Northwest products, such as refrigerated meat, fresh fruit, potatoes, other vegetables, and canned goods, were shipped in containers to Matson's Hawaiian terminals on a biweekly basis. Return containers delivered commodities such as sugar, pineapple (fresh and canned), and tuna. Molasses shipped in vessel holds was used

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for ballast. Matson Navigation's agreement with the City CPD gave it preferential berthing at Pier 2 and provided for exclusive use of a paved portion of the yard south of the pier for Matson's container operations. Matson used space at Terminal 4 until expiration of the agreement in March 1982, at which time it transferred its container operations to Terminal 6 and discontinued the shipment of liquid molasses.

Quaker State

In 1953, Quaker State constructed an oil packaging (motor oil bottling) facility at the head (to the east) of Slip 3. The facility included an underground transfer pipeline, three 220,000-gallon tanks, one 42,000-gallon tank, four 10,000-gallon tanks, a main blending and bottling building, and a storage building. Bulk oil was brought in via railcars on the north side of the facility or via ships berthed at Pier 5, Berth 412. The oil was pumped directly to the tanks from the railcars or directly from vessels into the transfer pipeline that traversed from Pier 5 to the eight ASTs. The tanks, which were located west of the packaging plant building, were connected to the packaging plant via pipeline. Quaker State bottled motor oil in 1-quart containers; some of the oil was blended at the facility with detergent and with motor oils of different weights. Once the oil was packaged, it was loaded onto trucks or railcars via a spur track on the north side of the packaging plant.

Port drawings indicate that Quaker State also utilized a waste oil UST and a used oil AST located southeast of their main blending and bottling building. The UST was decommissioned in 1991. The date of removal of the AST has not been confirmed.

Quaker State continued its operations through 1985, when the ASTs and the abandoned underground pipeline were removed. The building was converted in 1985 to a new gearlocker building and electrical shop for Oregon Terminal Company. Port drawings indicate that a rail-covered shop work pit was constructed west of the gearlocker building and two USTs were installed east of the gearlocker building at that time.

Rail Development at Terminal 4

Terminal 4 had approximately 10 miles (of a projected 17 miles) of railroad line when operations began there in 1920. After the addition of the cold storage facility in 1922, approximately 15 miles of rail trackage served the terminal. City CPD annual reports (City CPD, 1927, 1931) subsequent to 1926 described the rail network as having a working capacity of 425 cars (130 at ship side) with the ability to accommodate up to 800 cars.

The USATS made additions to the terminal's rail network during its tenure between 1943 and 1947, constructing or repairing approximately 22 miles of rail trackage. The high-capacity movement of defense materiel through the Portland Sub-Port of Embarkation created railcar holding backlogs on the main lines. The War Department responded to this by leasing land adjacent to Terminal 4 and building a railcar storage yard to accommodate cargoes awaiting transshipment.

Following the facility's return to the City CPD, improvements were made in 1947 when additional trackage was installed for the new bulk outloader built by the City CPD at Pier 5, Berth 412 for handling expected coal and phosphate cargo. Rail improvements continued at Terminal 4 in the 1950s, including a spur track constructed in 1953 to serve the Quaker State oil packaging plant at the head of Slip 3, rail modifications to accommodate the addition of the Cargill grain storage tanks in 1954, the 1959 addition of rail lines for Pier 4 when it was

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developed, and improvements in 1964 at the time of Matson's container terminal operation. More recently, in 1996 Hall-Buck Marine required modification of the rail network to accommodate its soda ash export facility.

In 1964, when Matson Navigation began container terminal operations at Pier 2, the rail infrastructure was assessed for container operations. In 1985, the north throat and grain leads into Terminal 4 were reconstructed. In 1987 and 1996, Hall-Buck Marine's lease operations required modification of the rail network near Slip 3.

Exported freight is the railroad company's responsibility until facility operators take delivery with their locomotive, as is the case with Kinder Morgan Bulk Terminals (KMBT). Responsibility remains with KMBT and the longshoremen while product is transferred to a ship's hold. When the ship's hatches are closed, responsibility for the cargo is transferred to the vessel owners and operators. The same process applies to imported cargo. While the product is in the ship's hold, it is the vessel owner/operator's responsibility. During transfer, the responsibility shifts to the terminal operator (tenant) and its agents (longshoremen). This status is in effect while the railcar is shifted to another siding and an empty car takes its place. Union Pacific, or another railroad company, assumes responsibility when the completed load is hooked up and pulled out of the terminal.

Army Transport Service Sub-Port of Embarkation

In January 1942, the USATS leased all of Terminal 4 for use as the Portland Sub-Port of Embarkation, and municipal shipping activities were shifted to City CPD Terminal 1 and old Terminal 2. The facility was used to embark troops for overseas, as well as to store equipment and materials, house Army personnel, refuel ships, and load ships for transport overseas. The War Department in turn leased property and buildings to subtenants (e.g., Northwestern Ice and Cold Storage Company), providing services at the Portland Sub-Port of Embarkation. During its tenure at Terminal 4, the USATS operated the facilities described below.

Disinfestation/Fumigation Plant. Between May and September 1943, the USATS constructed a disinfestation (fumigation) plant to the east of Warehouse 1 for delousing soldiers and prisoners of war prior to their embarkation or debarkation. (Maps and drawings from the war years refer to a House 1 on both Piers 1 and 2. A report from February 1944 notes that the disinfestation plant was located in the former Water Division repair shop, but that location has yet to be verified.) The disinfestation plant was designed to delouse 150 men and their clothing and belongings per hour. The prisoners of war were reportedly held at Warehouse 1 (including a "delousing area") prior to being transferred elsewhere. The materials used in the disinfestation process have not been confirmed. An Army directive of August 19, 1944 instructed military installations to use methyl bromide for disinfestation and fumigation.

Salvage Yard. The USATS established a small salvage yard at Terminal 4 for scrap metal (including scrap iron and ferrous metal) and rubber. A report from March 1943 noted the sale of more than 38,000 pounds of scrap iron and steel from salvage operations. The total tonnage of materials scrapped at the terminal during the USATS's tenure was close to 350 tons, with most of that sold in 1944. Some of the materials were sold to the Zidell Manufacturing & Supply Company, Alaska Junk Company, and California Bag & Metal Company. Aerial photographs indicate that the USATS filled the salvage yard area sometime around 1945.

Auxiliary Oil Pipeline. In February 1944, the USATS completed construction of an auxiliary pipeline at Pier 5, Slip 3. The pipeline extended 340 ft to the slip side of the pier. The Army also constructed two standpipes

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adjacent to the slip to accommodate the auxiliary pipeline. The new line was built to permit tankers to transfer oil to upland facilities while other ships took on coal from the adjacent bunkers.

Other USATS Facilities. Two other facilities are of potential interest: a gasoline station and a sulfur plant. The gas station was located along the south side of Carroll Road (the entrance road to the terminal) slightly northeast of the vegetable oil storage tanks east of Slip 1. The gas station utilized an approximately 2,000-gallon gasoline storage tank and pump in connection with the processing of military vehicles. It is not known whether the storage tank was above or below ground. The sulfur plant was located east of the bulk storage bunkers on Pier 5 (corresponding with the former location of the Oregon Sulphur Company).

Terminal 4 was returned to the City CPD in February 1946. In 1947, the War Assets Administration purchased the northern portion of the City CPD terminal occupied by Oregon Shipbuilding Corporation in exchange for property on the west bank of the river that the City CPD later developed as Terminal 2.

Ore and Concentrate Handling

Pre-1950. From its inception, Terminal 4 was designed to handle imports and exports of bulk cargo. Rail transport by OWR&N Co. and its successor, Union Pacific, was the chief means of conveyance for import and export cargo. Ores and concentrates were an important element of this traffic beginning in 1921 with the completion of Pier 5 on the southern edge of Slip 3. A large area for open storage, to the east and south of Pier 5, lay adjacent to eight covered concrete bunkers with sloping interiors, which were serviced by a series of belt conveyors. This was the mineral bulk-handling facility at Terminal 4, details of which are provided in Table A-3 based on information known to date.

Table A-3
Chronology of Pre-1950 Mineral Bulk Handling at Terminal 4

Ore	Status	Transfer Method	Storage	Period
Phosphate rock	Export	Railcar from siding unloaded to either track hopper or cradle unloader to bunkers or cars; contents were discharged to open area storage. Material traveled by conveyor belt from bunkers to loading towers on the harbor face (Berth 414) of Pier 5, where it was loaded directly into ships' holds.	Open storage or covered bunker	1921-1950
Sulfur	Import	Ships unloaded by Terminal 4 locomotive crane onto Slip 3 side of Pier 5 (Berths 412 and 413).	Open storage	1921-1945
Manganese ore	Export	Same method as used for phosphate rock.	Open storage or covered bunker	1924-1925
Zinc	Export	Same method as used for	Open storage	1925-1928

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Ore	Status	Transfer Method	Storage	Period
concentrate		phosphate rock.	or covered bunker	
Coal	Ship fuel	Same method as used for phosphate rock.	Open storage or covered bunker	1923-1931, 1935-1936, 1940-1950
Chrome ore	Import	Same method as used for phosphate rock. Unloaded at Pier 5 in 1925 and at Pier 2 (Berths 406-408) in 1937-1941.	Open storage or covered bunker	1925, 1937, 1940-1941

Post-1950. At the end of World War II, the City CPD regained use of Pier 5 and constructed a new bulk outloader on the Slip 3 side of the pier (Berth 412) for handling expected cargoes of coal and phosphate. Starting in 1955, lead and zinc concentrates were directly transferred from ships in Slip 1 to open Union Pacific gondola railcars by two gantry cranes at Pier 2 equipped with clamshell buckets. The transfer of lead and zinc concentrates at Terminal 4 was relocated to Slip 3 (Berths 410 and 411) in 1961 with the completion of Pier 4 and the Dravo bulk unloading tower. The Dravo unloading tower remained in service until 1998, when it was decommissioned. Soda ash, initially exported from Pier 5, Berth 412, became a major export in 1988, when loading was transferred to Pier 4, Berths 410 and 411, where a new bulk outloader was constructed by Hall-Buck. Based on currently available information, details of these operations are summarized in Table A-4.

Table A-4
Chronology of Post-1950 Mineral Bulk Handling at Terminal 4

Ore	Status	Transfer Method	Storage	Period
Lead concentrate	Import	Gantry crane clamshell removed ore concentrate from ship hold to open railcar on Pier 2 (Berths 406-408) until 1961; Dravo unloading tower removed ore concentrates from ship hold to open railcar on Pier 4 (Berths 410 and 411) from 1961-1971. Railcars were spotted on Tracks 4-10, 4-11, 4-12, and 4-15. Cars were then pulled west to Tracks 4-2 and 4-3 for pushing under the Dravo loader. Loaded cars exited to the ladder tracks at the east of the pier for switching.	No storage	1955-1971
Coal	Export	Berth 412 bulk unloader; gantry cranes at Pier 2 also unloaded coal from barges.	Pier 5 storage bunkers	1952-1958
Zinc concentrate	Import	Same method as used for lead, same time frame.	No storage	1955-1971
Soda ash	Export	Bulk outloader; Pier 5-loaded railcars dumped soda ash into Berth 412 outloader, direct transfer to vessel. Pier	30,000-ton A-frame storage building at	1988-Present

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Ore	Status	Transfer Method	Storage	Period
		4-loaded railcars traveled along face of dock, in strings of six cars, through one of two dumper buildings. Soda ash was either transported directly to ship via conveyor or taken to storage building for later shipment. Ships could be simultaneously loaded from storage and rail.	Pier 4 since 1993; no storage at Pier 5 (direct transfer from rail to ship only)	
Sulfur	Export	Transfer from railcars to barges by bulk unloader at Berth 412. After 1961, transferred by Pier 4 Dravo tower.	No storage	1955-1967
Alumina/Bauxite	Import	Gantry cranes at Pier 2 (Berths 406-408) removed ore from ship hold to Union Pacific railcars. After 1961, ships were unloaded at Pier 4 (Berths 410 and 411) by the Dravo unloading tower.	No storage	1955-1956, 1963
Ammonium sulfate	Import	Transferred from ship hold by Dravo tower into dump trucks.	Storage building south of Pier 5	1970
Bentonite clay	Export	Direct transfer from railcar to ship via Pier 5, Berth 412 bulk outloader via conveyor belt from railcars until new outloader constructed at Pier 4.	No storage	1967
Sodium sulfate	Export	Direct transfer from railcar to ship via bulk outloader at Pier 5 until new outloader built at Pier 4.	No storage	Not available
Soybean meal	Export	Direct transfer from railcar to ship via bulk outloader at Pier 5 until new outloader built at Pier 4.	No storage	Not available
Chromite	Import	Gantry cranes at Pier 2 removed ore from ship holds to Union Pacific railcars.	No storage	1956-1957
Ferro-phosphorous iron ore	Export	Transferred by Pier 2 gantry cranes from railcars (originating in Idaho) to SS *Jotunfjell* for shipment to Rotterdam, Holland.	No storage	1955-1957
Limestone	Import	Transfer from barge hold to railcar.	No storage	1966-1967
Manganese	Import	Gantry cranes at Pier 2 removed ore from ships to railcars.	No storage	1958
Potash	Export	Transferred from railcars to ships at Berth 412.	Storage bunkers	1959

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Ore	Status	Transfer Method	Storage	Period
Rutile ore sand (titanium oxide)	Import	Transferred from ship holds by Berth 412 bulk loader.	Storage bunkers	1970
Talc	Export	Transferred from Burlington Northern railcars to ship holds by Berth 412 bulk outloader (Berth 401).	Storage bunkers	1966
Tricaphos (tri-calcium phosphate)	Import	Discharged by a marine leg and conveyor belts at Pier 1.	Storage bunkers at Pier 1	1961

The Bunker Hill Company and Hecla Mining Company's Sullivan Electrolytic Zinc Plant were the major consignees for lead and zinc ore concentrates during the 1955 to 1971 period. Anaconda Mining Co. (a former ARCO subsidiary) and American Smelting & Refining Co. (known as ASARCO) also imported ores through Terminal 4. The American National Soda Ash Consortium (known as ANSAC) has supplied Wyoming soda ash to the KMBT (formerly Hall-Buck Marine) facility at Terminal 4 from 1988 to the present day.

Pencil Pitch Handling

Pencil pitch is a coal tar distillate used as anode material at aluminum refineries throughout the Pacific Northwest. It is manufactured by extruding finger-width coal tar pitch "pencils." Available Port records indicate that pencil pitch was handled at Terminal 4 from 1978 to 1998. The pencil pitch was manufactured in Germany and China and purchased from Koppers Industries, Inc. Ships carrying the pencil pitch were moored at Berth 411 in Slip 3. Longshoremen removed the pencil pitch from the ships' holds by means of the clamshell-equipped Dravo unloading tower on Pier 4 and loaded it directly onto truck trailers or railcars adjacent to the pier.

In 1978, 13,161 short tons of pencil pitch arrived at the Port in several ships and were transferred to rail and truck carriers at Pier 4. In 1979, Jones Oregon Stevedoring Co. signed an agreement to handle bulk pencil pitch cargo at Terminal 4. That agreement was renewed in September 1982. In 1987, the Port leased the bulk cargo handling operations to Hall-Buck Marine, Inc. At that time, the Port was using the Dravo unloading tower to transfer an estimated 25,000 to 35,000 tons of pencil pitch annually. Hall-Buck Marine modified the Dravo mechanism in 1988 and the rear section of the loading hopper enclosure in 1992 to improve operations. Statistics indicate that 182,748 short tons of pencil pitch were unloaded from at least 28 ships between 1978 and 1989. Port records register 11 ships calling between January 1997 and June 1998. Ten of those vessels were affiliated with General Steamship Corporation, Ltd. In 1998, Hall-Buck Marine ended bulk import of pencil pitch at Terminal 4. The Dravo unloading tower was decommissioned that same year.

General Cargoes

Terminal 4 was chiefly designed to handle bulk (as opposed to break-bulk) cargo. The grain elevator, vegetable oil and molasses tanks, and the bulk mineral facility at Pier 5 have been prominent elements of the bulk cargo handling at Terminal 4. Other bulk cargoes imported or exported through Slip 1 and its adjacent piers and warehouses were wool, cotton, and natural rubber. The entities handling these cargoes and the time frames

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involved are not presently known. Some break-bulk cargoes were processed through Terminal 4, including automobiles exported to the Far East beginning in 1925.

Prior to and during the terminal's use as a container station by Matson Navigation Company, the terminal was used to process whole log bundles for export to Japan.

In addition to the bulk storage plant for handling coal, phosphate rock, and other bulk products, the rear of the quay dock at Pier 5 had a 3.5-acre storage space available for lumber, logs, sulfur, and steel. The equipment used for loading and unloading these materials included two traveling towers, hoppers, tripper, chutes, bins, and automatic scales. The quay dock was removed from Pier 5 in 1962, and the bulk handling facility was demolished between 1968 and 1969. The bulk outloader on the slip side of Pier 5 was decommissioned and removed between 1990 and 1992.

City of Portland

The City of Portland owns a parcel of land adjacent to Wheeler Bay commonly known as the fire boat station parcel. When the Port and the City CPD were consolidated in 1971, the CPD's properties and functions were transferred to the Port. However, the fire boat station parcel was specifically exempted from the transfer of property. The exemption was recorded correctly, but the parcel was erroneously located on Multnomah County tax maps at Slip 1 instead of in Wheeler Bay. That error was corrected in 2002.

The City of Portland operated a fire boat station at Terminal 4 from a pier into Wheeler Bay from approximately 1960 through approximately 1986. At one point, the fire boat station was located on the upstream end of Wheeler Bay, attached to Berth 410. In approximately 1980, the Multnomah County Sheriff's Department moved a boat house and houseboat just inside the area closer to the head of the slip from the fire boat station. The City of Portland formerly utilized an approximately 1,000-gallon UST for the storage of gasoline. The former UST was decommissioned in 1995 and, following sampling of soil and groundwater, DEQ issued a No Further Action determination. The City of Portland relocated its fire boat moorage to the Port's Terminal 1 facility in 1995, at which time Carr Marine leased the ramp and floating dock to tie up barges. That lease ended in 1999. The fire boat parcel has been vacant since that time.

In 1986, the City of Portland constructed a municipal stormwater sewer conveyance system that drains properties located along North Lombard Street and North Roberts Avenue. The stormwater piping traverses the northern portion of the Slip 1 Upland Facility and ultimately discharges to Slip 1. The City of Portland refers to the outfall discharging to Slip 1 as Outfall 52C. According to City of Portland records, Outfall 52C is a 36-inch municipal storm drain with a catchment area of approximately 24 acres located above the railroad tracks east of the terminal.

Oregon Terminal Company

In 1988, the Port ceded control of overall operations at Pier 2 under a management agreement with Oregon Terminal Company (OTC) for operation of all break-bulk berths. OTC handled Berth 408, the ro-ro dock, and associated warehouses. In addition, OTC operated the old Quaker State building as a gearlocker. A rail-covered work pit was constructed west of the gearlocker building at that time. In addition, one 4,000-gallon UST for diesel and one 4,000-gallon UST for gasoline were installed with a fueling station on the south side of the

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gearlocker building. An equipment wash station was installed on the slip side of the building; the wash station drained to the sanitary sewer. Both the USTs and the wash station were removed when the management agreement ended in 1996.

Other Facilities

A gearlocker building that was constructed in 1932, housed shops for carpentry, painting, blacksmithing, and repairs. In 1942, during the USATS's tenure, an internal, second-story loft was added to the one-story building.

A.6 Dredging and Filling History at Terminal 4

Dredging activity at Terminal 4 began with the work that provided fill for the general terminal space and created Slips 1 and 3 between 1917 and 1921. In the process, the former Gatton's Slough and adjacent Willamette River shoreline were reconfigured. Port of Portland dredges provided the dredged material for the City CPD's facility. Maintenance dredging of the slips and improvements to the terminal's harbor face occurred periodically in ensuing years. Table A-5 provides a chronology of dredging and filling events at Terminal 4.

Table A-5
Chronology of Dredging and Filling Events at Terminal 4

Month* / Year	Specific Area Dredged	Specific Area Filled	Estimated Volume (cubic yards)*	Description
1917	St. Johns Elevator and Terminal (Terminal 4)	Terminal 4 Upland		Slip excavation performed by Dredge Portland and "special channel" work performed by Dredge Willamette.
1918	St. Johns Terminal (Terminal 4)	Terminal 4 Upland		Slip excavation performed by Dredge Portland and channel work performed by Dredges Columbia, Willamette, and Tualatin.
Jan 1919	Terminal 4, Willamette River Channel	Terminal 4 Upland	21,950	Terminal development.
Jan 1919	Slip 1	Terminal 4 Upland	26,600	Terminal development.
Jan 1919	Slip 1	Terminal 4 Upland	30,400	Terminal development.
Jan 1919	Terminal 4, Willamette River Channel	Terminal 4 Upland	45,480	Terminal development.
Feb 1919	Slip 1	Terminal 4 Upland	34,400	Terminal development.
Feb-May 1919	Willamette River, Channel - Linnton	Terminal 4 Upland	631,060	Terminal development.
Apr-May 1919	Slip 1	Terminal 4 Upland	132,000	Terminal development.
May-June 1919	Slip 2	Terminal 4 Upland	69,200	Terminal development. Excavation of 1500-ft length and 200-foot width slip.

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Month* / Year	Specific Area Dredged	Specific Area Filled	Estimated Volume (cubic yards)*	Description
May-July 1919	Terminal 4, Willamette River Channel	Terminal 4 Upland	294,240	Terminal development.
Aug-Dec 1919	Slip 2	Not verified	318,200	Terminal development. Excavation of 1500-ft length and 200-foot width slip.
Jan 1920	Terminal 4 Slips	Terminal 4 Upland	586,661	Terminal development.
Feb-Apr 1920	Terminal 4, Willamette River Channel	Terminal 4 Upland	683,200	Terminal development.
July 1920	Terminal 4 Slips	Terminal 4 Upland	39,360	Terminal development.
Sept-Dec 1920	Terminal 4 Slips	Terminal 4 Upland	271,584	Terminal development.
Dec 1920	Terminal 4 Slips	Terminal 4 Upland	11,445	Terminal development.
1921	Slip 2	Not verified.		Terminal development.
1921	Slip 3	Slip 2		Terminal development.
1921	Slip 2	Not verified.		Terminal development.
1921	Slip 3	Not verified.		Terminal development.
1921	Pier 2	Pier 3		Terminal development.
1921	Slip 3	Pier 4		Terminal development.
Oct 1923	Willamette River Channel below Terminal 4	Terminal 4 Beach	80,545	Dredging.
Oct-Nov 1923	Willamette River Channel below Terminal 4	Terminal 4 Beach	469,435	Job No. 1087: Dredging
Dec 1923	Willamette River Channel below Terminal 4	Terminal 4	218,230	Dredging.
1923-1924	Willamette River above Terminal 4	Weyerhauser Tract		Dredging.
1924	Piers 3 & 4	Not verified.		Dredging for construction of bulkheads and fills.
Aug-Sept 1924	Willamette River Channel above Terminal 4	Terminal 4 above	146,890	Dredging.
Sept-Oct 1924	Pier 5	Bank upstream from Terminal 4	107,010	Job No. 1100: Dredging.
Oct 1924	Shoal above Terminal 4	Terminal 4 above	187,300	Dredging.
1924-1925	Terminal 4 above	Land above Terminal 4	402,710	Dredging
1925	Willamette River	Land above		Dredging.

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Month* / Year	Specific Area Dredged	Specific Area Filled	Estimated Volume (cubic yards)*	Description
	Channel	Terminal 4		
Nov-Dec 1935	Terminal 4	Not verified.	228,085	Dredging.
1935-1936	Willamette River Channel near Terminal 4	Lowlands above Terminal 4		Dredging.
1936	Terminal 4, Willamette River Channel	Not verified.		Dredging.
July-Aug 1936	Terminal 4	Not verified.	495,045	Dredging.
July-Aug 1936	Willamette River Channel, Terminal 4	Not verified.		Corps maintenance dredging (Job #1241).
1937	Terminal 4	Not verified.	187,651	Dredging.
Dec 1938	Associated Oil Company	Terminal 4, ashore below	190,960	Filling.
1941	Willamette River Channel below Terminal 4	Weyerhauser Tract		Dredging.
Feb-Apr 1941	Terminal 4	Not verified.		Dredging (CPD Project 1257).
Feb-Apr 1941	Terminal 4	Swan Island	823,640	Dredging.
Apr-June 1941	Slip below Terminal 4 above	Not verified.		Dredging. Contract 1260.
1942	Slip 1	Not verified.		U.S. Army Transport Service maintenance dredging.
July 1948	Willamette River Channel south of Pier 5	Head of Slip 2		Dredging for construction of oil dock south of Pier 5 (Job #1286). Initial filling of head of Slip 2
Aug 1948	Slip 3	Not verified.		Maintenance dredging.
1957-1958	Slip 3	Slip 2		Widening of Slip 3, dredging and final filling of head of Slip 2.
1962	Slip 1	Not verified.		Dredging.
1963	Terminal 4. Willamette River Channel	Oregon Shipbuilding Way-Ends		Dredging.
1968	Slip 1	Not verified.		Dredging.
1968	Willamette River Channel adjacent to Terminal 4	Rivergate		Dredging.
1969	Slip 3	Not verified.		Emergency dredging by Western Pacific Dredging to accommodate iron ore vessels.
June 1971	Willamette River Channel	Terminal 4	79,400	Locations and purpose not specified.

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Month* / Year	Specific Area Dredged	Specific Area Filled	Estimated Volume (cubic yards)*	Description
1972	Willamette River Channel	Terminal 4 Auto Storage Area Bankline	700,000	Terminal development.
1972	Terminal 4	Rivergate		Dredging.
1973	Slip 2	Not verified.		Fireboat basin dredging.
Feb 1973	Willamette River Channel	Terminal 4	355,466	Locations and purpose not specified.
Nov-Dec 1974	Willamette River Channel at Terminal 4	Rivergate (Area 14)	908,836	Channel maintenance.
Jan-Mar 1975	Willamette River Channel at Terminal 4	Rivergate (Area 14)	1,938,550	Channel maintenance.
1975	Slip 1	Not verified.		Dredging of Berths 403-405.
1975	Slips 1, 2, 3 and Harbor Piers	Not verified.		Maintenance dredging.
1976	Terminal 4	Swan Island Lagoon	3,000	Maintenance dredging.
1977	Slips 1 and 3	Not verified.		Dredging of Berths 407-408 (Slip 1) and Berth 410 (Slip 3)
1980	Slip 2	Not verified	100	Material removed for future river patrol boathouse as part of maintenance dredging.
1983	Slips 1, 2, 3 and Harbor Piers	Not verified.		Maintenance dredging.
1984	Slip 3	Swan Island Lagoon	5,000	Maintenance dredging of Berths 410 and 411.
1987	Terminal 4	Ross Island	2,000	Maintenance dredging of Berth 401.
1987	Terminal 4 Auto Storage Area	Morgan Bar	1,800	Maintenance dredging of Berth 416.
1988	Slip 1	Not verified.		Maintenance dredging of Berths 403-408.
1988	Terminal 4	Morgan Bar	28,900	Maintenance dredging of Berths 401, 403-408, and 414-416
1994	Slip 3	Ross Island	35,000	Remedial dredging associated under Consent Decree.
1994	Terminal 4	Ross Island	2,300	Maintenance dredging of Berth 408.
1996-1997	Slip 3	Ross Island		Maintenance dredging of Berths 410 & 411.
1997	Slip 3	Not verified.	5,454	Maintenance dredging of Berths 410 & 411.
2002	Slip 3	Not verified.	2,250	Maintenance dredging of Berths 410 & 411.
2003	Slip 3	Not verified.		Maintenance dredging of Berths 410 & 411.

* *where reported or available*

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A.6 Current Uses at Terminal 4

Throughout the 1980s and 1990s, some of the buildings, equipment, and docks at Terminal 4 became obsolete and were removed. Slip 1 is not presently deep enough to accommodate deeper-draft modern vessels and current Port plans do not call for such deepening in the foreseeable future. In the late 1980s and early 1990s, Warehouse 4 was condemned and removed, and the original tanks at the bulk liquid storage facility near the head of Slip 1 were removed. In 1996, Berths 406 and 407 and their associated docks and warehouses were dismantled. The demolition of Berths 403 and 404 and associated Houses 3 and 4 followed in 1999. Bulk operations at Berth 412 (Pier 5) were terminated in 1989, and the wharf at Berth 412 was removed in 1997.

A.6.1 Tenant Operations

Current lessees within the Removal Action Area at Terminal 4 and their status are listed below.

Cereal Food Processors

Cereal Food Processors, Inc. (formerly known as Terminal Flour Mills) is currently in the last two years of a lease for approximately 1.6 acres at the flour mill facility at Terminal 4.

International Raw Materials

IRM is currently in year four of a 10-year lease (with two five-year option periods) for approximately 6.3 acres at the liquid bulk storage facility, excluding a Port building. The previous lease for the facility was assigned from PM-Ag to IRM in 1995.

Rogers Terminal

Rogers Terminal & Shipping (a division of Cargill Marine) is currently in "hold over" status with a lease of improved space east of Slip 1. The lease is for less than 1 acre and encompasses an 11,712-square-ft warehouse with 406 square ft of office space and a 15,451-square-ft yard. Rogers, a terminal service company, originally leased the space for stevedoring services supplied to Cargill's operation. Since Cargill is in the process of exiting its lease and is no longer operating at Terminal 4, Rogers is currently utilizing the leasehold for storage purposes. Rogers' initial lease agreement with the Port dates from 1983.

Rogers formerly utilized an aboveground used oil tank in connection with its operations. In addition, the Port removed an approximately 10,000-gallon gasoline UST from the Rogers leasehold in 1990. Sampling during decommissioning of the UST confirmed that there were no releases associated with the UST.

Kinder Morgan Bulk Terminals

In 1998, Hall-Buck was acquired by Kinder Morgan and renamed KMBT. KMBT continues to export soda ash through Slip 3. KMBT currently leases 6.56 acres adjacent to Berths 410 and 411 for ship loading of soda ash and/or unloading of bulk cargo from rail. The lease area includes rails, associated buildings, a storage dome, and utilities.

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Additional agreements affecting Kinder Morgan's lease area include:

- Portland General Electric easement for underground line;
- Pipeline Crossing Agreement, Union Pacific (licensor) to Hall-Buck (licensee), allowing Hall-Buck to construct, maintain, and operate a pipeline; and
- Revenue Sharing Agreement with Union Pacific.

KMBT currently utilizes an approximately 5,000-gallon diesel UST located north of the Rail Dump building, an approximately 675-gallon AST located in the eastern portion of the facility, and an approximately 2,000-gallon sulfuric acid AST located within Building 432. In addition, KMBT utilizes an approximately 43,000-gallon open settling tank for soda ash wash-down water.

Schnitzer

The Port has a moorage agreement with Schnitzer Investment Corporation for a portion of the mooring dolphin that extends onto submerged lands adjacent to property owned by Schnitzer at the Berth 401 grain elevator.

A.6.2 Rail Trackage

Rail Usage

The rail trackage within the confines of Terminal 4 is owned by the Port. The Port leases portions of the rail trackage to individual tenants as part of their facility leases. The Terminal 4 rail system is designated as capacity that the Port will afford a tenant under terms of the lease. Older, renewable leases, such as the one currently in effect with KMBT, subsume the particulars of car movement and loading under the general term of "operations." Newer facility leases deal with all aspects of terminal transfer operations in detail.

Although not specifically addressed in older lease language, there are recognized responsibilities regarding rail activities at Terminal 4. Union Pacific, or any other railroad company involved in car transit and delivery, is responsible for the line haul of consigned product from origin to destination. This includes delivery of the cars to the terminal.

A.6.3 Adjacent Property Ownership and Operations

The Terminal 4 Removal Action Area is bordered to the north by Schnitzer Steel Industries and Northwest Pipe and Casing; to the north/northeast by the Burgard Industrial Park; to the south by the Terminal 4 Auto Storage Area, which is occupied by Toyota; to the east by Union Pacific rail tracks, beyond which is the Toyota processing yard and Toyota processing center; to the southeast by the Toyota upper lot; and to the west by the Willamette River.

The Schnitzer Steel Industries, Northwest Pipe and Casing, and Burgard Industrial Park properties and the Toyota Auto Storage Area, all of which border the Terminal 4 Removal Action Area, are discussed below.

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Schnitzer Steel Industries

Schnitzer Steel Industries (Schnitzer), located at 12005 North Burgard Street, borders Terminal 4 on the north. Schnitzer processes, stores, and exports scrap metal (e.g., automobiles, appliances, and ferrous metal products) from its facility. Schnitzer also operates a deep marine terminal for bulk commodities. The property was the site of Oregon Shipbuilding Corporation's shipyard from approximately 1943 through 1945; between the late 1960s and 1972, Schnitzer reportedly conducted ship scrapping activities at the property. Schnitzer Steel Industries is listed as Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information (ECSI) #2355 and is currently under a Voluntary Cleanup Program (VCP) Agreement for remedial investigation of the site, which is ongoing.

Northwest Pipe and Casing

Northwest Pipe and Casing, located at 12005 North Burgard Street, borders Terminal 4 on the north. Northwest Pipe and Casing operates a welded steel pipe and coating manufacturing facility. Historically, the Oregon Shipbuilding Corporation shipyard, which operated from 1943 through 1945, extended onto the Northwest Pipe and Casing property. Beall Pipe operated a pipe manufacturing facility on the property from 1945 to 1983. Northwest Pipe and Casing, purchased the property in 1983. Northwest Pipe and Casing is listed as DEQ ECSI #138 and is currently under a VCP Agreement for remedial investigation of the site, which is ongoing.

Burgard Industrial Park

The portion of the Burgard Industrial Park that is adjacent to the north/northeast of Terminal 4 includes Boydstun Metal Works and Western Machine Works.

Boydstun Metal Works, located at 9002 North Sever Court in the Burgard Industrial Park, borders Terminal 4 on the north/northeast. Boydstun Metals Works fabricates and paints automobile transport trailers. Specific manufacturing activities include cutting steel and aluminum sheets and tubes, welding parts as part of trailer assembly, sandblasting, painting, and installing hydraulics and electrical control systems. Historically, the Oregon Shipbuilding Corporation shipyard, which operated from 1943 to 1945, extended onto the Boydstun property; between the late 1960s and 1972, Schnitzer reportedly conducted ship scrapping activities at the property. Boydstun is separately listed as DEQ ECSI #2362; however, the site has been incorporated into the Schnitzer Steel Industries investigation (ECSI #2355 described above), which is ongoing.

Western Machine Works, located at 12005 North Burgard Street in the Burgard Industrial Park, also borders Terminal 4 on the north/northeast. Western Machine Works fabricates and remanufactures components for the paper and pulp industry. Historically, the Oregon Shipbuilding Corporation shipyard, which operated from 1943 to 1945, extended onto the Boydstun property; between the late 1960s and 1972, Schnitzer reportedly conducted ship scrapping activities at the property. Western Machine Works is not listed in the DEQ's ECSI database; however, the site is included in the Schnitzer Steel Industries investigation (described above), which is ongoing.

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Toyota - Auto Storage Area

Toyota Motor Sales, which occupies properties to the east, south, and southeast of the Terminal 4 Removal Action Area, holds a long-term lease agreement with the Port dating to 1976 for the storage and processing of automobiles. Historically, Toyota's facilities have been at Terminal 4 and above Terminal 4 on Lombard Street; the facilities are known as the upper and lower lots.

The Toyota area south of the terminal was first developed in 1969 and paved as a large-scale automobile import facility. A floating dock (Berth 417) was constructed in 1969, and a second floating auto dock (Berth 416) was constructed in 1972. In addition, Berths 414 and 415 were completed in 1974 for the handling of steel cargo.

In 1976, Toyota leased the import facility at Berth 416, and the processing plant was expanded in 1979. Berth 417 was relocated to the Port's Terminal 6 and a general cargo auto terminal was constructed there.

In 1986, the Port purchased the St. Johns Auto Wrecking Yard on Lombard Street above Terminal 4. Toyota entered into an agreement with the Port for approximately 69.2 acres of property, buildings, improvements, and dock rights located to the east and south of the Removal Action Area. Toyota exercised an option under the terms of the 1986 lease on October 30, 1989 for an additional 12-acre parcel farther upstream. On April 3, 1990, Toyota exercised another option under the lease for an additional 8.8-acre parcel located on the corner of North Lombard and North Roberts. A recent amendment extending the term of the lease also provided for closure of the "upper property" (east of the terminal) on North Lombard, including removal of the underground fuel tanks.

In 2002, Toyota Motor Sales, U.S.A., Inc. (also known as Toyota; TLS, Logistics) entered into a separate lease agreement for approximately 82 acres south of the Terminal 4 Removal Action Area, which includes a vacated portion of North Bradford Street.

Toyota's current operations include unloading automobiles from ships that dock at Berths 414 and 415, driving the cars to designated yard areas, and storing the vehicles awaiting processing, which includes fueling and washing vehicles, installing accessories, and making minor repairs to damage caused during shipping.

A.7 Planned Future Uses at Terminal 4

The Port is currently involved in master planning to guide development and redevelopment to the year 2020. Terminal 4 will remain one of the Port's primary marine terminals for the foreseeable future. Options under consideration for Terminal 4 generally involve retaining the existing terminal purposes of handling grain, autos, and dry bulk and liquid bulk cargoes. Most of the alternatives under consideration emphasize the continued use of Slip 3 and deemphasize the use of Slip 1.

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DO NOT SAY IT - WRITE IT

March 19, 1992 READING FILE

FROM: DAVE BOWMAN

TO: FILE

RE: 1992 OREGON STATE FIRE MARSHAL HAZARDOUS SUBSTANCE EMPLOYER SURVEY

Attached are copies of the completed survey reports for the T4 mechanics shop, Suffolk Street gearlocker, Newport, Astoria, and North Bend (Coos Bay) locations which have been filed with the State Fire Marshal as required by Oregon State law. The information required for these original listing reports was gathered from JOS personnel, Material Safety Data Sheets, material suppliers, State Fire Marshal hazardous substance survey hot-line and the review and compilation of all hazardous substance purchase invoices (JOS & WFS) for all Oregon locations for 1991.

Fees for the possession of hazardous substances will be assessed based on the hazardous ingredient and the maximum amount of the hazardous substance on site at any time.

Future reports will consist of updates, additions, and subtractions to these original site reports.

DKB/jj
Attachments

FORM
COMPANY

1991 - 1992
HAZARDOUS SUBSTANCE EMPLOYER SURVEY
OREGON STATE FIRE MARSHAL

Account Number

TO COMPLETE, ADD OR MAKE CORRECTIONS: PLEASE TYPE CHANGES OR ADDITIONS IN THE APPROPRIATE COLORED AREAS TO THE RIGHT OR BELOW THE PREPRINTED DATA WHICH MAY APPEAR IN SECTIONS A, B AND D.

SECTION A HAZARDOUS SUBSTANCE PRESENCE (Enter the appropriate number, either 1, 2 or 3 in the box to the left)

[3]

1. No hazardous substances are used at this site in any way. Type the number 1 in the box to the left. Complete Sections B and C.
2. Hazardous substances are used at this site by our company, but do not meet reporting requirements. Type number 2 in the box to the left. Complete Sections B and C.
3. Hazardous substances are used at this site by our business in reportable quantities. Type number 3 in the box to the left. Complete all parts of this form, Sections B, C, and D.

SECTION B DEMOGRAPHIC DATA (Please complete, correct or add the following information to the colored areas if it is not preprinted. See instructions.

1. SIC CODE(S) Enter all that apply to business SIC 1 [4491] SIC 2 [ ] SIC 3 [ ]
2. TYPE OF BUSINESS: [STEVEDORING]
4. DUN & BRADSTREET No.: [ ]
5. MANAGER'S NAME: [BOB MARACLE]
6. BUSINESS NAME: [JONES OREGON STEVEDORING CO.] DEPT. or DIV.: [I-4 MECHANICS SHOP]
7. SITE ADDRESS: [11040 N. LOMBARD]
   CITY: [PORTLAND]
   COUNTY: [MULTNOMAH]
   STATE: [OR] ZIP CODE: [97203]
8. MAILING ADDRESS: [P. O. BOX 10167]
   CITY: [PORTLAND]
   COUNTY: [MULTNOMAH]
   STATE: [OR] ZIP CODE: [97210]

BUSINESS PHONE: [2286601]

9. NUMBER OF EMPLOYEES AT THIS SITE: [6]
10. EMERGENCY ASSISTANCE CONTACT PERSON FOR THIS SITE: [DAVE BOWMAN]
    EMERGENCY CONTACT PHONES: DAY [228-6601] NIGHT [629-5263]
11. RESPONSIBLE FIRE DEPARTMENT: [PORTLAND FIRE BUREAU]
12. SPECIAL EMERGENCY PROCEDURES: (See Instructions. Use additional pages as necessary)

[ ]

13. ARE STORAGE BUILDINGS / TANKS / AREAS PLACARDED ACCORDING TO (NFPA 704)? (YES or NO) [NO]

SECTION C PERSON COMPLETING FORM

THE ABOVE DATA IS: CORRECT AS SHOWN [X] CORRECTIONS ARE MADE [ ]

PRINT NAME DAVID K. BOWMAN

SIGNATURE [signature]

3. DATE SURVEY COMPLETED: [3-10-92]

THE NAME AND SIGNATURE OF THE PERSON RESPONSIBLE FOR COMPLETION OF THE FORM. THIS PERSON WILL BE CONTACTED TO ANSWER ANY QUESTIONS NEEDING CLARIFICATION

PLEASE TYPE ALL ANSWERS

COMPANY INFO

FORM
CHEMICAL

SECTION D

1991 - 1992 OREGON STATE FIRE MARSHAL — Account Number

HAZARDOUS SUBSTANCE EMPLOYER SURVEY

SUBSTANCE INFORMATION - TYPE ALL DATA IN SHADED AREAS

REQUEST ADDITIONAL COPIES IF NEEDED

COMMON NAME/TRADE NAME: PROPANE/LPG

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: PROPANE 9.6%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	5	50	30	41	365	A 2 4	2 1	74-98-6
										UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

ALONG FENCE WEST OF BUILDING

UN 1075

COMMON NAME/TRADE NAME: #2 DIESEL FUEL

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: TRIMETHYL BENZENE 1-2-6%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
1		2	2	20	20	30	365	B 1 4	3 3	68476346
										UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

1. EAST OF BUILDING
2. BACK OF BUILDING (S.W. END, OUTSIDE) STEAM CLEANER FUEL SUPPLY

COMMON NAME/TRADE NAME: UNLEADED REGULAR GASOLINE

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: TOLUENE 10-13% XYLENE 10-13%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	20	20	30	365	B 1 4	3 1	1634044
										UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

EAST OF BUILDING

COMMON NAME/TRADE NAME: ANTI-FREEZE

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: ETHYLENE GLYCOL 95%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	10	10	10	365	D 1 4	8 1	107-21-1
										UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

OUTSIDE AT S.W. CORNER OF BUILDING

CHEMICAL

SECTION D

HAZARDOUS SUBSTANCE EMPLOYER SURVEY

SUBSTANCE INFORMATION - TYPE ALL DATA IN SHADED AREAS

REQUEST ADDITIONAL COPIES IF NEEDED

COMMON NAME/TRADE NAME: MOTOR OIL

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: PETROLEUM DISTALLATE UP TO 99.5

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	10	11	11	365	G 1 4 / D 1 4	4 5	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): N.E. SIDE OF BUILDING IN OIL SHED

COMMON NAME/TRADE NAME: HYDRAULIC/TRANSMISSION OIL

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: PETROLEUM DISTALLATE UP TO 99.5%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	10	11	20	365	C 1 4 / D 1 4	8 0	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): N.E. SIDE OF BUILDING IN OIL SHED

COMMON NAME/TRADE NAME: GEAR OIL

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: PETROLEUM DISTALLATE 94%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	10	10	10	365	C 1 4 / D 1 4	4 5	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): N.E. SIDE OF BUILDING IN OIL SHED

COMMON NAME/TRADE NAME: SOLVENT

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: C9-C13 SATURATED HYDROCARBON 85%

1 - PURE / 2 - MIXTURE	1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2		2	2	03	03	10	365	D 1 4 / [illegible]	4 5	64741-41-9

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): INSIDE BUILDING SOUTH SIDE OF NW WALL

FORM
CHEMICAL
SECTION D

1991 - 1992 OREGON STATE FIRE MARSHAL Account Number

HAZARDOUS SUBSTANCE EMPLOYER SURVEY

SUBSTANCE INFORMATION - TYPE ALL DATA IN SHADED AREAS

REQUEST ADDITIONAL COPIES IF NEEDED

COMMON NAME/TRADE NAME: ACETYLENE
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: ACETYLENE

1 - PURE / 2 - MIXTURE	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
1	3	3	11	11	11	365	E 2 4	2.1	

1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED

STORAGE LOCATIONS (BE SPECIFIC)

1. WELDING SHOP N.W. SIDE OF BUILDING
2. SMALL AMOUNT IN BUILDING

UN/NA NO.: UN 1001

COMMON NAME/TRADE NAME: OXYGEN
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: OXYGEN

1 - PURE / 2 - MIXTURE	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
1	3	3	11	11	20	365	L 2 4	2.2	

1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED

STORAGE LOCATIONS (BE SPECIFIC)

1. WELDING SHOP N.W. SIDE OF BUILDING
2. SMALL AMOUNT IN BUILDING

UN/NA NO.: UN 1072

COMMON NAME/TRADE NAME: WASTE OIL
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: PETROLEUM DISTALLATE

1 - PURE / 2 - MIXTURE	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	2	10	11	11	365	A 1 4	4.5	

1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED

STORAGE LOCATIONS (BE SPECIFIC)

1. OUTSIDE S.E. SIDE OF BUILDING
2.

UN/NA NO.:

COMMON NAME/TRADE NAME: 853 CLEANER/DEGREASER
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: 2-BUTOXYETHANOL 10%

1 - PURE / 2 - MIXTURE	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	2	3	4	10	365	E 1 4	8.0	

1 - NO CHANGE / 2 - CORRECTIONS MADE / 3 - NO LONGER USED

STORAGE LOCATIONS (BE SPECIFIC)

1. INSIDE BUILDING NEXT TO CENTRAL N.W. WALL
2.

UN/NA NO.: NA 1760

FORM COMPANY

1991 - 1992
HAZARDOUS SUBSTANCE EMPLOYER SURVEY
OREGON STATE FIRE MARSHAL

Account Number 045931

TO COMPLETE, ADD OR MAKE CORRECTIONS: PLEASE TYPE CHANGES OR ADDITIONS IN THE APPROPRIATE COLORED AREAS TO THE RIGHT OR BELOW THE PREPRINTED DATA WHICH MAY APPEAR IN SECTIONS A, B AND D.

SECTION A HAZARDOUS SUBSTANCE PRESENCE (Enter the appropriate number, either 1, 2 or 3 in the box to the left)

3

1. No hazardous substances are used at this site in any way. Type the number 1 in the box to the left. Complete Sections B and C.
2. Hazardous substances are used at this site by our company, but do not meet reporting requirements. Type number 2 in the box to the left. Complete Sections B and C.
3. Hazardous substances are used at this site by our business in reportable quantities. Type number 3 in the box to the left. Complete all parts of this form, Sections B, C, and D.

SECTION B DEMOGRAPHIC DATA (Please complete, correct or add the following information to the colored areas if it is not preprinted. See instructions.

1. SIC CODE(S) Enter all that apply to business SIC 1: 4491 SIC 2: SIC 3:
2. TYPE OF BUSINESS: STEVEDORING
4. DUN & BRADSTREET No.:
5. MANAGER'S NAME: BOB MARACLE
6. BUSINESS NAME: JONES OREGON STEVEDORING CO DEPT. or DIV.: SUFFOLK GEARLOCKER
7. SITE ADDRESS: 2318 N.W. SUFFOLK ST.
   CITY: PORTLAND
   COUNTY: MULTNOMAH
   STATE: OR ZIP CODE: 97210
8. MAILING ADDRESS: P. O. BOX 10167
   CITY: PORTLAND
   COUNTY: MULTNOMAH
   STATE: OR ZIP CODE: 97210

BUSINESS PHONE: 228-6601

9. NUMBER OF EMPLOYEES AT THIS SITE: 5

10. EMERGENCY ASSISTANCE CONTACT PERSON FOR THIS SITE: DAVE BOWMAN
    EMERGENCY CONTACT PHONES: DAY 228-6601 NIGHT 620-5262
11. RESPONSIBLE FIRE DEPARTMENT: PORTLAND FIRE BUREAU
12. SPECIAL EMERGENCY PROCEDURES: (See instructions. Use additional pages as necessary)

13. ARE STORAGE BUILDINGS / TANKS / AREAS PLACARDED ACCORDING TO (NFPA 704)? (YES or NO) NO

SECTION C PERSON COMPLETING FORM

THE ABOVE DATA IS: CORRECT AS SHOWN X CORRECTIONS ARE MADE

PRINT NAME DAVID K. BOWMAN

SIGNATURE David K. Bowman

3. DATE SURVEY COMPLETED: 3-11-92

THE NAME AND SIGNATURE OF THE PERSON RESPONSIBLE FOR COMPLETION OF THE FORM. THIS PERSON WILL BE CONTACTED TO ANSWER ANY QUESTIONS NEEDING CLARIFICATION

PLEASE TYPE ALL ANSWERS

COMPANY INFO

FORM
CHEMICAL

SECTION D

1991 - 1992 OREGON STATE FIRE MARSHAL Account Number 045031

HAZARDOUS SUBSTANCE EMPLOYER SURVEY

SUBSTANCE INFORMATION - TYPE ALL DATA IN SHADED AREAS

REQUEST ADDITIONAL COPIES IF NEEDED

COMMON NAME/TRADE NAME: LATEX PAINT - WATER BASED
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: NO REPORTABLE QUANT OF HAZ ING

1 - PURE
2 - MIXTURE: 2

1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED:

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	4	10	10	365	E 1 4		

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): NORTH CENTRAL AREA OF MAIN BUILDING

COMMON NAME/TRADE NAME: ACETYLENE
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: ACETYLENE

1 - PURE: 1
2 - MIXTURE

1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED:

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
3	3	11	11	11	365	L 2 4	2 1	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): NORTH CENTRAL AREA OF MAIN BUILDING — UN 1001

COMMON NAME/TRADE NAME: OXYGEN
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: OXYGEN

1 - PURE: 1
2 - MIXTURE

1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED:

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
3	3	11	11	20	365	L 2 4	2 2	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): NOTH CENTRAL AREA MAIN BUILDING — UN 1072

COMMON NAME/TRADE NAME: NITROGEN
HAZARDOUS INGREDIENT:
IN HIGHEST CONCENTRATION: NITROGEN

1 - PURE: 1
2 - MIXTURE

1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED:

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
3	3	11	20	30	365	L 2 4	2 2	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC): SOUTH EAST CORNER OF MAIN BUILDING — UN 1066

FORM CHEMICAL

1991 - 1992 OREGON STATE FIRE MARSHAL

Account Number 045931

HAZARDOUS SUBSTANCE EMPLOYER SURVEY

SECTION D

SUBSTANCE INFORMATION - TYPE ALL DATA IN SHADED AREAS

REQUEST ADDITIONAL COPIES IF NEEDED

COMMON NAME/TRADE NAME: ARGON

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: ARGON

1 - PURE
1 2 - MIXTURE
1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
3	3	10	10	10	365	L 2 4 /	2 2	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

NORTH CENTRAL AREA OF MAIN BUILDING — UN 1006

COMMON NAME/TRADE NAME: 75/25 ARGON/CO_2

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: ARGON 75% CO_2 25%

2 - PURE
2 2 - MIXTURE
1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	10	10	11	365	L 2 4 /	2 2	

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

NORTH CENTRAL AREA OF MAIN BUILDING — UN 1006

COMMON NAME/TRADE NAME: PROPANE

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION: PROPANE 9.6%

2 - PURE
2 - MIXTURE
1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	3	21	30	30	365	A 2 4 /	2 1	74-98-6

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

N.W. CORNER OF N.W. YEON AND N.W. SUFFOLK — UN 1075

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT:

IN HIGHEST CONCENTRATION:

1 - PURE
2 - MIXTURE
1 - NO CHANGE
2 - CORRECTIONS MADE
3 - NO LONGER USED

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. PER YEAR CODE (USE TABLE III)	NUMBER DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLE IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
						/		

UN/NA NO.

STORAGE LOCATIONS (BE SPECIFIC)

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DO NOT SAY IT · WRITE IT

READING FILE

May 4, 1992

FROM: DAVE BOWMAN

TO: KEVIN JONES
BOB MARACLE
GEORGE VASS
GREG McKENZIE

RE: T4 MECHANIC SHOP DRUM STORAGE AREA AND PETROLEUM CONTAMINATION

Attached is a report on the petroleum contaminated areas on the south side of the T4 mechanic shop. It includes:

1. Assessment of contamination
2. Estimate of Cleanup costs (Material testing and disposal only)
3. Suggestions for prevention of future contamination of soil and storm water runoff.

In addition it includes my recommendation for the following course of action:

1. Implement the suggested storage procedure modifications.
2. Contact the Port of Portland regarding shared responsibilities for cleanup measures.
3. Clean and restore the contaminated areas.

DKB/jj

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DO NOT SAY IT · WRITE IT

May 5, 1992

FROM: DAVE BOWMAN

TO: KEVIN JONES
BOB MARACLE
GEORGE VASS
GREG McKENZIE

RE: T4 MECHANIC'S SHOP DRUM STORAGE AREA AND PETROLEUM CONTAMINATION

Assessment of Contamination:
The contaminated area is approximately 20'x30' overall, with a compacted aggregate-dirt mixture at least 12" in depth. Six sample holes dug 6" to 12" deep revealed three contaminate pools (2 oil, 1 diesel) directly attributable to JOS, one oil contaminated area of indeterminate age and origin, and one layer of degraded oil contamination (underlies approximately 5" of reasonably clean aggregate) which appears to date to a pre JOS occupant. Oil contamination depth ranges from 8" to 12" or more. Diesel contamination depth is at least 12" (this diesel spill is the direct result of a leaking three gallon filler can full of diesel that is evidently stored on the ground at this location). The oil contamination appears to be the result of spillage, run-down drips from pouring from drums, leaks in drums, overfill by or dumping of contaminated rainwater from uncapped empties, and rinse off from the drum exterior. The majority of the drums have no labels that identify contents.

An additional area requiring cleanup is the asphalt gutter (5' in length) leading from the oil shed to the adjacent storm drain. Years of oil leakage has broken the asphalt bonds and left a soft oil saturated mixture of sand, gravel and mud that should be completely dug out and disposed of. While digging in this muck I uncovered an uncapped pipe fixture full of oil saturated sand, possibly an old oil line, which in its current unsealed state at the bottom of a drainage channel may allow water seeping down into it to "percolate" or float its contents to the surface and into the storm drain four feet away. After the decomposed asphalt is removed, the gutter should be repaved (with concrete preferably) with the pipe fixture filled and covered over.

As both of these problem areas have contamination that preceded JOS occupancy, the Port of Portland should be notified and involved (share costs) in the cleanup.

Cleanup Costs:
As no underground storage tank was involved, and the contamination was the result of a series of small spillage events (under 32 gallons), DEQ notification and approval is not required for cleanup. Testing of the contaminated material ($600-$700) required by the Hillsboro landfill and a $25 special waste permit must also be purchased.

Disposal costs:	
Testing: (I recommend Oregon Analytical Labs)	$ 700
Special Waste Permit Fee	25
Disposal Charge $53.35 per ton I estimate approximately 30 cubic yards at 1.3 tons per yard	2,081
	$2,806*

*This estimate is for disposal cost only and does not include labor or equipment cost.

Prevention of Future Contamination:
As prevention is always cheaper than cleanup, it is imperative that we modify our petroleum/chemical handling and storage methods to stop contamination before it occurs and thus prevent the recontamination of the cleaned area. I am concerned that paving this area without such procedure modifications will simply exchange a soil contamination problem for a storm water runoff contamination problem, which is a far more serious DEQ offense. Beginning this fall, DEQ will be monitoring tests of water samples taken from our outfall to the Willamette, making it critical that we strive to eliminate all pollutant sources that may contact rain or storm water (any pollutant dumped, dropped, spilled, leaked or dripped onto the ground during the summer will be in the storm drain with the first rains). I believe the following modifications could prevent future contamination problems:

1. Indoor storage of all petroleum/chemical products and their containers, whether empty or full, will eliminate the rain water exacerbated: spills, run-down drips, leaks, rainwater overfill and rinse off problems. If indoor storage room in the mechanic's shop is insufficient, alternatives include:

   A. Purchase materials in smaller quantities on an as needed, just-in-time basis, reducing inventory storage room requirements.

B. Purchase a weatherproof sealed floor storage shed - possibilities include an old container, trailer van, or railroad boxcar.

2. Immediate disposal of leaking, damaged, or defective storage cans, pails or drums. A new safety can costs $65, much less than the cleanup cost for the mess made by the leaking three gallon diesel can.

3. Increasing environmental awareness amongst all personnel - a little anticipatory foresight can prevent many a needless mess. Example: sitting outside in the rain next to the oil shed is a 55 gallon oil drum with the lid cut off by an P.O.P. person to convert it to a trash can. What was an oily drum is now an oily drum with ten gallons of oil contaminated rainwater which could cost around $7.00 per gallon for disposal, a type of mess which could be prevented by storing oil contaminated objects inside where rainwater cannot affect them.

I recommend the following course of action:

1. Implement the suggested storage procedure modifications.
2. Contact the Port of Portland regarding shared responsibilities for cleanup measures.
3. Clean and restore the contaminated areas.

If I can be of further assistance in coordinating cleanup or disposal or if you have any questions/comments or wish to schedule a meeting, please call me at extension 148.

DKB/jj

ESTABLISHED 1858

JONES OREGON STEVEDORING COMPANY

Affiliated with
JONES WASHINGTON STEVEDORING COMPANY, SEATTLE, WASHINGTON

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READING FILE

July 2, 1992

Walter West
Department of Environmental Quality
1500 S.W. First Avenue, Suite 750
Portland, Oregon 97201-5884

Re: Storm Water Permit
File Number 106744
Multnomah County

Dear Mr. West:

Of the two incidents of rainfall in the greater Portland area during the May 20 to July 1 period, neither was of sufficient quantity or duration at the location of the T4 mechanic shop to generate a runoff discharge at our outfall point, or even to form puddles on paved areas. Our first samples will be taken next fall near the first rainfall event which produces runoff.

Thank you for your time and consideration.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj

TELEPHONE (503) 228-6601 • FAX: (503) 228-0273 • TWX: 910-464-5191

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DO NOT SAY IT - WRITE IT READING FILE

November 16, 1992

FROM: DAVE BOWMAN

TO: BOB MARACLE

RE: SWPCP QUESTIONS

Maps — Color now added - maps were incomplete without it.

Page 5 — Fuel trucks: according to DEQ, fuel in vehicles, including tank trucks, does not count.

Old Pipes: According to DEQ, since storm water does not contact them, they are not part of the SWPCP.

Page 7 — #4 - none of the "significant materials" is landfilled or dumped on site or put in a drum to sit until it rusts away leaking its contents into the ground (disposal of or indefinitely stored on site).

Page 8 — According to DEQ, no certificate or standards are required; they need only know how to use the absorbent, absorbent pads, and absorbent containment booms for the materials we handle. As "clean up procedures" may be overly broad and subject to interpretation, I have replaced it with a group of specific items.

Page 10 — I will handle the testing procedures, annual report, and monthly inspection. Someone on site daily (I recommend Marty) will need to maintain the facility record regarding spills and the corrective action taken (including the affected or nearest catch basin) and maintenance activities affecting/related to storm water such as trash/debris clean up or even servicing/repair of the steam cleaning pit separator system. I will record any maintenance which I have done or do myself, as well as the tests and inspections.

1. According to DEQ, it is up to our judgement as to how much constitutes a spill or leak. I recommend anything over 1-2 quarts be entered in the facility record. Anything that reaches a drain should definitely be reported.

2. Used oil: good point - I eliminated the "waste" reference.

Possible contaminants in graveled area:

The SWPCP notes that this site has a long history predating us and I have discussed this with DEQ. We will have to wait until we see the results of the tests before we can tell if there are any problems that need to be addressed.

Residue in the storm drains:

Old residue is a big question - but as I have already cleaned out half the system and will clean the other half before the test, its affect may be minimal.

Paving gravel areas:

Asphalt would improve conditions but may not be necessary depending on the test results.

DKB/jj

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DO NOT SAY IT - WRITE IT

READING FILE

November 20, 1992

FROM: DAVE BOWMAN

TO: BOB MARACLE

RE: SWPCP QUESTIONS

Page 5 The fuel in vehicles, including tank trucks, may not count but the fuel in underground storage tanks does, and it must be accounted for. The DEQ considers vehicles an end use as the fuel in them is used without further handling. DEQ allows tank trucks to use this apparent loophole because they are used to transport fuel off site; once loaded, the fuel they contain is no longer of concern to the site as it is headed elsewhere and will most likely not be handled on site again. On site storage tanks, such as the underground gas and diesel tanks, the used oil tank and the propane tank will be used for on site handling of fuel/oil/gas with the attendant hazard of increased handling of the contents; fueling numerous vehicles, drips, leaks, spills, overfills, etc. and thus these tanks do count and must be accounted for.

The quantities given are an approximate average based on the figures you supplied for the earlier hazardous substance survey (see average amount on attached forms) as well as current usage for unleaded and diesel.

Unleaded Gas - 1000 gallons
Established by Hazardous Substance Survey 1000-4999 gallons. Current usage established by T4 fuel pump records and Carson Oil invoices (attached).

9/14 purchased (T4) 1300 gallons (Carson invoice).
10/6 purchased (T4) 1600 gallons (Carson invoice).
9/14 to 10/6 approximately 1100 gallons were pumped from the underground storage tank (fuel pump record).

Tank quantity (assuming empty at start)
1300-1100 = 200; 200+1600 = 1800

Considering all of the above, 1000 gallons seems a good conservative average to list.

Diesel - 1000 gallons
Established by Hazardous Substance Survey 1000-4000 gallons.
Current usage established by T4 fuel pump records and Carson Oil invoices (attached).

9/14 purchased (T4) 2501 gallons (Carson invoice).
10/6 purchased (T4) 1600 gallons (Carson invoice).
9/14 to 10/6 approximately 2500 gallons were pumped from the underground storage (fuel pump record).

Tank quantity (assuming empty at start)
2501-2500 = 1; 1+1600 = 1601

Considering all of the above, 1000 gallons seems a good conservative average to list.

Used oil - 500 gallons
Established by hazardous Substance Survey 100-499 gallons.
Tank capacity: 1100 gallons
Currently holds approximately 600 gallons.

Propane - 10,000 ft.^{3} (approximately 276 gallons).
Established by Hazardous Substance Survey 10,000-4,999 ft.^{3}. Propane, being a gas, is not a storm water contaminate but does come under significant materials stored outdoors. (There are 36.28 cubic feet per gallon).

If these approximations are inadequate, please provide me with updated information.

Page 10 Preventive Maintenance: First, to clarify what preventive maintenance is in relation to the SWPCP: Preventive Maintenance is nothing more than the observation to foresee and action to stop an undesirable outcome before it occurs. Responsibility for SWPCP Preventive Maintenance is not a matter of cleaning up after others; it is a matter of constantly striving to reduce and eliminate contamination requiring clean up and at the absolute minimum, ensuring that no one, whether through ignorance or poor judgement, actively creates a mess or otherwise undermines or squanders the efforts of those who did the actual maintenance and cleaned up the facility. Specific duties would include:

1. Constant vigilance to prevent SWPCP violations.

2. Facility care: monitor and arrange needed service in the following areas:
   A. Steam cleaner pit system
   B. Used oil tank system
   C. Fuel pumps (call Port of Portland)
   D. Storm drains (call Port of Portland)
   E. Trash, debris, scrap contaminated material (catch basin cleanings, drums, etc.). (monitor storage, arrange pick up or disposal)
3. Maintain facility records regarding:
   A. Spills and corrective action taken (including nearest or affected catch basin)
   B. Maintenance activities affecting/related to storm water: i.e. the items listed under duty #2.

Your objection to on site responsibility for SWPCP preventive maintenance with the exception of the steam cleaner warrants a review of my earlier suggestion to ensure that there is no misunderstanding: same words, same order, same punctuation, but in list form rather than paragraph with a critical phrase that you may have possibly missed underlined for clarity.

I will handle the testing procedures, annual report, and monthly inspection.

Someone on site daily (I recommend Marty) will <u>need to maintain the facility record regarding</u>
spills and correction action (including the affected or nearest catch basin).
and
maintenance activities affecting/related to storm water such as
trash/debris clean up
or even
servicing/repair of the steam cleaning pit separator system.

I will record any maintenance which I have done or do myself, as well as the tests and inspections.

Assuming that your objection still stands, we need to consider whether JOS interests in this situation are best served by an insider or an outside contractor.

An outside contractor to clean up after our personnel would be fast, easy, and absolutely ineffective in SWPCP preventive maintenance for the following reason: our objective is not facility clean up, our objective is clean storm water. Clean up is a reactive strategy as the contamination has already occurred. We need a proactive strategy so that clean up is unnecessary because the contamination never occurs. Achieving this goal requires changing our current system. An outside contractor will result in the failure of this process for the following reasons:

1. Conflict of interest - the outside contractor's objective is to maximize his income; more contamination means more money for him.
2. His tenuous position as an outsider makes him vulnerable and expendable. Knowing this, he will refrain from pointing out painfully obvious errors on our part for fear of offending his client, even if he were inclined to assist our transition. In addition, as he has no authority over the involved personnel, his input could be ignored with impunity.
3. The most insidious and damaging aspect of hiring an outside contractor to be responsible for our SWPCP preventive maintenance program is the contractor's very presence. His presence, and the false sense of security provided by it, will create complacency, allowing business-as-usual contamination to continue under the justification: "it's not my job". When the resulting test failures and DEQ fines roll in, the contractor will become a convenient scapegoat. When he is fired, our personnel will demand a replacement; having become accustomed to having someone responsible for cleaning up after them, they will feel no incentive or motivation to learn a new system based on individual responsibility, even though it would be a more effective and efficient in the long run. By treating the symptoms, our opportunity to cure the disease will be lost.

In contrast, an on site insider can successfully implement a proactive system for the following reasons:

1. Responsibility - without responsibility, inertia prevails and change will not occur.

2. Opportunity - opportunity allows observation which allows intervention which allows prevention which eliminates clean up.
3. Authority - authority legitimizes leadership, education, and supervision.
4. Accountability - accountability increases awareness, necessitates action, and produces results.

I believe that to be successful in achieving our objective, we cannot buy or hire done that which we must do ourselves. JOS personnel must be responsible for SWPCP preventive maintenance, and Marty, with both opportunity and authority, would appear to be the strongest candidate.

Facility Record Keeping:

Entries need only be short summaries similar to this example.

11-19-92 Spill, 1 gallon of hydraulic fluid on asphalt northwest side of building in catch basin #5's drainage basin. Cleaned up using absorbent. None reached CB#5 (80 feet away).

I will provide you with diagrams showing the catch basin numbers and drainage basins (this information is also in the SWPCP).

In regard to the older machines I suggest the following procedures if a machine is especially leaky/oily/dirty:

1. Steam clean it when it first comes on site (this will cut down on rinse off pollution).
2. Make it a priority to fix it and return it to work as soon as possible (store it on site for the least possible amount of time).
3. Store only in one small area on the gravel/dirt area next to the northwest fence (near the garbage dumpster). Use only this area for "dirty" machines - keep them and their mess concentrated.
4. If a drip comes from a distinct problem fix it as soon as possible or if not economically feasible, use absorbent materials to catch drips (even a box or sheet of cardboard will catch a lot of oil).

The broken hose problem can best be tackled by constant education efforts aimed at supervisors, ILWU personnel, etc. to increase awareness of the pollution problem this causes.

Although it will be a continual effort to emphasize that the machine must be shut down and hauled or pulled to the shop to prevent its pump from hosing the terminal, it should reduce the occurrence of these events.
I believe that the greatest overall threat to our storm water quality is not singular disasters but practices that result in the wrong material being in the wrong place. On a recent walk-around of the shop I noted that every visible (oil sheen, etc.) source of storm water contamination for the lines that will be tested was directly traceable not to actual operations but to needless, 100% preventable practices that result in the wrong material being in the wrong place. Some examples:

1. Storing contaminated drums outside in the rain, scattered across the site in areas utterly critical to our storm water quality while buildings sit underutilized or are used to store non contaminating objects.
2. Storing oil drain pans slightly outside the drip line of a lean-to shed rather than keeping them under cover.
3. Storing a sling box full of contaminated scrap (internal engine parts, components, etc.) outside in a critical area while a storm water neutral pick up canopy and cement blocks are stored under cover in a nearby shed.
4. An additional preventable problem is the use of storm drain catch basins as garbage cans and disposal drains: light bulbs, plastic scraps, old gaskets, oil saturated dirt clods, oily rags, paper towels, uneaten food, cigarette packages and cigarette butts, coffee grounds, soapy wash water, radiator rinsings, and mud are all items I have found in the catch basin or seen being put into it, rather than into a garbage can or sink.

The prevention of these problems will boost efficiency and save money at no cost by eliminating the need for clean up (labor and absorbent) as well as removing the major pollutant sources for the critical storm water lines.

I am confident that with everyone's commitment, effort, and a proactive system, we will be able to successfully implement the SWPCP and meet all DEQ standards.

DKB/jj

JONES OREGON STEVEDORING C
COLUMBIA RIVER · OREGON COA
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND · WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT · WRITE IT

READING FIL

December 7, 1992

FROM: DAVE BOWMAN

TO: BOB MARACLE

RE: SWPCP INFORMATION

As per your request:

Attached are copies of our class 1200-T storm water permit, the guidance document for preparation of the SWPCP, and a list of the tests performed on 1200-T storm water samples.

The storm water permit contains the requirements for the SWPCP and the guidance document details those requirements for preparation of the SWPCP. I have deleted non essential pages to reduce bulk and have highlighted areas which may be of particular interest to you.

In reading these documents, you will note that DEQ has deliberately left all requirements open-ended, and thus subject to DEQ interpretation regarding compliance and, future legislation/regulation which may be forthcoming. The lack of specificity allows DEQ broad powers in judging the intent, quality, and implementation of each firm's SWPCP. Those firms who wholeheartedly commit themselves to a quality SWPCP will not be visited by a DEQ storm water inspection unit.

Spills and Leaks:
Please note that DEQ does not require, nor does our SWPCP contain any quantity requirements (see page 10 of the SWPCP, Record Keeping and Internal Reporting Procedures) and that it deliberately leaves that determination to the judgement of the facility managers/recorder, as does DEQ. Our quantification for spills and leaks is to establish standards of procedure that will assist us in consistent records and most importantly, identifying areas needing improvement. Since the age and wear on many of our machines precludes my 11-16 suggestion of anything over one to two quarts, we need to determine a different standard that is prudent yet achievable. This standard must address both quantity of spill and, because of the machine leakage problem, rate of leakage. For clarity, we need to differentiate spills from leaks:

Spills - the result of sudden, unexpected component failure or accident.

Examples:

Component failure spill - broken hose, pipe, blown gasket, etc.

Transfer spill - involving container or filling machine tank.

Leaks - A continuous occurrence caused by deterioration, age, and wear rather than sudden component failure.

Although DEQ has set no standard I contacted them to see what standards were under consideration or what guidelines their enforcement teams used. Pam Fink (author of the SWPCP preparation guide) of the storm water division, reiterated that there is no standard at this time and that it is up to our judgement as to how much or what rate reasonably constitutes a spill or leak. I asked her if any standards were under consideration, and unaware of any, she directed me to the hazardous material and solid waste department which handles spills. I explained the situation to Mr. Calaba (229-6534 - if you wish to verify) and he stated unequivocally that there is no quantified standard currently and that none are planned at this time. The current requirement is to record and correct anything that is unreasonable, continuous and blatant, intentional and routine, or seriously detrimental to the environment. In other words, if it looks bad, it is bad and should be recorded and corrected. Regarding the leak rate: anything that is unreasonable. One drop per minute is acceptable. Two drops per second or a steady stream is not, and requires immediate repair. He added that when in doubt, use common sense.

When considering a quantity standard, we must consider that a larger quantity standard does reduce our record keeping but also greatly reduces the value of our record as a tool for determining how to reduce and prevent storm water pollution. Non recordable spills may be treated as a non event or ignored as "acceptable" when in fact <u>every</u> source of pollutants will show up on the storm water tests, including "acceptable" levels of leakage. Five small spills can do as much damage as one larger spill that must be recorded. Based on this, I propose the following standard for records:

1+ gallon, spilled or leaked
Any spill that enters or affects a storm drain
Leakage over four drips per minute

Given the inherent difficulty and inaccuracy in estimating the quantity of petroleum product involved in any spill (one quart on wet asphalt may appear comparable to one gallon on dry), and the machine leakage problem, application of the standard will be a matter of best judgement, not an exact science.

Concerning the machine leakage problem; I believe that we should store the leakers indoors (perhaps warehouse 5) when practical and that the "leaker" area at the shop (the graveled area on the northwest side near the dumpster) be covered with a six inch layer of sawdust to absorb leaks and rinse off from the "dirty" machines that will be stored there while undergoing repairs.

SWPCP Preventive Maintenance Responsibilities

Preventive Maintenance: First to clarify what preventive maintenance is in relation to the SWPCP: Preventive Maintenance is nothing more than the observation to foresee and action to stop an undesirable outcome before it occurs. Responsibility for SWPCP Preventive Maintenance is not a matter of cleaning up after others; it is a matter of constantly striving to reduce and eliminate contamination requiring clean up and at the absolute minimum ensuring that no one, whether through ignorance or poor judgement, actively creates a mess or otherwise undermines or squanders the efforts of those who did the actual maintenance and cleaned up the facility. Specific duties would include:

1. Constant vigilance to prevent SWPCP violations. This requires familiarity with the SWPCP and an understanding of the root cause of an SWPCP violation, which may require backtracking through numerous contributing factors. Here's a hypothetical example of backtracking a problem: An oil sheen is running across the wet asphalt towards a storm drain, contaminating the storm water. It comes from the rainwater rinse off of a contaminated used drum that sits outside in the yard. It was placed there to await disposal by a mechanic who removed it from its indoor location to replace it with a new full drum. As the indoor empty drum storage area was overcrowded with empty drums and an old lawn mower, he took it outside, ignorant of the consequences of his action. The drums were overcrowded because disposal runs were infrequent, based on crisis (overcrowding) rather than monitoring. The old lawn mower was being stored for an employee whose garage was full.

   In this hypothetical example, improved inventory control and education would eliminate the root causes. Removal of the lawn mower would eliminate a contributing cause. The actual defects in any system are often upstream from where the problem manifests itself. Constant vigilance is a necessary component of constant improvement; problems must be seen, recognized, and analyzed before they can be prevented.

2. Facility care: monitor, arrange, and record service in the following areas:
   A. Steam cleaner pit system
      Arrange service, repairs when needed.
   B. Used oil tank system
      Arrange service, repairs when needed.
   C. Fuel pumps
      Monitor for leaks (call Port of Portland)
   D. Storm drains
      Monitor for visible contamination (oil sheet, etc.), plugging, trash or sediment build up. Arrange service, cleaning when needed.
   E. Parking lot surrounding shop
      Monitor for oil sheens, visible contamination and potential sources of pollution. Arrange sweeping when needed.
   F. Trash
      Emphasize proper disposal of all trash particularly contaminated trash (oily rags, spray cans, oil cans, etc) if no one throws it down, no one has to pick it up. Arrange annual pick up (use low cost janitor) and arrange sweeping when needed.
   G. Debris/Scrap
      Arrange frequent scrap recycling runs to Schnitzer to reduce volume of scrap around yard, in particular contaminated scrap such as engine parts. Insure that contaminated scrap is stored under a roof at all times.
   H. Contaminated Materials
      Arrange <u>prompt</u> testing and disposal of all contaminated materials such as empty drums, drop box cleanings, etc. and ensure that such materials are stored indoors or under a roof at all times while awaiting disposal.

3. Maintain facility records regarding:
   A. spills and corrective action taken similar to the following example:

      11-19-92 spill, one gallon of hydraulic fluid on asphalt northwest side of building in catch basin #5's drainage basin. Cleaned up using absorbent. None reached CB#5 (80 feet away).

      I will provide you with diagrams showing the catch basin numbers and drainage basins (this information is also in the SWPCP).

B. Maintenance activities affecting/related to storm water similar to the following example:

11-19-92 arranged service of steam cleaning system. Catch basin sludge tested and disposed of. System filters replaced.

or

11-19-92 arranged sweeping of asphalt surfaces surrounding shop.

The specific responsibilities contained here are not all inclusive nor should they be viewed as limiting any personnel involvement or responsibility towards overall implementation of the SWPCP. They are simply a basic framework for the preventative maintenance component of the SWPCP.

Storm Water Sample Tests

Attached is a list of the tests to be performed on 1200-T storm water samples. The DEQ is currently determining acceptable pollutant levels and should establish standards next fall. This winter's tests results will be turned into DEQ in June of 1993.

DKB/jj
Attachments

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORM WATER DISCHARGE PERMIT

Department of Environmental Quality
811 Southwest Sixth Avenue, Portland, OR
Telephone: (503) 229-5696

Issued pursuant to ORS 468.740 and The Federal Clean Water Act

ISSUED TO:

All Owners or Operators of Storm Water Point Source Discharges Which are Covered by This Permit

ISSUED 5/12/92 Multnomah/NWR
ID#106744 GEN1200-T OR003449-5
JONES OREGON STEVEDORING COMPANY
P.O. Box 10167
Portland, OR 97210

RE: T4 Mechanics Shop
11040 N. Lombard, Portland, OR

SOURCES COVERED BY THIS PERMIT:

Transportation facilities classified as Standard Industrial Classification (SIC) Codes 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171, which have vehicle maintenance shops (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), and/or equipment cleaning operations; airport de-icing operations; and wholesale bulk petroleum storage and handling facilities.

Lydia Taylor

Lydia Taylor, Administrator

SEP 24 1991

Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct water pollution control facilities and to discharge storm water to public waters in accordance with a storm water pollution control plan which has been prepared by the permittee and any other limitations specified in this permit. All discharges shall be in accordance with the attached schedules as follows:

	Page
Schedule A - Controls and Limitations for Discharge.....	2-5
Schedule B - Minimum Monitoring and Reporting Requirements..	6
Schedule C - Compliance Conditions and Schedules.....	7
Schedule D - Special Conditions.....	8
General Conditions.....Attached	

Each other direct and indirect waste discharge to public waters is prohibited unless covered by another NPDES permit.

This permit does not relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

SCHEDULE A

Controls and Limitations for Storm Water Discharges

1. The Permittee shall prepare and implement a **Storm Water Pollution Control Plan (SWPCP)**. For facilities which employ 10 people or more and airports which do deicing or have spray plane service areas, the SWPCP shall be prepared by or reviewed and stamped by a registered engineer or architect. The SWPCP shall include at least the following items:

   a. Site Description Each plan shall, at a minimum, provide the following:

      (1) A description of the nature of the industrial activities conducted at the site, including a description of "significant materials" (see Definitions) that are treated, stored or disposed of in a manner to allow exposure to storm water; and the methods of treatment, storage or disposal.

      (2) A general location map showing the location of the site in relation to major transportation routes, surface waters and other relevant features.

      (3) A site map indicating: drainage patterns, each drainage and discharge structure; an outline of the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each discharge point; areas used for outdoor manufacturing, storage or disposal of significant materials; each existing structural control measure for reducing pollutants in storm water runoff; materials loading and access areas; hazardous waste storage or disposal facilities; location of wells (including waste injection wells, seepage pits, dry wells, and etc.), springs, wetlands and other surface water bodies.

      (4) Estimates of the amount of impervious surface area (including paved areas and building roofs) relative to the total area drained by each storm water outfall.

      (5) For each area of the site which generates storm water associated with site activities and where a reasonable potential exists for contributing significant amounts of pollutants to storm water runoff, identify the potential pollutants which could be present in storm water discharge.

      (6) The names of the receiving water(s), or if the discharge is to a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the ultimate receiving waters.

      (7) Identify the discharge outfalls and the point or points where storm water monitoring will occur as required by this permit.

b. Controls Each operator covered by this permit shall develop a description of controls appropriate for the site and a time line for implementing such controls. The following minimum components shall be addressed along with a schedule for implementation:

(1) Storm water Management - The plan shall contain a narrative description of the materials and storm water management practices employed or scheduled for employment, to minimize contact of significant materials with storm water runoff; structural and non-structural control measures to reduce pollutants in storm water runoff; treatment (if any) and ultimate disposal of solid or fluid wastes other than by surface discharge. In developing the plan the permittee shall consider but not be limited to the following management practices:

A. Containment - All hazardous chemicals shall be stored within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff.

B. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods should be employed to minimize oil contaminated storm water discharge.

C. Waste Chemical Disposal - Waste chemicals such as deicers, antifreeze, degreasers, used oils, pesticide residuals, and etc. shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.

D. Debris & Sediment Control - Screens, booms. sediment ponds or other methods should be employed to reduce debris and sediment in storm water discharge.

E. Storm Water Diversion - Wherever possible, storm water should be diverted away from materials manufacturing, storage and other areas of potential storm water contamination.

F. Covered Storage or Manufacturing Areas - Wherever practicable, fueling operations, materials manufacturing and storage areas should be covered to prevent contact with storm water.

(2) Spill Prevention and Response Procedures - Areas where potential spills of significant materials can impact storm water runoff and their associated drainage points shall be clearly identified. Methods to prevent spills along with cleanup and notification procedures shall be identified in the plan and made available to the appropriate personnel. The required cleanup equipment must be on site or readily available.

(3) Preventive Maintenance - A preventive maintenance program should be implemented to insure the effective operation of materials management facilities, structural and non-structural control facilities, and any treatment facilities used to comply with the requirements of this permit. The preventive maintenance program should include the following:

A. Areas where potential spills of significant materials could impact storm water runoff, control structures, and any treatment facilities should be inspected monthly during the rainfall season.

B. A regular program of cleaning and repairing storm water control structures, treatment facilities, and materials handling and storage facilities should be conducted throughout the rainfall season.

(4) Employee Education - An employee awareness program should inform personnel of the components and goals of the SWPCP, and address spill response procedures, good housekeeping and materials management practices.

(5) Record Keeping and Internal Reporting Procedures - Incidents of spills or leaks of significant materials which could impact storm water runoff, along with corrective actions, surface water discharge (if any), and other relevant information should be included in the plant records. Inspection and maintenance activities such as cleaning and repairing storm water control and treatment facilities should also be documented and recorded.

(6) Annual Plan Review - A full plan review should be made by the permittee annually, prior to the onset of the rainfall season. The plan review should include a complete site inspection of all areas where potential spills of significant materials can impact storm water runoff. The SWPCP should be updated as necessary.

2. The Storm Water Pollution Control Plan shall include procedures for meeting any Oregon Administrative Rules (OARs) for storm water control specific to the applicable river basin. These procedures should include a schedule of steps and key milestone dates for implementing monitoring activities, materials management practices, and SWPCP plan components not already in place at the time the permit is issued. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

3. Storm water carrying pollutants regulated by this permit shall not be allowed to discharge to seepage ponds, seepage pits, dry wells, injection wells, or any other on-site disposal facilities if discharge to surface waters is possible. If discharge to surface waters is not possible and on-site disposal methods are used, the storm water discharge limitations and monitoring requirements of this permit shall still apply, in addition to the limitations and restrictions found in OAR 340-44-050, Waste Disposal for Surface Drainage and OAR 340, Division 40, Groundwater Quality Protection.

4. **Specific Storm Water Discharge Limitations**
(These limitations apply to each point source discharge.)

Parameters	Limitations
Oil & Grease	Shall not exceed 10 mg/L
pH	Shall be between 6 and 9
Toxicity	No discharge of toxic chemicals in "toxic concentrations"* permitted

* Toxic concentrations is defined in the definitions, page 7 of attached General Conditions.

5. Allowable Mixing Zone - Notwithstanding the effluent limitations in this permit, no wastes shall be discharged and no activities shall be conducted which will violate applicable water quality standards as adopted in OAR 340, Division 41, except within a mixing zone in the receiving stream of a size which would provide a 10:1 dilution of the storm water discharged.

6. Storm Water Only - This permit regulates the discharge of storm water only. It does not authorize the discharge of process wastewaters, cooling waters, aircraft deicing residues, pesticide residues, or any other wastewaters associated with the facility. Other wastewater disposal must be addressed in a separate permit.

SCHEDULE B

Minimum Monitoring and Reporting Requirements
(unless otherwise approved in writing by the Department)

1. Parameters - The permittee shall make visual observations and analyze grab samples of all point source discharges for the following parameters:

   A. General Parameters:

      i. Color and/or foam (visual observation)
      ii. Oil & Grease Sheen (visual observation)*
      iii. pH
      iv. Oil & Grease (mg/L)
      v. Total Phosphorus (mg/L)
      vi. COD (mg/L)
      vii. TOC (mg/L)
      viii. Metals **
      ix. Total Suspended Solids (mg/L)

      * Whenever a visible oil sheen is detected in a storm water discharge during a required monthly visual observation, it shall be sampled for Oil & Grease.

      ** Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, and Zinc.

   B. Other Parameters:

      i. Any pollutant limited or requiring monitoring in the facility's existing NPDES or WPCF permit, except for biomonitoring and flow.

      ii. Any parameter for which the receiving stream is water quality limited, if the facility discharges storm water to a water quality limited stream with established Total Maximum Daily Loads (TMDL).

2. Frequency of Monitoring - Sampling for compliance with this section shall be conducted two times per year, with samples being collected at least 60 days apart. One of the samples shall be collected during the month in the fall when runoff first occurs. Visual observations of surface drainage areas shall be made monthly, during those months when at least one storm event occurs which produces runoff.

3. Records Retention and/or Reporting - Permittees are required to tabulate the data and submit it to the appropriate DEQ Regional Office by July 1 of each year. All records shall be retained by the permittee for at least 5 years.

4. Representative Sampling - All sampling shall be representative of the discharge.

SCHEDULE C

Compliance Conditions and Schedules (unless otherwise approved in writing by the Department)

1. Within 180 days of receiving this permit, the permittee shall complete a Storm Water Pollution Control Plan (SWPCP) as required by Schedule A, Condition 1.

2. The permittee shall be in compliance with the SWPCP and the effluent limitations in this permit within 360 days of receiving this permit.

3. The permittee is expected to meet the compliance dates which have been established in this schedule. Either prior to or no later than 14 days following any lapsed compliance date, the permittee shall submit to the Department a notice of compliance or noncompliance with the established schedule. The Department may revise a schedule of compliance if good and valid cause over which the permittee has little or no control has been determined.

4. For new facilities, the SWPCP shall be prepared and implemented prior to startup of the facility.

SCHEDULE D

Special Conditions

1. Waste Load Allocation - If storm water monitoring indicates that a pollutant parameter, for which a stream is water quality limited, is discharging to a water quality limited stream in significant quantities, the permit may be reopened and a waste load allocation for the pollutant added.

2. Additional Limitations or Monitoring Required - If storm water monitoring indicates that certain pollutants are being discharged in quantities which may be a threat to the water quality of the receiving stream, the permit may be reopened and additional effluent limits and/or monitoring requirements added.

3. Releases in Excess of Reportable Quantities. This permit does not relieve the permittee of the reporting requirements of 40 CFR 117 and 40 CFR 302. The discharge of hazardous substances in the storm water discharge(s) from a facility shall be minimized in accordance with the applicable storm water pollution control plan for the facility required by this permit, and in no case, during any 24-hour period, shall the discharge(s) contain a hazardous substance equal to or in excess of reporting quantities.

4. Disposition of SWPCP - The Storm Water Pollution Control Plan, required by Schedule A, Condition 1, shall be kept at the site and made available to the Department upon request.

5. Reporting to Municipality - Any permitted facility discharging to a municipal storm sewer shall provide the municipality with a copy of the monitoring report required by Schedule B. A copy of the SWPCP shall also be provided the municipality upon request.

STORM WATER NPDES PERMIT GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Oregon Revised Statutes (ORS) 468.720 and is grounds for enforcement action; for permit termination; suspension or modification; or for denial of a permit renewal application.

2. Penalties for Violations of Permit Conditions

Oregon Law (ORS 468.990) classifies a willful or negligent violation of the terms of a permit or failure to get a permit as a misdemeanor and a person convicted thereof shall be punishable by a fine of not more than $25,000 or by imprisonment for not more than one year, or by both. Each day of violation constitutes a separate offense.

In addition to the criminal penalties specified above, Oregon Law (ORS 468.140) also allows the Director to impose civil penalties up to $10,000 per day for violation of the terms or conditions of a permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment and human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Permit Actions

The Department may revoke a general permit as it applies to any person and require such person to apply for and obtain an individual NPDES permit if:

a. The covered source or activity is a significant contributor of pollution or creates other environmental problems;

b. The permittee is not in compliance with the terms and conditions of this general permit; or

c. Conditions or standards have changed so that the source or activity no longer qualifies for a general permit.

5. General Permit Coverage

a. Any permittee not wishing to be covered or limited by this general permit may make application for an individual NPDES permit in accordance with NPDES procedures in OAR 340-45-030.

b. This general permit does not cover activities or discharges covered by an individual NPDES permit until the individual permit has expired or been canceled. Any person conducting an activity covered by an individual permit but which could be covered by this general permit may request that the individual permit be canceled.

c. All persons desiring to be covered by this general permit must register with the Department on forms provided by the Department. Registration applications for this general permit shall be sent to:

Department of Environmental Quality
Water Quality Division
811 SW 6th Avenue
Portland, OR 97204

Note: Applicable permit fees must accompany the application.

6. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

8. Plan Approval

Plans and specifications for pollution control facilities shall be submitted to DEQ for review and approval prior to construction, in accordance with Oregon Administrative Rules Chapter 340 Division 42.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit.

2. Duty to Halt or Reduce Activity

Upon reduction, loss, or failure of a storm water treatment or control facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control all discharges until the facility is restored or an alternative method of treatment is provided.

3. Bypass of Treatment Facilities

Bypassing of treatment facilities is generally prohibited.

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering public waters, creating a nuisance or creating a health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and/or the Storm Water Pollution Control Plan, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Department.

2. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

3. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

4. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.

5. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for coliform and fecal coliform bacteria which shall be averaged based on a geometric or log mean.

6. Retention of Records

The permittee shall retain records of all monitoring information, including all calibration and maintenance records, of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 5 years from the date of the sample, measurement, or report of application. This period may be extended by request of the Department at any time.

7. Records Contents

Records of monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

8. Inspection and Entry

The permittee shall allow the Department, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Anticipated Noncompliance

The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

2. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and submits a transfer application within 60 days of the change in property interest. The transfer application will require the transferee to commit to fully comply with all the terms and conditions of the permit and the rules of the Commission.

3. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 working days of the time the permittee becomes aware of the circumstances. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Note: The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

e. The following shall be included as information which must be reported within 24 hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit.

(2) Any upset which exceeds any effluent limitation in the permit.

4. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Section D, Paragraph D-3, at the time monitoring reports are submitted unless required otherwise in Schedule B of this permit. The reports shall contain the information listed in Paragraph D-3.

5. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for revoking coverage by this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

7. Falsification of Reports

The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

SECTION E. DEFINITIONS AND ACRONYMS

1. "BOD_5" means five-day biochemical oxygen demand.

2. "COD" means chemical oxygen demand.

3. "Department" means Department of Environmental Quality

4. "FC" means fecal coliform bacteria.

5. "MGD" means million gallons per day.

6. "mg/L" means milligrams per liter.

7. "mL/L" means milliliters per liter.

8. "Point Source Discharge" means a discharge from any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, or conduit.

9. "Reportable Quantities" means those quantities of hazardous substances listed in Table 117.3 of The Code of Federal Regulations, 40 CFR 117.

10. "Significant material" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

11. "TOC" means total organic carbon

12. "TOX" means total organic halides

13. "TSS" means total suspended solids (non-filterable residue).

14. "Toxic concentration" means lethality to aquatic life as measured by a significant difference in lethal concentration between the control and 100 percent effluent in an acute bioassay test.

15. "Regional Office" means the following field offices of DEQ which cover the listed counties:

Northwest Region - Clackamas, Clatsop, Columbia, Multnomah, Tillamook, and Washington counties.

Willamette Valley Region - Lane, Lincoln, Linn, Marion, Polk, and Yamhill counties.

Southwest Region - Coos, Curry, Douglas, Jackson, and Josephine counties.

Eastern Region - Baker, Gilliam, Grant, Malheur, Morrow, Umatilla, Union, Wallowa, and Wheeler counties.

Central Region - Crook, Deschutes, Harney, Hood River, Jefferson, Klamath, Lake, Sherman, and Wasco counties.

Guidance Document for Preparation of the Storm Water Pollution Control Plan

Required By
The NPDES Storm Water Permitting Program

Oregon Department of Environmental Quality
Water Quality Division
August 24, 1992

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Introduction

In November 1990, the Environmental Protection Agency (EPA) adopted rules in 40 CFR 122, 123, and 124 that require a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges from certain municipalities and several groups of industries. The Department of Environmental Quality (DEQ) has issued 13 General Permits for coverage of most of the industrial activities designated by Standard Industrial Classification (SIC) Code in the regulations. Coverage under one of these general permits is required for a designated industry if there is a discharge of storm water as a point source to surface waters. The following list includes the categories of General Permits:

Permit 1200-A: Sand, gravel and other non-metallic quarrying and mining operations included in SIC Code 14, and asphalt mix batch plants and concrete batch plants covered in SIC Code 35.

Permit 1200-C: Construction activities where five acres or more are disturbed through clearing, grading and excavating activities.

Permit 1200-D: Textile and apparel manufacturing facilities covered by SIC Code 22 and 23, printing included in SIC 27, and warehousing facilities covered under SIC 4221-25.

Permit 1200-F: Food processing facilities under SIC Code 20, including meat products, dairy products, canned, frozen, and preserved fruits, vegetables, and food specialties, grain mill products, bakery products, sugar and confectionery products, fats and oils, beverages, and miscellaneous food preparations and kindred products.

Permit 1200-G: Landfill sites and open dumps covered under SIC Code 4953, and associated activities at these sites, including leachate treatment and disposal facilities, garbage composting facilities, recycling facilities, waste container staging areas, soil stockpiling areas, and vehicle maintenance facilities.

Permit 1200-H: Heavy industrial activities associated with SIC Codes 28, 29, 30, 31, 32, and 33, including chemical manufacturing, petroleum refining, rubber manufacturing, leather tanning, stone, clay, glass, and concrete products, primary metals, and steam electric power generation, including coal and hogged fuel handling sites.

Permit 1200-L: Light industrial activities classified under SIC Codes 34, 35, 36, 37, 38, and 39, including fabricated metals products, equipment manufacturing, and ship and boat building and repairs.

Permit 1200-M: Mineral extraction facilities under SIC Codes 10, 12, and 13, including metal mining, coal mining, and oil and gas extraction activities.

Permit 1200-P: Pulp and paper industry classified under SIC Code 26, including woodwaste landfills, chip and hogged fuel storage, truck and equipment repair, power generation, bulk petroleum storage, and other associated activities.

Permit 1200-R: Metal scrap yards, battery reclaimers, and salvage yards, and automobile wrecking yards classified under SIC Codes 5015 and 5093, and hazardous waste treatment, storage and disposal facilities covered under SIC Code 4953.

Permit 1200-S: Sewage treatment plants with a design flow of one million gallons per day or more.

Permit 1200-T: Transportation facilities classified under SIC Codes 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171, including railroad transportation, bus and taxi operations, motor freight and courier services, United States Postal Service, water transportation of freight and passengers, air transportation of freight and passengers, airport de-icing operations, and bulk petroleum facilities for wholesale distribution.

Permit 1200-W: Wood products manufacturing and related activities covered under SIC Codes 24 and 25, with the exception of 2491 and 2411, including household, office, public building, and restaurant furniture, office and store fixtures, sawmills and planer mills, millwork, veneer, plywood, particle board, hardboard, and like facilities, dry kilns, log decks, woodwaste landfills, chip and hogged fuel storage, truck and equipment repair, power generation, and other associated activity located on the site. Pressure wood treaters are not covered; they will be required to get an individual permit.

Industrial facilities that receive general permits for storm water discharge from the DEQ are required to prepare and implement a Storm Water Pollution Control Plan (SWPCP) within 180 days of permit issuance.

Preparation of the SWPCP

For facilities covered under General Permits 1200-D, 1200-F, 1200-H, 1200-L, and 1200-W, the SWPCP shall be prepared or reviewed and signed/sealed by a registered engineer or architect if the industrial facility employs ten or more people. The same requirements apply for facilities covered under General Permit 1200-T for facilities that employ ten or more people, and airports that perform deicing operations or have spray plane service areas.

For facilities covered under General Permit 1200-R, the SWPCP shall be prepared or reviewed and signed/sealed by a registered engineer or architect if the facility employs five or more people.

Facilities covered by General Permit 1200-G shall implement a SWPCP that has been prepared or reviewed and signed/sealed by a registered engineer or geologist.

Facilities covered by General Permit 1200-P shall implement a SWPCP prepared by a registered engineer. For facilities covered by General Permit 1200-S, the SWPCP shall be prepared or reviewed and signed/sealed by a registered engineer.

For facilities covered under General Permits 1200-A and 1200-M, the SWPCP shall be prepared or reviewed and signed/sealed by a registered engineer or geologist for sites exceeding ten acres of disturbance.

Signature Requirements

In addition to the signature of a professional engineer, architect, or geologist, an authorized facility representative should sign and date the SWPCP. The authorized facility representative should be a person at or near the top of the facility's management organization, such as the president, vice president, a production manager, an environmental manager, a city manager or mayor who has been delegated authority to sign and certify this type of document. In signing the SWPCP, the authorized facility representative is attesting that the information contained in the plan is true and accurate. The authorized person's signature is required for all facilities covered by General Storm Water Permits, regardless of the number of employees or acreage of disturbance on the site.

SWPCP Content

The plan should include a complete description of the industrial activities at the permitted site, along with drainage maps that show the location of the facilities, impervious areas, and point source discharges. In addition, the SWPCP should discuss control measures, either in place or to be implemented on the site, that will prevent and/or treat storm water pollution.

The following guidance outlines the components of the SWPCP and provides suggestions on supplying the necessary information for a complete and usable document.

Guidance for Preparation of the Storm Water Pollution Control Plan

The information requested in the Storm Water Pollution Control Plan (SWPCP) is grouped into two basic areas:

(A) a description of the permitted site and the ongoing industrial activities, and

(B) a discussion of the controls that will be implemented on the site to prevent storm water pollution.

The following discussion outlines and suggests ways to prepare and present the needed information.

(A). Site Description - A description of the ongoing activities at the site should be included, along with maps that clearly show the activities and storm water drainage both on and off the site. An introductory paragraph for the SWPCP should be prepared to include a brief history of the operations at the industrial facility, the current activities, and future plans for expansion.

To complement the information contained in the narrative, two maps (minimum) are required for a complete site description: a **General Location Map** and a **Site Specific Map**.

General Location Map

The purpose of the **General Location Map** is to show the permitted site's boundaries and its proximity to major highways and streets, bodies of water, and prominent landmarks or features. This information is required on the general location map for both the industrial site and the area surrounding it for an appropriate distance as needed for clarity. For example, copies of city or county tax maps are acceptable general location maps if they are highlighted to show the property boundary and the required features both on the site and around it for a one-mile radius (the distance surrounding the site will vary as needed to show these features).

Site Specific Map

The **Site Specific Map** is required to show detailed information about the ongoing activities and storm water drainage both on and off the industrial site. This map serves to illustrate the complete drainage picture for the overall site, and includes the location of the permitted facility, property boundaries, buildings, operations or process areas, drainage patterns, storm water control structures, and surface water bodies.

To prepare the site specific map, a suitable base map showing the topography, or the physical features of the land, is needed. The physical features include the elevations and slope of the land and surface water bodies. With this information, the flow of storm water runoff both on and off the site can be identified since the runoff will flow from higher to lower elevations.

There are maps available that can serve as the base for the site specific map. The "as-built" site or grading map included in the construction plans for the facility, if available, can serve as the base map if the elevations and grading of the site have not changed appreciably since the facility was constructed. For very large industrial sites, maps such as the United States Geological Survey (USGS) 7.5 Minute Series Topographic Map can be purchased from the Oregon Department of Geology and Mineral Industries (phone number 503-731-4444). These maps will provide information about the elevations of the land on and around the site. However, the USGS maps are drawn to a scale that may be too small and not provide enough detail for the topography of the specific industrial site. It is important to note that some local governments, such as the City of Portland Map Reproduction Department (phone number 503-823-4444), have topographic maps for purchase that are drawn to a larger scale (1 inch = 100 feet) and will show greater detail in the topography of the land.

If the map drawn to a larger scale does not provide enough detail so that the other information can be added, a field investigation and measurement of elevations around and surrounding the property boundary by a land surveyor will provide information that can be drawn to an appropriate engineer's scale for a suitable base map of the site. The "appropriate" scale will vary depending on the size of the site. For very small sites, a base map drawn to a scale of 1 inch = 10 feet or 1 inch = 20 feet may be needed. Sites that are larger can be mapped and drawn to scales such as 1 inch = 30 feet, 1 inch = 40 feet, or larger. Good judgement should be used in selecting the scale of the map such that the information shown is easy to read and understand. It is important to remember that additional information (the location of buildings, process areas, drainage patterns, and storm water control structures) will be added to the base map.

Once the elevations and slope of the land are established for the permitted site, the next step is to add important drainage information to the site specific map. Drainage basins should be drawn with a bold line onto the map to indicate storm water flow patterns both on and off the permitted site. Drainage basins are specific areas within the watershed in which storm water runoff flows to a common

point based upon the slope of the land. If the drainage basins cover large areas of land, drainage sub-basins may need to be drawn on the site specific map to show the areas where runoff collects on the site in greater detail. An approximation of the surface area covered by the drainage basin or sub-basins should be included on the map.

Once the drainage basins or sub-basins have been drawn on the site specific map, additional information about the site is required as follows:

(1) Discharge structures or outfalls for each drainage basin or sub-basin. Such structures refer to definite points where storm water runoff is collected and may leave the site. Examples of discharge structures or outfalls include any pipe, ditch, channel, tunnel, or conduit. For clarity, the outfalls should be numbered.

(2) Buildings, structures, and pavement, if they discharge storm water runoff to an outfall. These portions of the site are considered to be impervious surfaces that will not allow the runoff to infiltrate, or pass into, the natural ground. An approximation of the surface area covered by the impervious portions of the site should be noted on the map.

(3) Areas of the site used for storage or disposal of significant materials. Significant materials include, but are not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

(4) Portions of the site used for materials loading and access to the site.

(5) The location of hazardous waste storage or disposal facilities.

(6) The location of wells on the site (waste injection wells, seepage pits, dry wells, drinking water wells, etc.).

(7) Springs, lakes, wetlands, and other surface water bodies.

Examples of the General Location Map and the Site Specific Map are included in Appendix A. While the maps have been reduced in size for copying purposes and are no longer to scale, they are

included to give examples of the content that is required. As previously stated, the permittee should include maps that are prepared to scale and adequate in size for clarity in content.

Once the site specific map is complete, information needs to be included in the SWPCP in a narrative form to evaluate the industrial activities taking place for any potential storm water pollution that may result. The permittee is required to identify and list any potential pollutants on the site that could reach and contaminate storm water discharge. One example of such a pollutant includes soil that leaves the site through runoff, resulting in turbidity in surface waters.

Further, the permittee is required to list the significant materials that are treated, stored, or discarded on the site (as noted in item 3). The name of the material given should reflect either the common name (i.e., gasoline, diesel), or the industrial name along with the material's usage on the site. In addition, the quantity of the material stored on the site should be given in units appropriate for the particular material (cubic yards, cubic feet, gallons, etc.). The permittee should disclose if the facility is involved in cleanup activities for past contamination of the site.

The permittee is required to describe the discharge process for storm water leaving the permitted site. If the storm water discharges to a pipe or ditch system, then the name of the street adjacent to the drainage ditch or municipal storm sewer should be given, along with the name of the receiving body of water that ultimately receives the discharge.

The permittee is required to identify and list in the SWPCP all discharge point(s) or outfalls on the site where storm water monitoring will take place in accordance with the permit monitoring requirements given in Schedule B. For clarity the outfalls may be numbered, and a general description of their location on the site is needed. If the site contains multiple outfalls but monitoring occurs at only one, the permittee is required to provide justification for the single sampling choice. For example, a single monitoring point can be used if all of the discharge points on the site provide drainage for similar activities with the same potential for pollution problems.

As noted in the Storm Water Permit General Conditions, monitoring must be conducted according to test procedures approved under 40 CFR 136, unless other test procedures are specified in the permit. As noted in Schedule B of the permit, the grab sampling technique will be used in monitoring or sampling storm water runoff since the runoff should be fairly constant in composition over a considerable period of time or over substantial distances in all directions. This sampling technique requires clean containers to collect a needed quantity of the runoff for testing of certain parameters listed in Schedule B of the permit, such as

pH, biochemical oxygen demand (BOD), chemical oxygen demand (COD), settleable solids, total organic carbon (TOC), metals, and total suspended solids (TSS). Once samples have been obtained, an approved laboratory can analyze the runoff to compare the results against the permitted storm water discharge limitations. Sampling activities should be coordinated with the laboratory that will prepare the analysis of the storm water runoff.

The frequency of monitoring given in Schedule B of the permit provides that sampling for compliance shall be conducted two times per year, with samples being collected at least sixty days apart. One of the samples shall be collected during the month in the Autumn season when runoff first occurs. Visual observations of drainage areas shall be made weekly when at least one storm event has produced runoff during the week. Permittees are required to submit the data from sampling activities to the appropriate DEQ Regional Office by July 1 of each year. A list of Regional Offices and their addresses is included in Appendix B.

Regarding the permit's monitoring parameters for the site, the permittee is advised to determine the facility's location in relation to the river basins designated by Oregon Administrative Rules (OARs) for water quality standards. Such standards have been established in OAR Chapter 340, Division 41, for the following basins:

> North Coast; Lower Columbia; Mid Coast; Umpqua; South Coast; Roque; Willamette; Sandy; Hood; Deschutes; John Day; Umatilla; Walla Walla; Grande Ronde; Powder; Malheur River; Owyhee; Malheur Lake; Goose and Summer Lakes; and Klamath.

As noted in Schedule A of the permit, the permittee is required to provide a schedule in the SWPCP of steps and key milestone dates for implementing monitoring activities to comply with these water quality standards.

Further, DEQ has established total maximum daily loads (TMDLs) for certain streams and lakes in Oregon that have been designated as water quality limited due to point source discharges in accordance with the Clean Water Act, Section 303. The permittee is advised to determine if the facility discharges storm water runoff to any of these water bodies and list any needed treatment measures in the SWPCP that are required to comply with the loading levels. The following streams and lakes have been identified as water quality limited:

> Tualatin River; Garrison Lake; Bear Creek; Clear Lake; Yamhill River; Columbia/Willamette Rivers; Pudding River; Coquille River/Estuary; Klamath River; Coast Fork Willamette River; Columbia Slough; Grande Ronde River; South Umpqua River; Rickreall Creek; and Umatilla River.

Maps are included of the designated river basins and water quality limited streams and lakes in Appendices C and D, respectively. This information will assist the permittee in locating the facility in relation to the water bodies. Further, the permittee is required under the permit's monitoring requirements in Schedule B to analyze storm water runoff for any parameter for which the receiving stream is water quality limited, if the stream has been so designated. As noted in Appendix D, additional information regarding any TMDL limited stream can be obtained by calling the Department at (503)229-5279.

Once the required maps, narrative descriptions, and monitoring activities described in this section are complete, the permittee should have a better understanding of storm water discharge both onto and from the site. This information will be very valuable in determining needed control measures that prevent storm water pollution, as described in Section B that follows.

(B). Storm Water Pollution Controls - The permittee is required to submit information concerning the following: (1) storm water management, (2) spill prevention and response procedures, (3) preventive maintenance, (4) employee awareness program, (5) record keeping and internal reporting procedures, and (6) an annual plan review.

Storm Water Management

Regarding Storm Water Management, the permittee is required to prepare a written account describing all storm water management methods and practices that are used or will be implemented on the site to comply with the NPDES General Storm Water Permit.

Storm water management practices that are used on the site to minimize contact between potential pollutants identified in Section A of the SWPCP and storm water runoff are generally called source control methods. The permittee needs to list any source control methods in use or planned for the site. Examples of these methods include enclosing or covering an industrial process or a raw materials area, installing ditches to divert the runoff from potential pollutants, or constructing lined berms or containment devices for storing chemicals or hazardous wastes.

The permittee needs to describe any required treatment measures that will be implemented on the site to reduce the amount of pollutants in the runoff, along with possible methods of storm water disposal to a source other than surface waters. Examples of such treatment methods include constructing a detention pond, installing oil/water separators, or constructing grassed-lined ditches with filtering strips to remove pollutants. Examples of methods

of storm water disposal that do not involve surface water discharge of runoff include connecting the storm drains directly to the sanitary sewer in accordance with the local public works department, constructing a retention pond to prevent the storm water runoff from leaving the site, or recycling the storm water.

The permittee should develop storm water management practices that are appropriate for the sources of pollution that exist on the site. Suggested storm water management practices that can be used in developing controls include, but are not limited to, the following:

(1) Consider altering activities on the site, such as enclosing, covering, or segregating industrial practices to prevent runoff from contacting the process materials and becoming polluted. Covering facilities such as fueling operations, materials manufacturing, and storage areas should prevent potential pollution. If costs prohibit covering these sources, storm water should be diverted away from these areas with ditches or berms.

(2) Plan to practice good housekeeping measures at the site by performing proper maintenance as scheduled.

(3) Reduce the quantity of debris and sediment reaching storm water discharges with the use of screens, booms, sediment ponds, or other methods.

(4) Recycle or dispose of waste chemicals, including antifreeze, degreasers, used oils, paints, dyes, bleaches, acids, resins, and similar substances, properly to prevent contact with storm water.

(5) Store all hazardous wastes within berms or other secondary containment devices to prevent leaks and spills from contacting storm water runoff.

(6) Divert oil and grease away from storm water discharges by use of oil and water separators, skimmers, booms, or other devices.

Spill Prevention Response Procedures

The permittee is required to develop Spill Prevention and Response Procedures (SPRP) for the permitted facility. This plan should identify areas where potential spills of significant materials can contact and contaminate storm water discharge, along with the outfalls where the contaminated storm water would leave the site. (All of this information should be readily obtainable from the site specific plan developed in Section A).

The SPRP are needed for establishing operating methods that will be used to prevent spilling pollutants used in industrial activities. Procedures are also required for cleanup of spills on the site should they occur, including notification procedures for the appropriate state and local government agencies. Further, the SPRP should designate the responsible person for implementation of the procedures and outline how the appropriate personnel for the facility are to be made aware of spill response procedures for swift and effective action. A list of the required cleanup equipment needed for the spill, along with evidence that such equipment is on the site or readily available for use by trained personnel, is also required.

The requirements of the SPRP may be found in other spill prevention plans, such as the Spill Prevention Control and Countermeasure (SPCC) plans developed for the facility under 40 CFR 112. Other spill prevention plans may be used provided that these plans are incorporated into the SWPCP.

Preventive Maintenance Program

A Preventive Maintenance Program is required to insure the effective operation of materials management facilities, control facilities, and treatment facilities used to comply with the requirements of the permit. A schedule is needed, preferably for monthly inspection during the rainfall season, for control structures, treatment facilities, and areas where potential spills of significant materials could contaminate storm water. A regular program of cleaning and repairing control structures, treatment facilities, and materials handling and storage facilities should be established and used frequently throughout the rainfall season.

Employee Awareness Program

The permittee needs to document that an Employee Awareness Program has been established. The purpose of this program is to inform personnel of the SWPCP, the spill response procedures, materials management practices, and good housekeeping measures that will prevent pollution of storm water runoff. The program can be implemented in various ways, such as presentations at safety meetings, posting signs and notices throughout the facility relating to housekeeping practices, and providing training meetings for employees on use of the SWPCP and its components.

Record Keeping and Internal Reporting Procedures

The permittee is required to demonstrate implementation of Record Keeping and Internal Reporting Procedures so that facility records include relevant information pertaining to the SWPCP. The reporting should include items such as (1) any incidents of spills or leaks of significant materials with the necessary corrective actions taken, (2) a list of surface water discharges from the site, (3) implementation of

treatment measures, and (4) inspection and maintenance activities. Any other information relevant to the SWPCP should be reported.

Annual Review

The permittee is required to describe the pollution prevention and treatment procedures to be used at the facility in an annual review of the SWPCP prior to the onset of the rainfall season. The plan review should include a complete site inspection of all areas where potential spills of significant materials could impact storm water runoff. All of the relevant programs and plans, the Storm Water Management Plan, the Spill Response Plan, the Preventive Maintenance Program, the Employee Awareness Program, and the Record Keeping and Internal Reporting Procedures, are to be evaluated for their effectiveness in preventing pollution of runoff at the facility. Changes in any procedures or plans should be made as necessary to effectively eliminate or minimize pollutants from identified sources.

Conclusion

The SWPCP should be developed in accordance with sound engineering practices. The following items are required in the plan: (1) identification of all potential pollutants and materials that may affect the quality of the storm water runoff associated with the industrial activities ongoing at the facility, (2) an assessment of needed source controls and management practices that will reduce both the quantities and sources of pollutants entering the runoff, and (3) an implementation schedule for these measures.

The SWPCP should be updated as necessary, but at least annually. The permittee should make every effort to implement a workable and effective SWPCP for the facility. When better management practices become available for preventing storm water pollution, these methods should be incorporated into the SWPCP.

As previously noted, permittees are required to prepare and implement the SWPCP within 180 days of permit issuance. The permittee is required to be in compliance with the SWPCP and the effluent limitations in the permit within 360 days of receiving the permit. For any new facilities, the SWPCP should be complete and implemented prior to start-up of the facility's activities.

Sources of Further Information

DEQ, Water Quality Division, Industrial & On-Site Waste Section,
811 S.W. Sixth Avenue, Portland, Oregon 97204
Phone Numbers: (503) 229-6786, 1-800-452-4011 (Oregon only)

Code of Federal Regulations, Title 40, Parts 112, 122, 123, 124 and 136

Standard Methods For the Examination of Water and Wastewater, Sixteenth Edition, APHA, AWWA, and WPCF.

Draft Oregon 1992 Water Quality Status Assessment 305b Report, Oregon Nonpoint Source Program.

Oregon Administrative Rule, Chapter 340, Division 41

Author: Pamela L. Fink, P.E.
Storm Water Engineer
Industrial & On-Site Waste Section
August 24, 1992

Storm Water Runoff Analysis

Analysis	EPA Method	Permit Code 1200- A	D	F	G	H	L	M	P	R	S	T	W	Price
Color Foam[1]			✓	✓	✓	✓	✓			✓	✓	✓		
Turbidity[1]		✓						✓						
Oil & Grease Sheen[1]		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Floating Solids[1]									✓				✓	
Debris[1]									✓				✓	
pH	150.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	9.00
Settleable Solids	160.5	✓						✓						12.50
Total Suspended Solids	160.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12.50
Oil & Grease	413.1		✓	✓	✓	✓	✓			✓	✓	✓		25.00
TOC TOTAL ORGANIC CARBON	415.1		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	40.00
COD CHEMICAL OXYGEN DEMAND	410.1		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	40.00
Conductivity	120.1			✓	✓					✓	✓			8.00
BOD	405.1			✓					✓		✓		✓	30.00
Ammonia Nitrogen	350.2			✓‡										16.00
Residual Chlorine	330.1			✓‡							✓			25.00
Metals As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn					✓									141.00
Metals As, Cd, Cr, Cu, Pb, Hg, Ni, Zn						✓	✓			✓	✓	✓		117.00
Metals													✓‡	12.00@
Fecal Coliform	SM 9221C				✓‡						✓			18.00
Enterococci	SM 9230A				✓‡						✓			30.00
Total Phosphorus	365.2											✓		15.00
Total Price		24.50	126.50	164.50	275.50	243.50	243.50	24.00	131.50	251.50	354.50	258.50	131.50	

[1]Visual Observations Performed on Site

[‡]See Actual Permit to Determine if Needed (Not included in total price)

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OREGON ANALYTICAL LABORATORY
A Division of Portland General Electric
14855 S.W. Old Scholls Ferry Road
Beaverton, Oregon 97007
Phone 503-644-5300
FAX: 503-671-1404

04/21/92

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READING FILE

December 17, 1992

Ms. Pam Fink
Department of Environmental Quality
Water Division
811 S.W. Sixth Avenue
Portland, Oregon 97204

Re: SWPCP for NPDES Permit ID #106744
GEN 1200-T OR003449-5

Dear Pam:

Please find enclosed one copy of our SWPCP for our T4 mechanics shop facility. The plan was completed November 9, 1992 with full implementation to be completed by December 30, 1992. Our first storm water discharge sample was taken on November 30th and has tested well within the parameters listed on page 5 of our 1200-T permit.

I greatly appreciate the assistance you have provided us in the preparation and implementation of our SWPCP.

Thank you for your time and consideration.

Very truly yours,

JONES OREGON STEVEDORING COMPANY

David K. Bowman
Administration Department

DKB/jj
Enclosure

TELEPHONE (503) 228-6601 • FAX: (503) 228-0273 • TWX: 910-464-5191

JONES OREGON STEVEDORING C[illegible]
COLUMBIA RIVER - OREGON COA[illegible]
(503) 228-6601

JO[illegible]S WASHINGTON STEVEDORING CO.
P[illegible]ET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT READING FILE

January 26, 1993

FROM: DAVE BOWMAN

TO: BOB MARACLE

RE: WASH WATER GENERAL PERMIT

Earlier this month I obtained an application for the DEQ Wash Water General Permit and learned that there are several categories of activities allowed without filing an application and obtaining a permit. I further investigated these exemptions with Ranei Nomura of the DEQ Water Quality Division to confirm the activities allowed by the regulations without a permit and am convinced that, with minimal change, we can utilize the exemptions and thus avoid the cost, application process, monitoring, and record keeping of a wash water permit (which are similar to those of a storm water permit).

The applicable regulations and attendant conditions are as follows:

1. Commercial operations which wash less than 8 vehicles, boats, trailers, or pieces of equipment per site during any week are permitted.
   A. If soaps, detergents, or other chemical cleaners are used, the washing must occur in an area where the waste water can soak into the ground or evaporate or otherwise be kept out of surface waters or storm sewers discharging to surface waters. (The steam cleaning pit, as it is a filtered system which discharges into the city sanitary sewer, is exempt from the regulations so long as the city sewer department is aware of its connection and it has all necessary permits.)
   B. Cleaning must be restricted to the outside of the vehicle or piece of equipment, not the engine, transmission, or undercarriage (internal cleaning can be done in the steam cleaning pit).
   C. If significant quantities of dirt or other debris are encountered, it should be collected by screening or settling to prevent discharge to surface waters.
   D. When washing large trucks, the tractor and trailer are counted as separate vehicles.

2. The washing of roads, parking lots, side walks, and other paved surfaces is permitted, provided chemicals are not used and the surfaces are swept prior to washing.

3. The washing of buildings is permitted. If strong acids, caustics, or other harsh chemicals are used, the waste water shall be collected or otherwise prevented from discharging to storm sewers or directly to surface waters.

As all JOS offices wash fewer than 8 vehicles per week, we can utilize the exemptions by substituting water pressure for detergent when washing vehicles, a practice endorsed by DEQ. Given current needs and conditions, does this seem feasible for all JOS offices? Thank you for your time and consideration.

DKB/jj

ASSOCIATED CHEMISTS, INC.

4401 S.E. JOHNSON CREEK BLVD.
PORTLAND, OR 97222
PHONE • (503) 659-1708

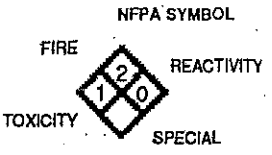
AEROSOL MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY PHONE • 1-800-535-5053

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD (HCS) 29 CFR 1910. 1200. STANDARD MUST BE CONSULTED FOR SPECIFIC REQUIREMENTS.

HMIS SYMBOL	
HEALTH	1
FLAMMABILITY	2
REACTIVITY	0

HMIS NFPA
SEVERE 4 EXTREME
SERIOUS 3 HIGH
MODERATE 2 MODERATE
SLIGHT 1 SLIGHT
MINIMAL 0 INSIGNIFICANT



I-IDENTIFICATION

PRODUCT NAME	**FLEX SHIELD**	PACKAGE TYPE	AEROSOL CONTAINER
PRODUCT CODE	**PT6035-10**	DATE PREPARED	DECEMBER 14, 1993

II-HAZARDOUS INGREDIENTS

PRINCIPAL HAZARDOUS COMPONENT(S)(CHEMICAL NAMES)	CAS#	TLVppm	PELppm	APPROX. % WT.
ISOPARAFFINIC HYDROCARBON	64742-46-7	200	200	
OXYGENATED HYDROCARBON	N.A.*	N.A.*	N.A.*	
*NOT AVAILABLE				
PROPELLANT HYDROCARBON PROPELLANT	68476-86-8	1000	1000	

III-PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE: APPROXIMATELY 300°F	SPECIFIC GRAVITY (H_2O = 1) @ 75°F OF CONCENTRATE: 0.730
VAPOR PRESSURE (psig) IN CAN @ 75°F: 50	% VOLATILE BY VOLUME IN CAN: APPROXIMATELY 75%
VAPOR DENSITY: NOT DETERMINED	FLASH POINT OF CONCENTRATE: 180°F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE: NEGLIGIBLE	APPEARANCE AND ODOR OF SPRAY: DARK BROWN, LIQUID, SOLVENT ODOR

IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENTION TEST: EXTREMELY FLAMMABLE SPRAY	FLAMMABLE LIMITS	Lower N.A. / Upper N.A.
EXTINGUISHING MEDIA: FOAM , DRY CHEMICAL, CARBON DIOXIDE	NFPA 30B CODE: LEVEL 3 AEROSOL	

SPECIAL FIRE FIGHTING PROCEDURES
KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS. WEAR SELF-CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS
AT ELEVATED TEMPERATURES (ABOVE 120° F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V - REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	DO NOT EXPOSE TO TEMPERATURES ABOVE 120° F.

INCOMPATIBILITY (Materials to avoid)
STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS
CARBON MONOXIDE, CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	NONE

PRINTED ON RECYCLED PAPER

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL PRECAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120° F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: INHALATION?	SKIN? PRIMARY	INGESTION?

EFFECTS OF OVER EXPOSURE ACUTE AND CHRONIC

INHALATION:
HIGH CONCENTRATIONS ARE IRRITATING TO THE EYES AND UPPER RESPIRATORY TRACT, MAY CAUSE HEADACHES AND DIZZINESS, ARE ANESTHETIC AND MAY HAVE OTHER CENTRAL NERVOUS SYSTEM EFFECTS.

SKIN CONTACT / ABSORPTION:
FREQUENT OR PROLONGED CONTACT MAY IRRITATE AND CAUSE DERMATITIS. LOW ORDER OF TOXICITY.

INGESTION:
SMALL AMOUNTS OF THE LIQUID ASPIRATED INTO THE RESPIRATORY SYSTEM DURING INGESTION, OR FROM VOMITING, MAY CAUSE BRONCHIOPNEUMONIA OR PULMONARY EDEMA. MINIMAL TOXICITY.

EYES:
CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING AND BLURRED VISION.

CARCINOGENICITY: NO	NTP? NO	IARC MONOGRAPHS? NO	OSHA REGULATED? NO

EMERGENCY AND FIRST AID PROCEDURES:

EYES AND SKIN: FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER LIDS. GET MEDICAL ATTENTION. WASH EXPOSED SKIN AREAS WITH SOAP AND WATER.

INHALATION:
REMOVE VICTIM TO FRESH AIR. IF BREATHING IS STOPPED GIVE ARTIFICIAL RESPIRATION. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION:
DILUTE WITH WATER , DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED:
CLEAN UP AREA BY MOPPING OR WITH ABSORBENT MATERIALS AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL. CONTACT FEDERAL, STATE OR LOCAL AUTHORITIES FOR APPROVED DISPOSAL PROCEDURES.

WASTE DISPOSAL METHOD:
WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS SHOULD BE RECYCLED. CONSULT FEDERAL, STATE AND LOCAL AUTHORITIES FOR APPROVED PROCEDURES.

VIII - SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY:
UNDER NORMAL CONDITIONS, NO RESPIRATORY PROTECTION IS REQUIRED.

EYE:
NONE REQUIRED. CHEMICAL SPLASH GOGGLES MAY BE WORN.

SKIN:	PROTECTIVE GLOVES:
NONE REQUIRED- LONG SLEEVES SHOULD BE WORN	NONE REQUIRED. PROTECTIVE GLOVES MAY BE WORN.

OTHER:
DON'T EAT, DRINK OR SMOKE IN WORK AREA. WASH HANDS BEFORE EATING.

VENTILATION REQUIREMENTS:
GENERAL VENTILATION NORMALLY ADEQUATE. USE EXPLOSION PROOF EQUIPMENT IN CONFINED AREAS.

IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DO NOT STORE AT TEMPERATURES ABOVE 120°F.

SPECIAL PRECAUTIONARY STATEMENTS:
PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL: THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND, THEY ALSO GIVE THE NECESSARY SAFETY PRECAUTIONS TO PROTECT YOUR HEALTH.

NOTICE: WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL INCLUSIVE NOR FULLY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN VIOLATION OF APPLICABLE LAWS, REGULATIONS, RULES OR INSURANCE REQUIREMENTS. NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA.

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9734

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

ANTI-SEIZE LUBRICANT
QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION	H. Smith	DATE PREPARED 12-11-85	PACKAGE TYPE Aerosol Container
FORMULA Proprietary Mixture		TRADE NAME ANTI-SEIZE LUBRICANT	

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
Methylene chloride (formula contains copper)	75-09-2		100
PROPELLANT Propane/Butane	74-98-6/75-28-5		1000

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	120 F Boiling vigorous	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	1.394
VAPOR PRESSURE (psig) IN CAN @ 75°F	45	% VOLATILE BY VOLUME IN CAN	67
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	None up to 120 F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE	Negligible	APPEARANCE AND ODOR OF SPRAY	Gray viscous liquid mild sweetish odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST	Extremely flammable	FLAMMABLE LIMITS	Lower N/A / Upper N/A

EXTINGUISHING MEDIA
Foam, Dry Chemical, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES
KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS
AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	Do not expose to temp. above 120 F

INCOMPATABILITY (Materials to avoid)
Strong alkalies, oxidizers, aluminum and other reactive metals

HAZARDOUS DECOMPOSITION PRODUCTS
Hydrogen chloride, phosgene (small amounts)

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	None

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL PRECAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120°F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES. OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI— HEALTH HAZARD DATA

OSHA PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
N.D.	See Section II

EFFECTS OF OVER EXPOSURE

INHALATION: Methylene chloride is suspected of being a carcinogen by the N.T.P.

Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headaches and possible unconsciousness.

SKIN CONTACT/ABSORPTION:

Prolonged or repeated contact can cause moderate irritation, defatting and dermatitis.

INGESTION:

Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.

EYES:

Can cause severe irritation, redness, tearing and blurred vision.

EMERGENCY AND FIRST AID PROCEDURES

EYES AND SKIN Flush with water, lifting upper and lower lids. Get medical attention. Wash exposed area with soap and water.

INHALATION Remove to fresh air. If breathing difficult, administer oxygen. If breathing has stopped give artificial respiration. Get medical attention.

INGESTION Do not induce vomiting. Get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis.

VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED.

Clean up area by mopping or with absorbent materials and place in closed containers for disposal. Consult Federal, State or Local disposal authorities for approved disposal procedures.

WASTE DISPOSAL METHOD

WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN TRASH COLLECTION. CANS WHICH ARE PRESSURIZED OR CONTAIN LIQUID MUST BE DISPOSED OF IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VII — SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY General ventilation adequate.

EYE Chemical splash goggles in compliance with OSHA regulations.

SKIN Wear resistant gloves such as: neoprene, nitrile rubber or polyvinyl chloride.

OTHER Do not eat, drink or smoke in work area, wash hands before eating.

VENTILATION REQUIREMENTS Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV (S)

IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store at temperatures above 120 F.

SPECIAL PRECAUTIONARY STATEMENTS

PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND GIVE THE NECESSARY SAFETY PRECAUTUIONS TO PROTECT YOUR HEALTH.

NOTICE WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL-INCLUSIVE NOR FULLY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN VIOLATION OF APPLICABLE LAWS, REGULATIONS, RULES OR INSURANCE REQUIREMENTS.
NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA.

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

EMERGENCY PHONE (503) 653-9734

Battery Cleaner
QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION W. Smith

DATE PREPARED 12-10-85

PACKAGE TYPE Aerosol Container

FORMULA Proprietary Mixture

TRADE NAME Battery Cleaner

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
Butyl Cellosolve	111-76-2		50
PROPELLANT Propane/Butane	74-98-6/75-28-5		1000

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	N.D.	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	1.034
VAPOR PRESSURE (psig) IN CAN @ 75°F	60	% VOLATILE BY VOLUME IN CAN	92
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	None up to 150 F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE	Complete	APPEARANCE AND ODOR OF SPRAY	Clear orange liquid ammonia odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST: Non-flammable

FLAMMABLE LIMITS — Lower: N/A — Upper: N/A

EXTINGUISHING MEDIA
Water, Foam, Dry Chemical, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES
KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS
AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	Do not expose to temp. above 120 F

INCOMPATABILITY (Materials to avoid)
Avoid contamination with alkalies

HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition or burning may produce Carbon Monoxide and/or Carbon Dioxide

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	None

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL [illegible] CAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120°F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI— HEALTH HAZARD DATA

OSHA PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
N.D.	See Section

EFFECTS OF OVER EXPOSURE

INHALATION:
Product exist as foam. Inhalation will cause strangulation.

SKIN CONTACT/ABSORPTION:
No evidence of adverse effect from available information.

INGESTION:
Can cause gastrointestinal irritation, vomiting and diahrrea

EYES:
Minor irritation

EMERGENCY AND FIRST AID PROCEDURES

EYES AND SKIN: Flush with water for at least 15 minutes

INHALATION: Treat for strangulation

INGESTION: Do not induce vomiting, get medical attention

VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED.
Clean up area by mopping or with absorbent materials and place in containers for disposal. Consult Federal, Local and State authorities for approved disposal procedures

WASTE DISPOSAL METHOD

WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN TRASH COLLECTION. CANS WHICH ARE PRESSURIZED OR CONTAIN LIQUID MUST BE DISPOSED OF IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VII — SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: Under normal conditions no respiratory protection is required

EYE: None required, chemical splash goggles may be worn

SKIN: None required, protective gloves may be worn

OTHER: Normal ventilation adequate

VENTILATION REQUIREMENTS

IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store at temperatures above 120 F.

SPECIAL PRECAUTIONARY STATEMENTS

PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND GIVE THE NECESSARY SAFETY PRECAUTIONS TO PROTECT YOUR HEALTH.

NOTICE: WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL-INCLUSIVE NOR FULLY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN VIOLATION OF APPLICABLE LAWS, REGULATIONS, RULES OR INSURANCE REQUIREMENTS.
NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

MATERIAL SAFETY DATA SHEET

UFACTURER'S NAME:

X PRODUCTS
SE Johnson Creek Blvd.
tland, OR 97222

E OF PREPARATION: 04-29-1986

EMERGENCY TELEPHONE NO.:

(503) 653-9734

INFORMATION TELEPHONE NO.:

(503) 653-9734

SECTION I - PRODUCT IDENTIFICATION

DUCT NUMBER: 91890
DUCT NAME: 91-890: BRAKE-FAST AEROSOL
DUCT CLASS: AEROSOL

HMIS RATINGS:

H	F	R	PP
1	0	0	G

SECTION II - HAZARDOUS INGREDIENTS

DIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
-TRICHLOROETHANE	71556	80	350 PPM TLV/TWA/PEL	100.0	20C
DIFLUOROMETHANE		20	NOT ESTABLISHED	7872.0	20C

SECTION III - PHYSICAL DATA

LING RANGE: -41.4 to 190 F

VAPOR DENSITY: HEAVIER THAN AIR

PORATION RATE: FASTER THAN ETHER

% VOLATILE VOLUME: 100.00

WT/GAL: 10.74

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9734 810 (210)

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

FOUR-WAY ACTION

QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION	[signature]	DATE PREPARED 12-11-85	PACKAGE TYPE Aerosol Container
FORMULA Proprietary Mixture		TRADE NAME FOUR-WAY ACTION	

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
1,1,1-Trichloroethane	71-55-6		350
Methylene chloride	75-09-2		100
Butyl Cellosolve	111-76-2		50
(The ingredients above are listed in descending order of concentration)			
PROPELLANT Carbon Dioxide	124-38-9		

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	N.D.	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	1.190
VAPOR PRESSURE (psig) IN CAN @ 75°F	90	% VOLATILE BY VOLUME IN CAN	> 83.7
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	None up to 150 F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE	Slight	APPEARANCE AND ODOR OF SPRAY	Clear yellowish liquid mild sweetish odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST Non-flammable	FLAMMABLE LIMITS	Lower N/A	Upper N/A

EXTINGUISHING MEDIA
Foam, Dry Chemical, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES
KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS
AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	Do not expose to temp. above 120°F

INCOMPATABILITY (Materials to avoid)
Strong alkalies, oxidizers, aluminum and other reactive metals

HAZARDOUS DECOMPOSITION PRODUCTS
Hydrogen chloride, phosgene (small amounts)

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	None

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL PRECAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120°F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI— HEALTH HAZARD DATA

OSHA PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
N.D.	See Section II

EFFECTS OF OVER EXPOSURE

INHALATION: Methylene chloride is suspected of being a carcinogen by the N.T.P. Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headaches and possible unconsciousness.

SKIN CONTACT/ABSORPTION:

Prolonged or repeated contact can cause moderate irritation, defatting and dermatitis.

INGESTION:

Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.

EYES:

Can cause severe irritation, redness, tearing and blurred vision.

EMERGENCY AND FIRST AID PROCEDURES

EYES AND SKIN Flush with water, lifting upper and lower lids. Get medical attention. Wash exposed area with soap and water.

INHALATION Remove to fresh air. If breathing difficult, administer oxygen. If breathing has stopped give artificial respiration. Get medical attention.

INGESTION Do not induce vomiting. Get medical attention. Aspiration of aterial into the lungs due to vomiting can cause chemical pneumonitis.

VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED.

Clean up area by mopping or with absorbent materials and place in closed containers for disposal. Consult Federal, State or Local disposal authorities for approved disposal procedures.

WASTE DISPOSAL METHOD

WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN TRASH COLLECTION. CANS WHICH ARE PRESSURIZED OR CONTAIN LIQUID MUST BE DISPOSED OF IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VII — SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY General ventilation adequate.

EYE Chemical splash goggles in compliance with OSHA regulations.

SKIN Wear resistant gloves such as: neoprene, nitrile rubber or polyvinyl chloride.

OTHER Do not eat, drink or smoke in work area, wash hands before eating.

VENTILATION REQUIREMENTS Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV (S)

IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store at temperatures above 120 F.

SPECIAL PRECAUTIONARY STATEMENTS

PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND GIVE THE NECESSARY SAFETY PRECAUTUIONS TO PROTECT YOUR HEALTH.

NOTICE: WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL-INCLUSIVE NOR ... LY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN ... TION OF APPLICABLE LAWS, REGULA... RULES OR INSURANCE REQUIREMENTS. ...RANTY, EXPRESS OR IMPLIED ...NTABILITY ... OR OTHERWISE IS MADE.

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA.

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9731 A25 (125)

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

MIRA GLASS
QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION	J. Smith	DATE PREPARED 11-25-85	PACKAGE TYPE Aerosol Container
FORMULA Proprietary Mixture		TRADE NAME MIRA GLASS	

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(S) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
Isopropyl Alcohol	67-63-0		400
PROPELLANT Propane/Butane	74-98-6/75-28-5		1000

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	N/D	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	0.978
VAPOR PRESSURE (psig) IN CAN @ 75°F	55	% VOLATILE BY VOLUME IN CAN	> 98
VAPOR DENSITY	N/D	FLASH POINT OF CONCENTRATE	None
SOLUBILITY IN WATER OF CONCENTRATE	Complete	APPEARANCE AND ODOR OF SPRAY	White foam with slight ammonia odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST: Non-flammable

FLAMMABLE LIMITS: Lower N/A; Upper N/A

EXTINGUISHING MEDIA: Water, Dry Chemical, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES

KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

AT ELEVATED TEMPERATURES (ACOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Do not expose to temperature above 120° F.

INCOMPATABILITY (Materials to avoid): Strong oxidizing agents, strong acids or bases, selected amines

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	None

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STO[illegible] OR USE IF LABEL PRE-CAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED [illegible]TAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120°F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI— HEALTH HAZARD DATA

OSHA PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
N.D.	See Section II

EFFECTS OF OVER EXPOSURE

INHALATION:
Product exits as foam. Inhalation of vapors are an unlikely route of exposure. No harmful effects known from available information.

SKIN CONTACT/ABSORPTION:
No evidence of adverse effect from available information.

INGESTION:
Can possibly cause gastrointestinal irritation, vomiting and diahrrea.

EYES:
Can cause eye irritation.

EMERGENCY AND FIRST AID PROCEDURES

EYES AND SKIN
Flush with water.

INHALATION
Treat for strangulation

INGESTION Dilute with water, do not induce vomiting. Get medical attention.

VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED.

CLEAN UP AREA BY MOPPING OR WITH ABSORBENT MATERIALS AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL. CONSULT FEDERAL, STATE, LOCAL DISPOSAL AUTHORITIES FOR APPROVED DISPOSAL PROCEDURES.

WASTE DISPOSAL METHOD

WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN TRASH COLLECTION. CANS WHICH ARE PRESSURIZED OR CONTAIN LIQUID MUST BE DISPOSED OF IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VII — SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY	Under normal conditions no respiratory protection is required
EYE	None required, chemical splash goggles may be worn
SKIN	None required, protective gloves may be worn
OTHER	Normal ventilation adequate

VENTILATION REQUIREMENTS

IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store at temperatures above 120 F.

SPECIAL PRECAUTIONARY STATEMENTS

PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND GIVE THE NECESSARY SAFETY PRECAUTUIONS TO PROTECT YOUR HEALTH.

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NO WARRANTY EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

E

TEMPLEX

The Symbol of Service

4401 SE Johnson Creek Blvd.
Portland, OR 97222

AEROSOL MATERIAL SAFETY DATA SHEET

EMERGENCY PHONE (305)974-5440

HMIS SYMBOL	
HEALTH	1
FLAMMABILITY	2
REACTIVITY	0

HMIS NFPA
SEVERE 4 EXTREME
SERIOUS 3 HIGH
MODERATE 2 MODERATE
SLIGHT 1 SLIGHT
MINIMAL 0 INSIGNIFICANT

NFPA SYMBOL
FIRE 2
REACTIVITY 1 0
TOXICITY
SPECIAL

I-IDENTIFICATION

PRODUCT NAME	MCCL MOLY CHAIN AND CABLE LUBE	PACKAGE TYPE	AEROSOL CONTAINER
SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION	Dale Bagwell	DATE PREPARED	NOVEMBER 14, 1989

II-HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(S)(CHEMICAL NAMES)	CAS#	TLV	PEL	APPROX. % WT.
1,1,1, TRICHLOROETHANE	71-55-6	350	350	75.0%
BUTYL CELLOSOLVE	111-76-2	50	50	2.0%
MINERAL OIL	64742-65-0	N.A.	N.A.	5-10%
ALIPHATIC MINERAL SPIRITS	64742-88-7	100	100	10-15%
PROPELLANT CARBON DIOXIDE	124-38-9	1000	1000	

III-PHYSICAL DATA

BOILING POINT (^{0}F) OF CONCENTRATE	N.D.	SPECIFIC GRAVITY (H_20 = 1) @ 75^{0}F. OF CONCENTRATE	1.164
VAPOR PRESSURE (psig) IN CAN @ 75^{0}F	85	% VOLATILE BY VOLUME IN CAN	>80
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	NONE UP TO 150^{0}F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE	NEGLIGIBLE	APPEARANCE AND ODOR OF SPRAY	BLACK/ BROWN OPAQUE LIQUID MILD SWEETISH ODOR

IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENTION TEST	FLAMMABLE LIMITS	Lower / Upper
FLAMMABLE SPRAY		N.A. / N.A.

EXTINGUISHING MEDIA
FOAM, DRY CHEMICAL, CARBON DIOXIDE LEVEL I AEROSOL (NFPA 30B)

SPECIAL FIRE FIGHTING PROCEDURES
KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS

UNUSUAL FIRE AND EXPLOSION HAZARDS
AT ELEVATED TEMPERATURES (ABOVE 120^0 F) CONTAINERS MAY VENT RUPTURE OR BURST.

V - REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	DO NOT EXPOSE TO TEMPERATURES ABOVE 120^0 F.

INCOMPATABILITY (Materials to avoid)
STRONG ALKALIES, OXIDIZERS, ALUMINUM AND OTHER REACTIVE METALS.

HAZARDOUS DECOMPOSITION PRODUCTS
ABNORMALLY HIGH TEMPERATURES POSSIBLE TRACE AMOUNTS OF PHOSGENE.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	NONE

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL PRECAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120° F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	INHALATION?	SKIN? PRIMARY	INGESTION?

EFFECTS OF OVER EXPOSURE : ACUTE AND CHRONIC

INHALATION: EXCESSIVE INHALATION OF VAPORS CAN CAUSE RESPIRATORY IRRITATION, DIZZINESS, NAUSEA, HEADACHES, UNCONCIOUSNESS AND POSSIBLE DEATH. CHRONIC OVER EXPOSURE MAY CAUSE LIVER, KIDNEY OR LUNG DISEASE, ANEMIA, CORONARY DISEASE OR RHYTHM DISORDERS OF THE HEART.

SKIN CONTACT / ABSORPTION:
PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING AND DERMITITIS.

INGESTION: CAN CAUSE SEVERE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA. ASPIRATION OF MATERIAL INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

EYES: CAN CAUSE SEVERE IRRITATION, REDNESS TEARING AND BLURRED VISION.

CARCINOGINICITY: NO	NTP? NO	IARC MONOGRAPHS? NO	OSHA REGULATED? NO

EMERGENCY AND FIRST AID PROCEDURES:

EYES AND SKIN: FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER LIDS. GET MEDICAL ATTENTION. WASH EXPOSED SKIN AREAS WITH SOAP AND WATER.

INHALATION: REMOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING STOPS GIVE ARTIFICIAL RESPIRATION. GET MEDICAL ATTENTION.

INGESTION: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS.

VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED:
CLEAN UP AREA BY MOPPING OR WITH ABSORBENT MATERIALS AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL. CONTACT FEDERAL, STATE OR LOCAL AUTHORITIES FOR APPROVED DISPOSAL PROCEDURES.

WASTE DISPOSAL METHOD:
WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VIII - SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY: WHERE VAPOR CONCETRATION IS 100-1000 PPM, ORGANIC VAPOR RESPIRATOR. IF CONCENTRATION EXCEEDS 1000 PPM SELF CONTAINED BREATHING APPERATUS.

EYE: WEAR SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES WHERE SPLASHING.

SKIN:	PROTECTIVE GLOVES: CHEMICAL RESISTANT: VITON OR POLYVINYL CHLORIDE.

OTHER: DON'T EAT, DRINK OR SMOKE IN WORK AREA. WASH HANDS BEFORE EATING.

VENTILATION REQUIREMENTS:
PROVIDE SUFFICIENT MECHANICAL (GENERAL) AND/OR LOCAL EXHAUST VENTILATION TO MAINTAIN EXPOSURE BELOW TLV (S).

IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DO NOT STORE AT TEMPERATURES ABOVE 120°F.

SPECIAL PRECAUTIONARY STATEMENTS:
PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND THEY ALSO GIVE THE NECESSARY SAFETY PRECAUTIONS TO PROTECT YOUR HEALTH.

NOTICE: WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL INCLUSIVE NOR FULLY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN VIOLATION OF APPLICABLE LAWS, REGULATIONS, RULES OR INSURANCE REQUIREMENTS. NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA 765

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9734

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

NO-SCRAPE

QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION W. Smith	DATE PREPARED 12-10-85	PACKAGE TYPE Aerosol Container
FORMULA Proprietary Mixture	TRADE NAME NO-SCRAPE	

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
Methylene Chloride	75-09-2		100
Methyl Alcohol	67-56-1		200
Toluene	108-88-3		200
(The ingredients above are listed in descending order of concentration)			
PROPELLANT Propane/Butane	74-98-6/75-28-5		1000

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	N.D.	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	1.154
VAPOR PRESSURE (psig) IN CAN @ 75°F	31	% VOLATILE BY VOLUME IN CAN	95
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	84°F T.O.C.
SOLUBILITY IN WATER OF CONCENTRATE	Negligible	APPEARANCE AND ODOR OF SPRAY	Clear water white liquid mild sweetish odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST: Extremely Flammable	FLAMMABLE LIMITS	Lower N/A	Upper N/A

EXTINGUISHING MEDIA: Foam, Dry Chemical, Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES

KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID: Do not expose to temp. above 120°F
	STABLE	XX	

INCOMPATABILITY (Materials to avoid): Strong alkalies, oxygen, nitrogen peroxide, sodium, potassium and other oxidizers and reactive metals

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen Chloride, Phosgene (small amounts)

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID: None
	WILL NOT OCCUR	XX	

AEROSOL PRODUCTS PRESENT A LIMITED HAZARD DURING STORAGE OR USE IF LABEL PRECAUTIONS ARE FOLLOWED. INTENTIONAL MIS-USE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL, OR FATAL. PRESSURIZED CONTAINERS MUST NOT BE EXPOSED TO TEMPERATURES ABOVE 120°F AND SPRAY SHOULD NOT BE DIRECTED TOWARD FACE OR EYES, OPEN FLAME OR OTHER SOURCE OF IGNITION.

VI— HEALTH HAZARD DATA

OSHA PERMISSIBLE EXPOSURE LIMIT	THRESHOLD LIMIT VALUE
N.D.	See Section II

EFFECTS OF OVER EXPOSURE

INHALATION: Methylene chloride is suspected of being a carcinogen by the N.T.P. Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headaches and possible unconsciousness.

SKIN CONTACT/ABSORPTION:

Prolonged or repeated contact can cause moderate irritation, defatting and dermatitis.

INGESTION:

Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.

EYES:

Can cause severe irritation, redness, tearing and blurred vision.

EMERGENCY AND FIRST AID PROCEDURES

EYES AND SKIN Flush with water, lifting upper and lower lids. Get medical attention. Wash exposed area with soap and water.

INHALATION Remove to fresh air. If breathing difficult, administer oxygen. If breathing has stopped give artificial respiration. Get medical attention.

INGESTION Do not induce vomiting. Get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis.

VII — SRILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE CONTAINER IS PUNCTURED AND MATERIAL IS RELEASED.

Clean up area by mopping or with absorbent materials and place in closed containers for disposal. Consult Federal, State or Local disposal authorities for approved disposal procedures.

WASTE DISPOSAL METHOD

WHEN USED PROPERLY AEROSOL PRODUCTS DO NOT GENERATE HAZARDOUS WASTE. EMPTY DE-PRESSURIZED CONTAINERS CAN NOT BE REUSED AND SHOULD BE WRAPPED AND PUT IN TRASH COLLECTION. CANS WHICH ARE PRESSURIZED OR CONTAIN LIQUID MUST BE DISPOSED OF IN A PERMITTED WASTE MANAGEMENT FACILITY. CONSULT FEDERAL, STATE AND LOCAL DISPOSAL AUTHORITIES FOR APPROVED PROCEDURES.

VII — SPECIAL PROTECTION INFORMATION

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY General ventilation adequate.

EYE Chemical splash goggles in compliance with OSHA regulations.

SKIN Wear resistant gloves such as: neoprene, nitrile rubber or polyvinyl chloride.

OTHER Do not eat, drink or smoke in work area, wash hands before eating.

VENTILATION REQUIREMENTS Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV (S)

IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store at temperatures above 120 F.

SPECIAL PRECAUTIONARY STATEMENTS

PLEASE READ AND FOLLOW THE DIRECTIONS ON THE PRODUCT LABEL; THEY ARE YOUR BEST GUIDE TO USING THIS PRODUCT IN THE MOST EFFECTIVE WAY, AND GIVE THE NECESSARY SAFETY PRECAUTUIONS TO PROTECT YOUR HEALTH.

NOTICE: WE BELIEVE THAT THE INFORMATION CONTAINED ON THIS MATERIAL SAFETY DATA SHEET IS ACCURATE. THE SUGGESTED PROCEDURES ARE BASED ON EXPERIENCE AS OF THE DATE OF PUBLICATION. THEY ARE NOT NECESSARILY ALL-INCLUSIVE NOR FULLY ADEQUATE IN EVERY CIRCUMSTANCE. ALSO, THE SUGGESTIONS SHOULD NOT BE CONFUSED WITH NOR FOLLOWED IN VIOLATION OF APPLICABLE LAWS, REGULATIONS, RULES OR INSURANCE REQUIREMENTS.
NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.

MATERIAL SAFETY DATA SHEET

NUFACTURER'S NAME:

EX PRODUCTS
SE Johnson Creek Blvd.
ortland, OR 97222

EMERGENCY TELEPHONE NO.:

(503) 653-9734

INFORMATION TELEPHONE NO.:

(503) 653-9734

TE OF PREPARATION: 04-29-1986

SECTION I - PRODUCT IDENTIFICATION

ODUCT NUMBER: 91892
ODUCT NAME: 91-892: PEN-IT AEROSOL
ODUCT CLASS: AEROSOL

HMIS RATINGS:

H	F	R	PP
1	3	0	G

SECTION II - HAZARDOUS INGREDIENTS

REDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
YLENE GLYCOL MONOBUTYL ETHER	111762	< 5.0%	25 PPM-TLV	0.9	25C
eral oil	64741-96-4	10	5 PPM (mist) TLV	0.0	20C
PANE	74986	15	1000 PPM TLV	5650.0	20C
BUTANE	75285	15	NOT ESTABLISHED	1608.0	20C

SECTION III - PHYSICAL DATA

ILING RANGE: -44 F to 300 F

VAPOR DENSITY: HEAVIER THAN AIR

APORATION RATE: FASTER THAN ETHER

% VOLATILE VOLUME: 100.00

WT/GAL: 6.51

Loctite Corporation

705 North Mountain Road
Newington, Connecticut 06111
Telephone (203) 278-1280
Telex 99346

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name LOCQUIC® PRIMER T (AEROSOL) Part No. 747-47, 747-56
Product Type Primer Formula No. _____

II. COMPOSITION

Ingredients	% by Wt.	Hazard
1,1,1-Trichloroethane*	85-90	TLV = 350 ppm, Toxic
Isopropyl Alcohol	5-10	TLV = 400 ppm
N,N-Dialkyltoluidine	2-3	Toxic
Mercaptobenzothiazole**	1-3	

*1,1,1-Trichloroethane (methyl chloroform) has been shown to cause reproductive effects and kidney and liver damage in experimental animals on prolonged inhalation. It is our best technical judgment that, with proper precautions, normal use of this product poses no such hazards. **Mercaptobenzothiazole has been shown to cause tumors and reproductive effects in experimental animals on high dose ingestion and injection beneath the skin. In light of the low concentration of this component in the product, it is our best technical judgment that normal use of this product poses no such hazards.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure ~100 mm at 70°F Specific Gravity 1.3 at 70°F
Vapor Density ~4.5 Boiling Point 170-180°F
Solubility in Water Slight pH dna
Appearance Yellow Liquid Odor Sharp

IV. TOXICITY AND HEALTH HAZARD DATA

Toxicity Possible eye irritant. Moderate via ingestion.

TLV ~350 ppm

Est. Dermal LD 50 >2000 mg/kg
Symptoms of Overexposure Headache, nausea, dizziness. Narcosis at high concentrations.

Emergency Treatment Procedures
Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation: Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact: Flush with water.
Eye Contact: Flush thoroughly with water. Have eyes checked by physician.

Personal Protection
Eyes: Safety glasses or goggles recommended.
Skin: Rubber or plastic gloves recommended.
Ventilation: Provide adequate local ventilation to maintain vapor concentration below TLV.

LOCQUIC® PRIMER T (AEROSOL)

V. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash point None Method TCC
Explosive Limits (% by volume in air) Lower dna % Upper dna %
Recommended Extinguishing Agents CO_2, Foam, Dry Chemical
Hazardous Products Formed by Fire or Thermal Decomposition: Toxic chlorides

Unusual Fire or Explosion Hazards: None
Compressed Gasses Name Carbon dioxide
Pressure at Room Temperature 50 psi

VI. REACTIVITY DATA

Stability [X] Stable [ ] Unstable
Hazardous Polymerization [ ] May Occur [X] Will Not Occur
Hazardous Decomposition Products (non-thermal)
None

Incompatibility May react violently with aluminum on prolonged contact.

VII. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak: Allow to evaporate with good ventilation. Soak up residue with inert absorbent.

Recommended methods of disposal: Follow EPA and local regulations for disposal of chlorinated hydrocarbons. Do not incinerate pressurized cans.

I. STORAGE AND HANDLING PROCEDURES

Storage: Store below 110°F
Handling: Avoid prolonged breathing of vapor. Keep away from eyes.

IX. SHIPPING REGULATIONS

Type or Class DOT ORM-D
IATA CLASS 2 - Compressed Gas
Proper Shipping Name DOT Consumer-type Commodity
IATA Aerosol, non-flammable, n.o.s., toxic

Prepared By: Martin Hauser
Title: Vice President - Environmental Health and Safety
Date: November 1, 1985

U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-MSO-3
Phone: (202) 267-1577
Fax: (202) 267-4570

SP 27-96

COAST GUARD SPECIAL PERMIT 27-96

This Special Permit is issued pursuant to 46 CFR 148.01-9 of the U.S. Coast Guard (USCG) Carriage of Solid Hazardous Materials in Bulk Regulations to authorize bulk shipments of coal tar pitch (pitch prill) by cargo vessel under conditions as described herein. This permit does not relieve any shipper or carrier from compliance with any applicable requirement of 46 CFR 148 of the USCG Regulations, except as specifically provided for herein.

1. **BASIS** - William G. Handy and Associates facsimile letter of December 12, 1996.

2. **COMMODITY** - Coal tar pitch (pencil pitch).

3. **PROPER SHIPPING NAME AND IDENTIFICATION NUMBER** -

U.S. DOT: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS, BENZO(A)PYRENE AND DIBENZO(A,H) ANTHRACENE), UN 3077.

IMO: PITCH PRILL (No UN number).

4. **REGULATION WAIVED OR AFFECTED** - 46 CFR 148.01-7.

5. **AUTHORIZED SHIPPER**- William G. Handy and Associates, 9900 S.W, Wilshire Boulevard, Suite 210, Portland, OR 97225.

6. **MODE OF TRANSPORTATION AUTHORIZED** - Cargo vessel.

7. **CLASSIFICATION** -

U.S. DOT: Class 9.

IMO: Material Hazardous Only in Bulk (MHB).

8. **PROPERTIES** - Combustible, burns with dense smoke. Coal tar pitch is an environmentally hazardous substance under the regulations of the U.S. Environmental Protection Agency (EPA) because it contains benzo(a)pyrene, dibenzo(a,h)anthracene, and other hazardous substances in quantities and

concentrations exceeding their Reportable Quantities. Dust is an irritant to the skin and eyes, and may form an explosive mixture with air.

9. **SPECIAL TRANSPORTATION REQUIREMENTS -**

a. The coal tar pitch must be unloaded at a designated waterfront facility that meets the requirements of 33 CFR 126.05(a) or a midstream anchorage acceptable to the cognizant Coast Guard Captain of the Port.

b. The cognizant Coast Guard Captain of the Port must be informed at least 24 hours in advance of unloading operations.

c. The unloading operations must be supervised by a person familiar with the safety precautions and emergency procedures associated with handling coal tar pitch. The unloading operators must be trained in the appropriate safety precautions and emergency procedures for handling coal tar pitch.

d. The shipper shall provide the master of the vessel with information on the safety precautions and emergency procedures associated with the shipment of coal tar pitch.

e. Precautions must be taken to minimize personnel exposure to dust, including maintenance of OSHA Permissible Exposure Limits (PELs). When necessary and in accordance with OSHA regulations (29 CFR 1910), persons working in contact with coal tar pitch must wear dust respirators, protective clothing and gloves. If clothing becomes contaminated, it must be cleaned before reuse.

f. If, during unloading operations, OSHA action levels for coal tar pitch volatiles, are exceeded, eating and drinking shall be prohibited in the cargo hold, on the weatherdeck of the vessel, and in the vicinity of cargo handling operations.

g. Coal tar pitch must be kept as cool as reasonably practicable and stowed clear of all sources of heat and ignition.

h. Smoking, the carrying of matches and lighting devices, and the performance of welding or other hot work by any person shall be prohibited during cargo handling operations and at any time in the vicinity of loaded cargo holds. The area in the vicinity of cargo handling operations and the loaded vessel itself shall be posted with appropriate warning signs.

i. Electrical fittings in the cargo space shall be in good condition and safeguarded against short-circuits and sparking.

j. During unloading operations, appropriate precautions must be taken to minimize dispersal of the coal tar pitch to the environment. If necessary, tarpaulins or plastic sheeting may be used over decks and water to collect any spillage of the material.

k. Each bill of lading, shipping order, or other shipping paper issued in connection with coal tar pitch under the terms herein, must bear the notation "**USCG Special Permit 27-96.**"

l. Whenever coal tar pitch is transported by cargo vessel, a copy of this permit and the shipper's MSDS must be on board the vessel.

m. Any shipment of coal tar pitch containing benzo(a)pryrene, dibenzo(a,h)anthracene or other coal tar pitch volatiles must comply with the applicable regulations of the EPA in Subchapter I of Title 40, Code of Federal Regulations, including Hazardous Waste Manifest requirements when applicable. Disposal of cargo residue and contaminated items must be in accordance with applicable EPA and State laws and regulations.

10. **REPORTING REQUIREMENTS** - Any incident or casualty occurring while shipping under the terms of this permit shall be reported in accordance with 49 CFR 171.15, and a copy of the written report forwarded to the Commandant (G-MSO-3), U.S. Coast Guard, 2100 Second Street, S.W., Washington, DC 20593-0001 at the earliest practicable moment. In addition, a record of experience under the terms of this special permit including any casualties or difficulties encountered must be sent to the Commandant (G-MSO-3) upon request for renewal.

11. **EXPIRATION DATE** - January 31, 2001.

Authorized by:

K. S. COOK
Commander, U.S. Coast Guard
Chief, Hazardous Materials
Standards Division
By direction of the Commandant

DATE

CORNELL PDC Material Safety Data Sheets
Planning Design & Construction

DOD Hazardous Material Information
July, 1998
For Cornell University Convenience Only

COAL TAR PITCH

FSC: 8030
NIIN: 002812341
NSN: 80300028123419
MANUFACTURERS CAGE: 94977
PART NO INDICATOR: A
PART NUMBER TRADE NAME: COAL TAR PITCH

General Information

ITEM NAME: SEALING COMPOUND
MANUFACTURERS NAME: ARISTECH CHEMICAL CORPORATION
MANUFACTURERS STREET: 600 GRANT STREET
MANUFACTURERS P O BOX:
MANUFACTURERS CITY: PITTSBURGH
MANUFACTURERS STATE: PA
MANUFACTURERS COUNTRY: US
MANUFACTURERS ZIP CODE: 15230-0250
MANUFACTURERS EMERG PH: 412-433-7654/412-433-5811
MANUFACTURERS INFO PH: 412-433-7654
DISTRIBUTOR VENDOR 1:
DISTRIBUTOR VENDOR 1 CAGE:
DISTRIBUTOR VENDOR 2:
DISTRIBUTOR VENDOR 2 CAGE:
DISTRIBUTOR VENDOR 3:
DISTRIBUTOR VENDOR 3 CAGE:
DISTRIBUTOR VENDOR 4:
DISTRIBUTOR VENDOR 4 CAGE:
SAFETY DATA ACTION CODE:
SAFETY FOCAL POINT: D
RECORD NO FOR SAFETY ENTRY: 001
TOT SAFETY ENTRIES THIS STK: 001
STATUS: SE
DATE MSDS PREPARED: 01OCT88
SAFETY DATA REVIEW DATE: 07FEB90
SUPPLY ITEM MANAGER: 75
MSDS PREPARERS NAME:
PREPARERS COMPANY:
PREPARERS ST OR P O BOX:

PREPARERS CITY:
PREPARERS STATE:
PREPARERS ZIP CODE:
OTHER MSDS NUMBER:
MSDS SERIAL NUMBER: BHJFQ
SPECIFICATION NUMBER:
SPEC TYPE GRADE CLASS:
HAZARD CHARACTERISTIC CODE: N1
UNIT OF ISSUE: CN
UNIT OF ISSUE CONTAINER QTY: 5 GALLONS
TYPE OF CONTAINER: CAN
NET UNIT WEIGHT: 50 POUNDS
NRC STATE LICENSE NUMBER:
NET EXPLOSIVE WEIGHT:
NET PROPELLANT WEIGHT AMMO:
COAST GUARD AMMUNITION CODE:

Physical & Chemical Characteristics

APPEARANCE AND ODOR: BLACK SOLID. NO ODOR AT AMBIENT TEMPERATURE. AROMATIC AFTER MELTING.
BOILING POINT: >450F,>232C
MELTING POINT: N/R
VAPOR PRESSURE MM HG 70 F: 4 @ 440F
VAPOR DENSITY AIR 1: >1
SPECIFIC GRAVITY: 1.2
DECOMPOSITION TEMPERATURE:
EVAPORATION RATE AND REF: N/R
SOLUBILITY IN WATER: NEGLIGIBLE
PERCENT VOLATILES BY VOLUME: NEGL.
VISCOSITY:
PH:
RADIOACTIVITY:
FORM RADIOACTIVE MATL:
MAGNETISM MILLIGAUSS: N/P
CORROSION RATE IPY:
AUTOIGNITION TEMPERATURE:

Fire and Explosion Hazard Data

FLASH POINT: >200F,>93C
FLASH POINT METHOD: CC
LOWER EXPLOSIVE LIMIT: N/K
UPPER EXPLOSIVE LIMIT: N/K
EXTINGUISHING MEDIA: USE CARBON DIOXIDE, FOAM, DRY CHEMICAL, OR WATER FOG.
SPECIAL FIRE FIGHTING PROC: FIRE FIGHTERS SHOULD USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT WHEN FIGHTING CHEMICAL FIRE. USE WATER SPRAY TO COOL NEARBY CONTAINERS EXPOSED TO FIRE.
UNUSUAL FIRE AND EXPL HAZRDS: FINE PITCH DUST IS AS EXPLOSIVE AS COAL DUST. MOLTEN PITCH AT ELEVATED TEMPERATURE WILL BURN.

Reactivity Data

STABILITY: YES
COND TO AVOID (STABILITY): HIGH TEMPERATURES, AND OPEN FLAMES.
MATERIALS TO AVOID: STRONG OXIDIZING AGENTS
HAZARDOUS DECOMP PRODUCTS: CARBON DIOXIDE, CARBON MONOXIDE, TOXIC FUMES.
HAZARDOUS POLY OCCUR: NO
CONDITIONS TO AVOID POLY: NOT APPLICABLE

Health Hazard Data

LD50 LC50 MIXTURE:
ROUTE OF ENTRY INHALATION: YES
ROUTE OF ENTRY SKIN: YES
ROUTE OF ENTRY INGESTION: NO
HEALTH HAZ ACUTE AND CHRONIC: ACUTE-EYES:IRRITATION,CONJUNCTIVITIS. SKIN: IRRITATION,PHOTOTOXIC REACTIONS,ACNE,FOLLICULITIS,AND MORE SERIOUS SKIN DISORDERS. INHALATION:SWOLLEN OR IRRITATED NASAL MUCOSA AND SINUSES. CHRONIC-VARIOUS TYPES OF CANCER INCLUDING SKIN CARCINOMAS,LUNG,LIP AND KIDNEY TUMORS.
CARCINOGENICITY NTP: NO
CARCINOGENICITY IARC: YES
CARCINOGENICITY OSHA: NO
EXPLANATION CARCINOGENICITY: COAL TAR PITCH IS A CONFIRMED HUMAN CARCINOGEN BY IARC.
SIGNS SYMPTOMS OF OVEREXP: EYES:IRRITATION,BURNING,TEARING. SKIN: IRRITATION,BURNING,ITCHING,SWELLING,REDNESS. INHALATION:UPPER RESPIRATORY TRACT IRRITATION,COUGHING,SNEEZING.
MED COND AGGRAVATED BY EXP: INDIVIDUALS WITH CHRONIC RESPIRATORY DISORDERS (ASTHMA,CHRONIC BRONCHITIS,EMPHYSEMA,ETC.) MAY BE ADVERSELY AFFECTED BY ANY FUME OR AIRBORNE PARTICULATE MATTER EXPOSURE.
EMERGENCY FIRST AID PROC: INHALATION: REMOVE SUBJECT TO FRESH AIR.GIVE OXYGEN/CPR IF NEEDED.SEE DOCTOR. EYE: FLUSH WITH PLENTY OF WATER FOR 15 MINUTES.SEE DOCTOR. SKIN:REMOVE CONTAMINATED CLOTHING.WASH WITH SOAP AND WATER.SEE DOCTOR.MOLTEN PITCH IS A SEVERE BURN HAZARD. INGESTION: SEE DOCTOR IMMEDIATELY.

Precautions for Safe Handling and Use

STEPS IF MATL RELEASED SPILL: RELEASE OR SPILLAGE OF SOLID CAN BE TREATED AS A COAL SPILLAGE AND RECOVERY MADE AVOIDING SKIN AND EYE CONTACT.IF HOT LIQUID IS SPILLED,CONTAIN WITH ABSORBENT SOLIDS,SUCH AS SAND,EARTH,ETC. ALLOW TO COOL,SCRAPE UP AND DISPOSE.
NEUTRALIZING AGENT: NONE APPLICABLE FOR THIS MATERIAL
WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.
PRECAUTIONS HANDLING STORING: STORE IN COOL, DRY, WELL VENTILATED AREA. PROTECT FROM HEAT AND IGNITION SOURCES. KEEP CONTAINERS CLOSED.
OTHER PRECAUTIONS: NONE.

Control Measures

RESPIRATORY PROTECTION: NIOSH/MSHA-APPROVED RESPIRATOR WITH CARTRIDGE APPROPIATE FOR DUST AND ORGANIC VAPORS. RESPIRATOR SELECTION DEPENDS ON THE TYPE AND MAGNITUDE OF EXPOSURE.

VENTILATION: LOCAL EXHAUST VENTILATION REQUIRED. GENERAL DILUTION VENTILATION MAY ASSIST IN REDUCING CONTAMINANT CONCENTRATIONS.
PROTECTIVE GLOVES: PVA, VYTON.
EYE PROTECTION: SAFETY GLASSES. FACESHIELD IF SPLASHING.
OTHER PROTECTIVE EQUIPMENT: PVA,VYTON PROTECTIVE GARMENTS,FULL BODY CLOTHING,EYE WASH STATION AND SAFETY SHOWER.
WORK HYGIENIC PRACTICES: WASH THROUGHLY AFTER HANDLING AND BEFORE EATING. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.
SUPPL SAFETY HEALTH DATA: NONE.

Transportation Data

TRANSPORTATION ACTION CODE:
TRANSPORTATION FOCAL POINT: D
TRANS DATA REVIEW DATE: 90038
DOT PSN CODE: ZZZ
DOT SYMBOL:
DOT PROPER SHIPPING NAME: NOT REGULATED BY THIS MODE OF TRANSPORTATION
DOT CLASS: N/R
DOT ID NUMBER: N/R
DOT PACK GROUP:
DOT LABEL: N/R
DOT DOD EXEMPTION NUMBER:
IMO PSN CODE: ZZZ
IMO PROPER SHIPPING NAME: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IMO REG PAGE NUMBER: N/R
IMO UN NUMBER: N/R
IMO UN CLASS: N/R
IMO SUBSID RISK LABEL: N/R
IATA PSN CODE: ZZZ
IATA UN ID NUMBER: N/R
IATA PROPER SHIP NAME: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IATA UN CLASS: N/R
IATA SUBSID RISK CLASS: N/R
IATA LABEL: N/R
AFI PSN CODE: ZZZ
AFI SYMBOLS:
AFI PROP SHIPPING NAME: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI CLASS: N/R
AFI ID NUMBER: N/R
AFI PACK GROUP:
AFI LABEL: N/R
AFI SPECIAL PROV:
AFI BASIC PAC REF:
MMAC CODE:
N O S SHIPPING NAME:
ADDITIONAL TRANS DATA:

Disposal Data

DISPOSAL DATA ACTION CODE:
DISPOSAL DATA FOCAL POINT:
DISPOSAL DATA REVIEW DATE:
RECNUM FOR THIS DISP ENTR:

TOT DISP ENTRIES PER NSN:
LANDFILL BAN ITEM:
DISPOSAL SUPPLEMENTAL DAT:
EPAHAZWST 1ST CODE NEW:
EPAHAZWST 1ST NAME NEW:
EPAHAZWST 1ST CHAR NEW:
EPAACUTEHAZARD 1ST NEW:
EPAHAZWST 2ND CODE NEW:
EPAHAZWST 2ND NAME NEW:
EPAHAZWST 2ND CHAR NEW:
EPAACUTEHAZARD 2ND NEW:
EPAHAZWST 3RD CODE NEW:
EPAHAZWST 3RD NAME NEW:
EPAHAZWST 3RD CHAR NEW:
EPAACUTE 3RD HAZARD NEW:

Label Data

LABEL REQUIRED: YES
TECHNICAL REVIEW DATE:
LABEL DATE:
MFR NUMBER:
LABEL STATUS: G
COMMON NAME: COAL TAR PITCH
CHRONIC HAZARD: N/P
SIGNAL WORD:
ACUTE HEALTH HAZARD NONE:
ACUTE HEALTH HAZARD SLIGHT:
ACUTE HEALTH HAZARD MODERATE:
ACUTE HEALTH HAZARD SEVERE:
CONTACT HAZARD NONE:
CONTACT HAZARD SLIGHT:
CONTACT HAZARD MODERATE:
CONTACT HAZARD SEVERE:
FIRE HAZARD NONE:
FIRE HAZARD SLIGHT:
FIRE HAZARD MODERATE:
FIRE HAZARD SEVERE:
REACTIVITY HAZARD NONE:
REACTIVITY HAZARD SLIGHT:
REACTIVITY HAZARD MODERATE:
REACTIVITY HAZARD SEVERE:
SPECIAL HAZARD PRECAUTIONS: ACUTE-EYES:IRRITATION,CONJUNCTIVITIS. SKIN: IRRITATION,PHOTOTOXIC REACTIONS,ACNE,FOLLICULITIS,AND MORE SERIOUS SKIN DISORDERS. INHALATION:SWOLLEN OR IRRITATED NASAL MUCOSA AND SINUSES. CHRONIC-VARIOUS TYPES OF CANCER INCLUDING SKIN CARCINOMAS,LUNG,LIP AND KIDNEY TUMORS. EYES: IRRITATION,BURNING,TEARING. SKIN:IRRITATION,BURNING,ITCHING,SWELLING, REDNESS. INHALATION:UPPER RESPIRATORY TRACT IRRITATION,COUGHING,SNEEZING.
PROTECT EYE:
PROTECT SKIN:
PROTECT RESPIRATORY:
LABEL NAME: ARISTECH CHEMICAL CORPORATION
LABEL STREET: 600 GRANT STREET
LABEL P O BOX:
LABEL CITY: PITTSBURGH

LABEL STATE: PA
LABEL ZIP CODE: 15230-0250
LABEL COUNTRY: US
LABEL EMERGENCY NUMBER: 412-433-7654/412-433-5811
YEAR PROCURED:

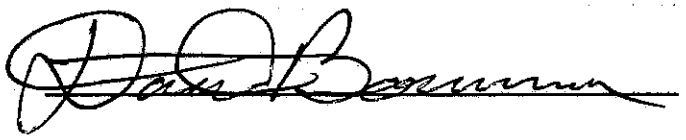
Page Created 11/24/98 12:54:41 PM

READING FILE

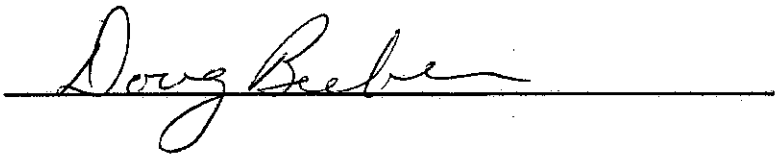
STORM WATER POLLUTION CONTROL PLAN (SWPCP)
FOR JONES OREGON STEVEDORING COMPANY
T4 MECHANICS SHOP

LOCATION: 11040 N. Lombard, Portland, Oregon
NPDES PERMIT: ID #106744 GEN 1200-T OR003449-5
SITE AREA: 2.58 Acres
NUMBER OF FACILITY EMPLOYEES: 8

Prepared by: Dave Bowman, Administration Department



Reviewed by: Doug Beeber, Operations Manager



SWPCP
Section A

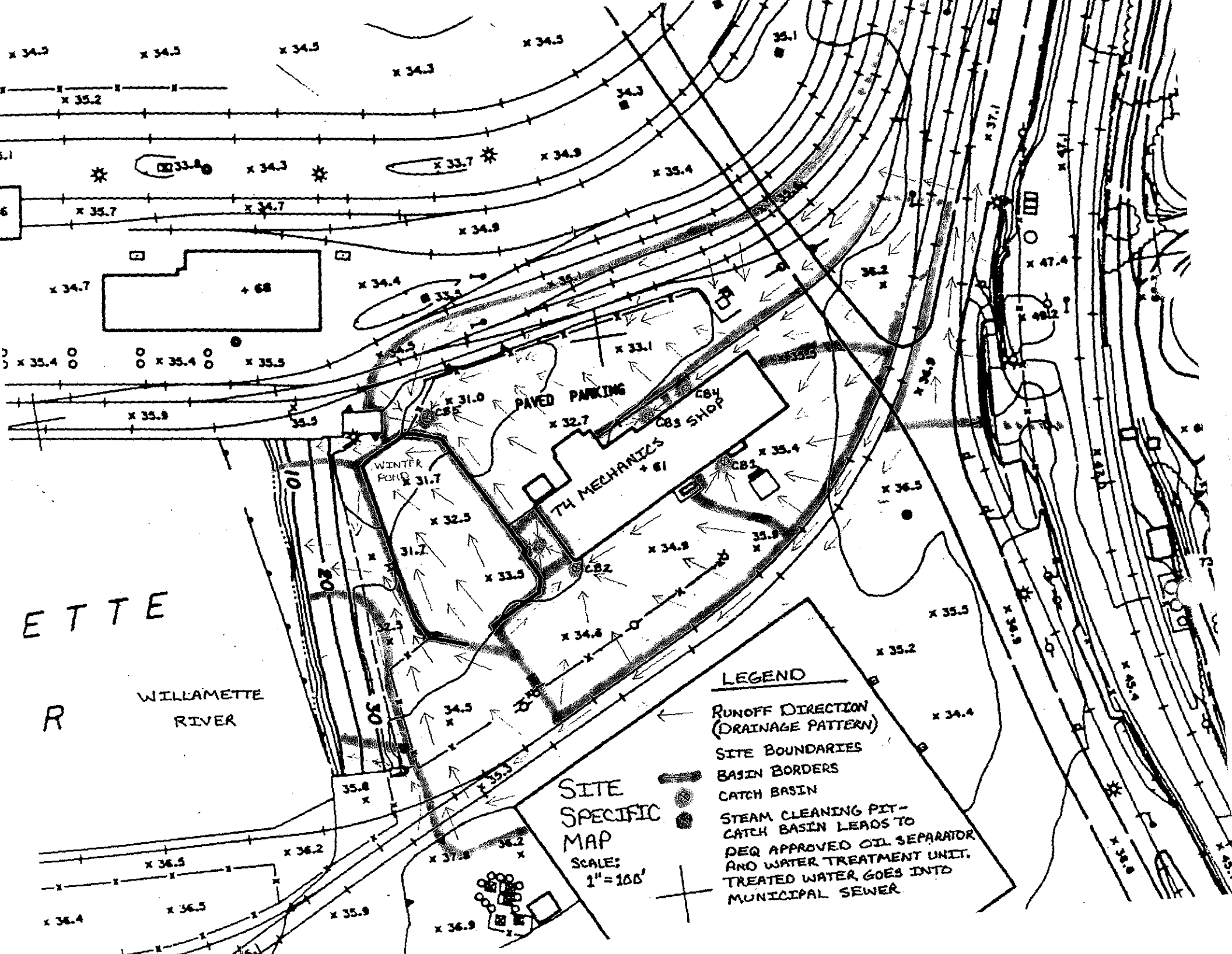
The 2.58 acre T4 mechanics shop facility was constructed in 1918 as a Quaker State oil distribution center and tank farm. Following Quaker State departure the facility was used as a Port of Portland maintenance shop until occupied by Jones Oregon Stevedoring in May of 1989. Jones Oregon Stevedoring uses this facility for the maintenance and repair of company lift trucks, vehicles, loaders, and other miscellaneous stevedoring equipment. Future plans under consideration for this facility include the possible construction of a gearlocker (storage building for stevedoring equipment and rigging) on the southwest corner of the site.

Attached Maps:

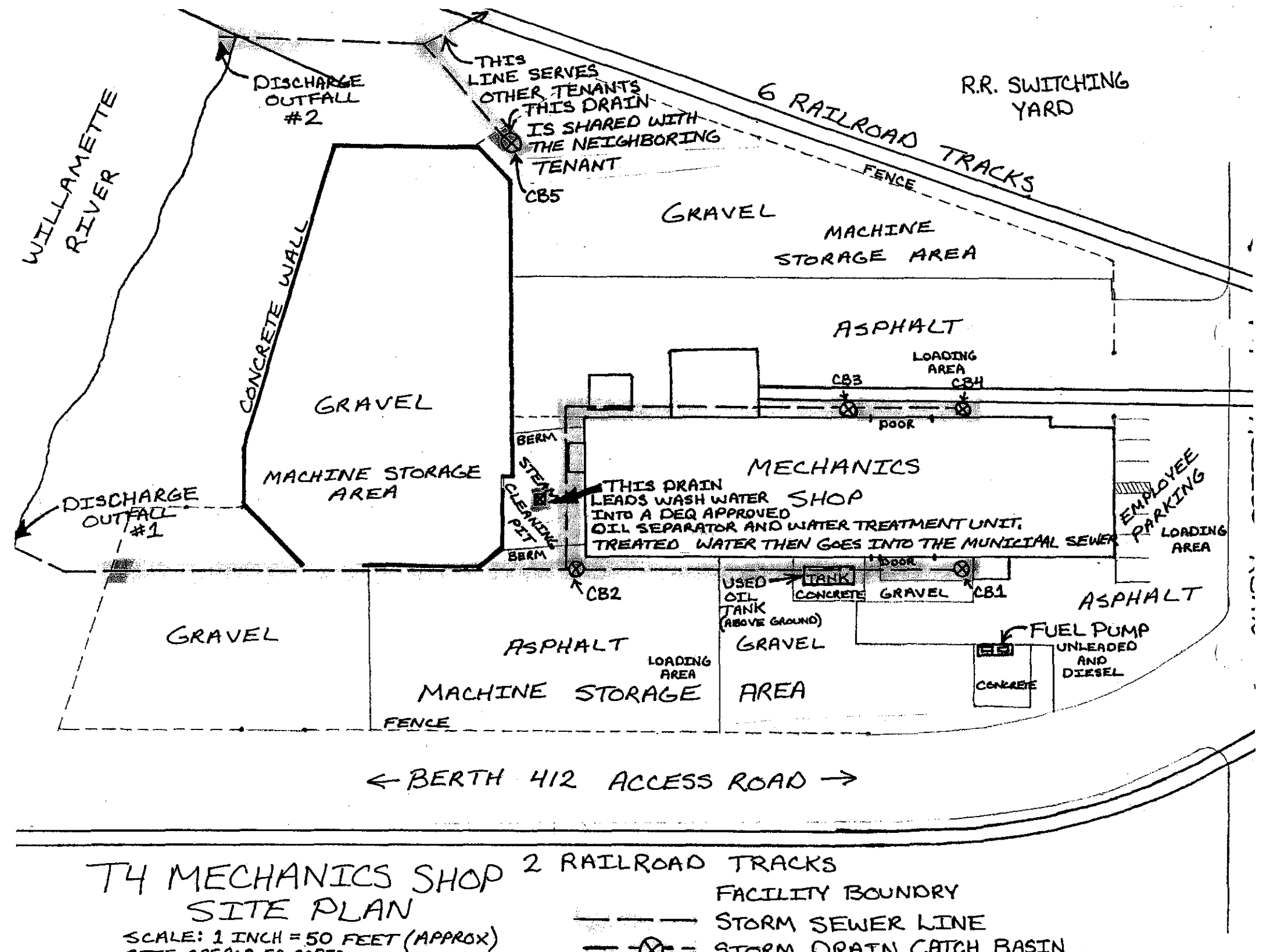
Map 1 General Location Map. This map shows facility highlighted to show boundaries and surrounding area.

Map 2 Site Specific Map. This map shows the site boundaries, topography, drainage basins and drainage patterns within those basins, site structures, storm water drain catch basin locations, and Willamette River.

Map 3 Site Specific Map. This map shows the site boundaries, discharge structures and outfalls, buildings, pavement (impervious area 1.44 acres), activities and operation areas, drainage basins (or sub-basins), significant materials storage areas, loading and access areas, fueling and washing areas, storm drain catch basins, storm sewer pipe lines and discharge outfalls into the Willamette River.



PAVED PARKING
T4 MECHANICS SHOP
WINTER POND
CB1
CB2
CB3
CB4
CB5
WILLAMETTE RIVER
ETTE
R
LEGEND
RUNOFF DIRECTION (DRAINAGE PATTERN)
SITE BOUNDARIES
BASIN BORDERS
CATCH BASIN
STEAM CLEANING PIT-CATCH BASIN LEADS TO DEQ APPROVED OIL SEPARATOR AND WATER TREATMENT UNIT. TREATED WATER GOES INTO MUNICIPAL SEWER
SITE SPECIFIC MAP
SCALE: 1" = 100'



T4 MECHANICS SHOP SITE PLAN

SCALE: 1 INCH = 50 FEET (APPROX)
SITE AREA: 2.58 ACRES
IMPERVIOUS AREA: 1.44 ACRES

Site activities:

Site activities include the fueling, servicing, maintenance and repair of company lift trucks, vehicles, loaders, and other miscellaneous stevedoring equipment. Potential pollutants which might reach and contaminate storm water discharge through rain water rinse off of parked or disassembled vehicles and machines, leaks, and accidental spills include: oil, grease, hydraulic/transmission fluid, gasoline, diesel, antifreeze, dirt, steam cleaner wash water (oil and detergent), and air borne/runoff contaminants such as soda ash contaminants from neighboring tenant's operations.

Significant material stored outdoors on site (awaiting usage or recycling) include:

Unleaded gasoline - fuel - 1,000 gallons
Diesel - fuel - 1,000 gallons
Used motor oil - awaiting recycling - 500 gallons
Propane tank - fuel - 10,000 cubic feet (although a "significant" material, propane as a gas poses no threat to storm water)
Parked vehicles and machines, awaiting service, repairs or storage, machines in various stages of disassembly, parts, components, and attachments.
Garbage dumpster.

Clean up activities for past contamination of the site: none currently; past clean up has included Port of Portland's replacement of underground gas and diesel tanks and removal of old underground oil storage tank and removal of old Quaker State oil pipeline. Jones Oregon Stevedoring cleanup efforts have removed and replaced small patches of oil contaminated gravel and asphalt as well as reducing miscellaneous debris around the facility yard.

Storm water discharge process (see site map) runoff is collected into five catch basins; the four surrounding the shop empty into a common pipeline which discharges (discharge outfall #1) into the Willamette River. The remaining catch basin in the northwest corner of the facility serves both Jones Oregon Stevedoring and the neighboring tenant, and it empties into a pipeline (serving many catch basins on the neighboring property) which also empties into the Willamette River (discharge outfall #2). The concrete walled machine storage area has no drain and consequently collects runoff in the lower end forming a pond which may reach twelve inches in depth during the winter. The graveled area nearest the river has sheet flow runoff which follows the slope of the land and goes into the river.

Storm water monitoring, in accordance with the permit requirements, will take place at discharge outfall #1. This single monitoring point is the discharge outfall that provides drainage for the gasoline and diesel fueling area, the used oil storage tank area, the entrance and area adjacent to the steam cleaning pit (which drains into a filter/treatment unit connected to city sewer lines) and a gravel and asphalt machine storage area with similar activities and potential for pollution problems as the other machine storage areas.

SWPCP Schedule of Compliance: pollution control steps and key dates

Feb. 19, 1992	Instituted preparation for pollutant accident/spill (copy attached).
May 12, 1992	Issued 1200T permit.
Aug. 3, 1992	Began clean up of oil contaminated gravel spots and moved oil drums indoors.
Sept. 15, 1992	Facility inspection for storm water pollution control - areas needing improvements noted. Clean up of miscellaneous debris begun.
Sept. 17, 1992	Obtained storm water sampling kit from Oregon Analytical Laboratory.
Oct. 13, 1992	Removed small patch of oil damaged asphalt and replaced with concrete. Oil source eliminated.
Oct. 23, 1992	Installed asphalt berm and enlarged asphalt basin for steam cleaning pit to prevent splash or overspray reaching nearby storm drain catch basin.
Nov. 9, 1992	SWPCP completed.
Nov. 1992	First test of discharge sample.
Feb. 1993	Second test discharge sample.

Inspections and Report

Weekly observations of drainage areas during storm events.

June 1993	Turn in sampling data to DEQ.
Sept. 1993	Annual review of facility.

SWPCP
Section B

Storm Water Pollution Controls

Storm Water Management:

Source control methods: all drums have been moved indoors, a sealed line to pump used oil from indoors directly into the double walled tank (new 3/91) has been installed, an asphalt berm has been constructed across the north side of the steam cleaning pit and the basin has been enlarged with a six inch deep asphalt crest on the south side entrance to the steam cleaning pit to ensure that splash or overspray do not enter the adjacent storm drain.

Treatment Measures:

The concrete wall surrounding the machine storage yard nearest the river creates a detention pond, the steam cleaning pit drains into a DEQ approved oil/water separator/treatment unit which puts the treated water into the city sewer line, and a filtering strip of tree leaves encircles catch basin #5 duplicating successful bio-filter experiments elsewhere.

Jones Oregon Stevedoring Water Management Practices Include:

1. Altering activities: whenever feasible all repairs, fluid changing and disassembly are performed indoors to minimize the possibility of storm water contamination through rinse off, spills, or leaks (due to space limitations and the large size of some stevedoring equipment, some outdoor disassembly will continue to be necessary).

2. Good housekeeping measures: proper maintenance of facility and equipment as well as an ongoing effort to reduce debris, unusable/unneeded components/parts machines, and regular clean up of trash (primarily wind blown wrappers and packaging from neighboring operations). Containers and absorbent mats or rags are used to catch fluids leaking or dripping from machines being disassembled for repairs.

3. Debris and sediment reduction: a leaf bio-filter around catch basin #5 will trap both possible pollutants as well as sediment (catch basin #5 drains a gravel area). The filter material will be disposed of and replaced on an annual basis.

4. Recycling and disposal: all significant materials (except fuel) are promptly recycled or disposed of in a manner which prevents contact with storm water; no significant materials are disposed of or indefinitely stored on site. Inventory of each item is maintained at the lowest level practical. Used motor oil awaiting recycling is pumped out of the building into a Fire Marshall approved double walled above ground tank (new March 1991) where it is pumped into a recycling truck when it reaches the quantity required for pickup. The "sealed" system prevents contact with storm water.

5. No hazardous waste is stored outdoors, preventing any contact with storm water.

6. Steam cleaning wash water is diverted from storm water by berms and walls (also preventing overspray and splash from reaching storm water) which channel the wash water into the DEQ approved oil/water separator and filtration system. Treated water is then put into the city sewer line.

Spill Prevention and Response Procedures:

Potential spills of significant materials could occur on both sides of the main shop with the fueling area (south side - see map) the greatest hazard. Catch basins #1-4 all empty into the Willamette at discharge outfall #1. Catch basin #5 in the northwest corner of the facility empties in the Willamette at discharge outfall #2.

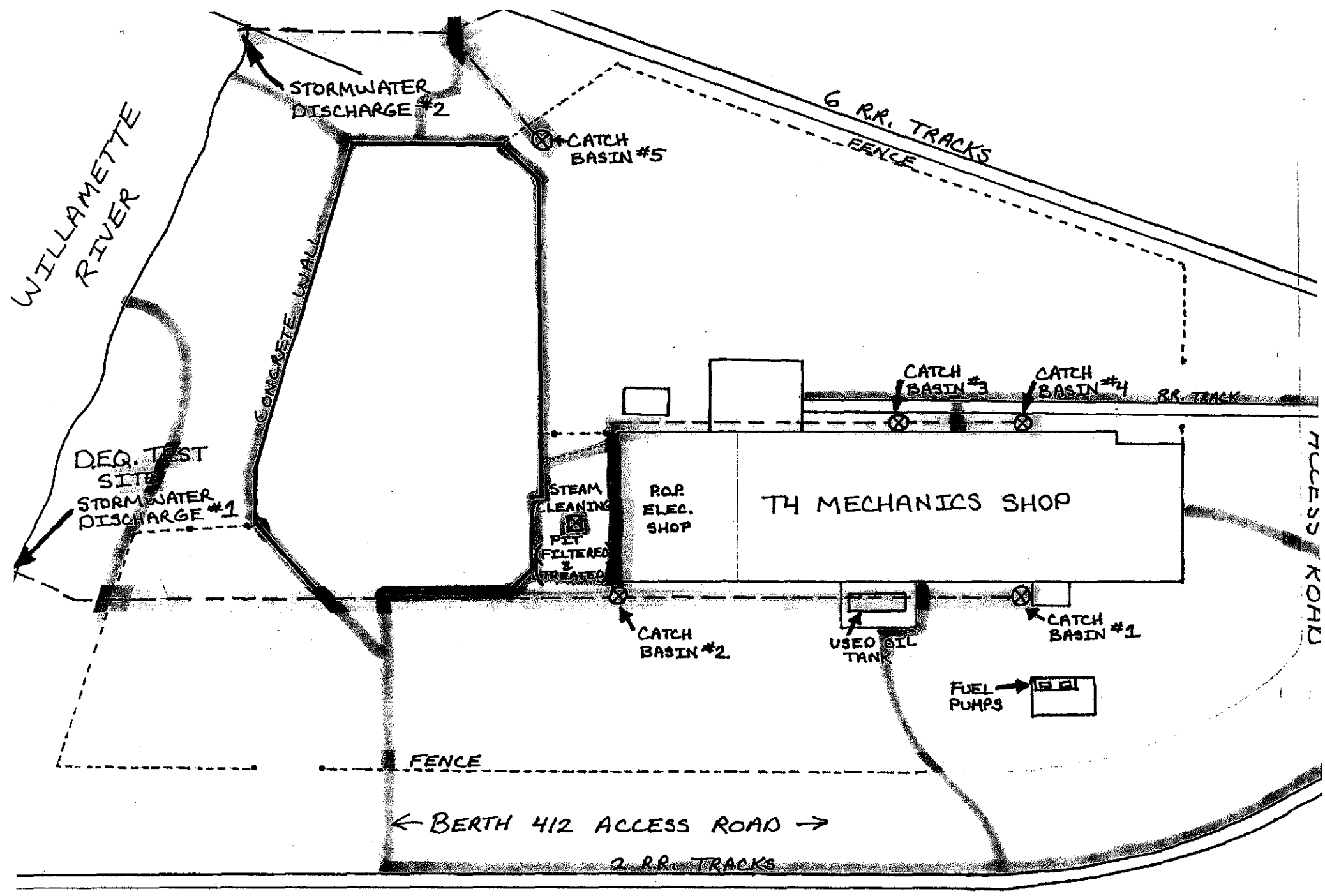
All employees are trained in handling significant materials, operating related equipment, spill response and notification procedures, spill minimization, and proper usage of absorbent (kitty litter), absorbent pads, and absorbent containment booms. A copy of our spill response training and procedures follows this section.

The person responsible for implementation of spill prevention and response procedures is Bob Maracle, Supervisor/Manager, T4 Mechanic Shop.

Spill clean up equipment is kept inside the shop along the south wall and includes:

Absorbent (kitty litter)
Absorbent pads (mats/cloths)
Absorbent containment booms

In addition, spill notification procedures and numbers are posted along the south wall in the immediate vicinity of the clean up equipment.



TH MECHANICS SHOP
STORMWATER DRAINAGE
SYSTEM 11-9-92
SCALE: 1" = 50'

⊗ CATCH BASIN (DRAIN GRATE)
— — — STORMWATER PIPELINE
DRAINAGE BASIN BOUNDARIES
FACILITY BOUNDRY

JONES OREGON STEVEDORING CO.
COLUMBIA RIVER - OREGON COAST
(503) 228-6601

JONES WASHINGTON STEVEDORING CO.
PUGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

December 10, 1991

FROM: DAVE BOWMAN

TO: JONES OREGON STEVEDORING SUPERINTENDENTS

RE: PREPARATIONS FOR POSSIBLE POLLUTANT/CONTAMINATE ACCIDENTS AT TERMINAL 4

Attached are copies of the:

1. Preparations for a pollutant accident/spill (training policies) to be reviewed twice yearly.

2. Emergency procedures for a pollutant accident/spill. These procedures have been distributed to all T4 gearlockermen and personnel and will be reviewed at every April 1 and October 1 emergency procedure training session.

3. Emergency numbers for a pollutant accident/spill (to be posted at all emergency equipment locations).

In addition:

The Port of Portland has encircled all storm drains with white paint for improved visibility and easier location in emergency situations.

DKB/jj

PREPARATIONS FOR POLLUTANT ACCIDENT/SPILL

A twice yearly (April 1 and October 1) instruction and training of all personnel and gearlockermen shall include:

1. Review of the Emergency Procedures for a Pollutant Accident/Spill.

2. Learning the locations and proper use of spill equipment including booms, pads, and absorbent.

3. Learning the location of the emergency call list and nearest telephone.

4. A "Spill Drill" walk through of a phony spill to provide "experience" with the emergency procedures.

DKB/jj

EMERGENCY PROCEDURES
FOR POLLUTANT ACCIDENT/SPILL

1. In the event of a hydraulic line break or tank rupture **SHUT DOWN THE MACHINE IMMEDIATELY <u>UNLESS</u> IT IS DIRECTLY OVER OR NEAR A STORM DRAIN GRATE OR IN A LOCATION WHERE THE LEAKING HYDRAULIC FLUID MAY REACH THE RIVER** in which case move the machine the shortest possible distance to a safer location before shutting it down.

2. Notify the supervisor.

3. Try to contain the spill with the emergency booms, pads, and absorbent.

4. Notify the Port of Portland environmental hotline (24 hr.) at 335-1111.

5. In the event of a major spill where pollutant is entering or will enter the river, contact Riedel Environmental Services (24 hr.) at 286-4656.

Remember - fast action is critical to limiting the damage caused by a spill - the difference between a mess and a disaster is often a matter of minutes.

DKB/jj

EMERGENCY NUMBERS FOR POLLUTANT ACCIDENT/SPILL

(To be Posted at Emergency Equipment Locations)

1. Notify supervisor immediately.

2. Port of Portland Environmental Hotline (24 hr) 335-1111.

3. For major spills (entering or will enter the river) call Riedel Environmental Services (24 hr.) at 286-4656 or 1-800-334-0004.

DKB/jj

Preventive Maintenance Program:

A monthly inspection of all storm water runoff areas, control structures, the steam cleaning pit area and filter system, and areas where potential spills could occur will be conducted at the start of each month during the rainy season with any needed cleaning, repairs, or improvements noted and attended to as soon as possible.

Employee Awareness Program:

Training meetings shall be conducted to inform personnel of the SWPCP and to review spill response procedures, materials management practices, and good housekeeping measures that will prevent pollution of storm water runoff.

Record Keeping and Internal Reporting Procedures:

A facility record shall be kept of all information relative to the SWPCP, including:

1. Record of any spills or leaks, corrective actions taken, and the nearest or affected catch basin.
2. Monthly inspections and any maintenance activities.

Annual Review:

Prior to the onset of rainfall an annual review of the SWPCP will be conducted including:

1. Site inspection.
2. Storm water management plan.
3. Spill response plan.
4. Preventative maintenance.
5. Employee awareness program.
6. Record keeping and internal reporting.

Each will be evaluated for effectiveness and if needed, will be changed to eliminate or minimize storm water pollutants.

DKB/jj

STORM WATER POLLUTION CONTROL PLAN (SWPCP)
FACILITY RECORD

FOR JONES OREGON STEVEDORING COMPANY
T4 MECHANICS SHOP
LOCATION: 11040 N. Lombard, Portland, Oregon
NPDES PERMIT: ID#106744 GEN 1200-T OR003449-5

READING FILE

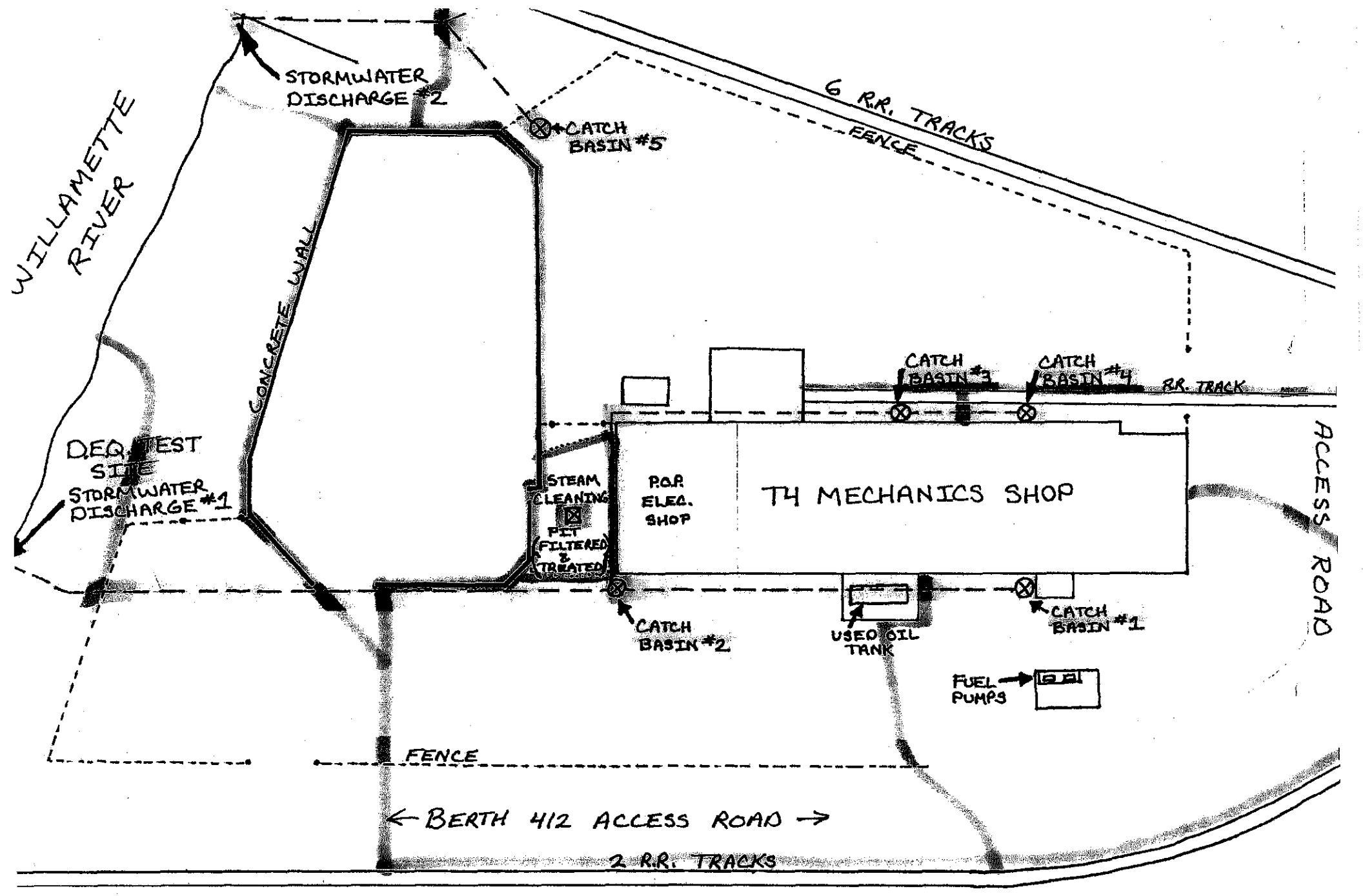
CONTENTS

Map of drainage basins with catch basin numbers

Record of pollutant spills and corrective actions taken

Record of maintenance activities related to SWPCP

Record of monthly inspections



T4 MECHANICS SHOP
STORMWATER DRAINAGE SYSTEM 11-9-92
SCALE: 1" = 50'

⊗ CATCH BASIN (DRAIN GRATE)
— — — STORMWATER PIPELINE
DRAINAGE BASIN BOUNDARIES
FACILITY BOUNDRY

RECORD OF POLLUTANT SPILLS AND CORRECTIVE ACTIONS TAKEN

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

Date:
Quantity and type of material spilled:
Location:
Nearest or affected catch basin # (see map of drainage basins inside front cover):
Corrective action taken:

RECORD OF MAINTENANCE ACTIVITIES RELATED TO SWPCP

Date:
Activity:

Date:
Activity:

Date:
Activity:

Date:
Activity:

Date:
Activity:

Date:
Activity:

Date:
Activity:

Date:
Activity:

STORM WATER POLLUTION CONTROL PLAN (SWPCP)
MONTHLY INSPECTION REPORT

FOR JONES OREGON STEVEDORING COMPANY
T4 MECHANICS SHOP
LOCATION: 11040 N. Lombard, Portland, Oregon
NPDES PERMIT: ID#106744 GEN 1200-T OR003449-5

This monthly inspection of all storm water runoff areas, control structures, steam cleaning pit area and filter system, and areas where potential spills could occur is to be conducted at the start of each month during the rainy season with any needed cleaning, repairs, or improvements noted and attended to as soon as possible.

AREA, ITEM OR STRUCTURE	CONDITION	
	Satisfactory	Needs Attention, i.e. needs cleaning, repair, improvements
1. Steam cleaning pit		
Catch basin		
Containment berms		
2. Used oil tank system		
3. Fuel pump system		
Fuel pump area		
4. Storm drain catch basins, #1-#5 (visible oil sheen, trash, etc.)		
5. Parking lot surrounding shop (visible contamination, potential pollutant source)		
6. Trash/debris/scrap (general housekeeping)		
7. Contaminated material storage (used drums, oily scrap, etc. stored under roofs)		

Inspected by _____ Date _____

SWPCP Preventative Maintenance Manager's Signature (or facility representative's signature) _____

MATERIAL SAFETY DATA SHEET

Shell

MSDS NUMBER ▶ 52,320-2 PAGE 1

24 HOUR EMERGENCY ASSISTANCE	GENERAL MSDS ASSISTANCE
SHELL: 713-473-9461 CHEMTREC: 800-424-9300	SHELL: 713-241-4819

ACUTE HEALTH *	FIRE	REACTIVITY	HAZARD RATING ▶ LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4
2	2	0	

*For acute and chronic health effects refer to the discussion in Section III

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

SECTION I	NAME
PRODUCT ▶	SHELL DIESELINE
CHEMICAL NAME ▶	DIESEL OIL
CHEMICAL FAMILY ▶	PETROLEUM HYDROCARBON
SHELL CODE ▶	31135

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
P	SHELL DIESELINE	68334-30-5	100

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
P	NOT AVAILABLE		

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT
BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING LIQUID IS PRACTICALLY NONIRRITATING TO THE EYES.

SKIN CONTACT
BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING LIQUID IS PRESUMED TO BE MODERATELY IRRITATING TO THE SKIN. PROLONGED OR REPEATED LIQUID CONTACT CAN RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN SEVERE IRRITATION AND DERMATITIS. MAY CAUSE MILD SKIN SENSITIZATION. RELEASE DURING HIGH PRESSURE USAGE MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.

INHALATION
INHALATION OF VAPORS OR MIST MAY CAUSE MILD IRRITATION TO THE UPPER RESPIRATORY TRACT. HIGH CONCENTRATIONS MAY RESULT IN CENTRAL NERVOUS SYSTEM DEPRESSION. INHALATION OF HIGH LEVELS OF MIST MAY RESULT IN CHEMICAL PNEUMONITIS.

INGESTION
INGESTION OF PRODUCT MAY RESULT IN VOMITING; ASPIRATION (BREATHING) OF VOMITUS INTO THE LUNGS MUST BE AVOIDED AS EVEN SMALL QUANTITIES MAY RESULT IN ASPIRATION PNEUMONITIS.

SIGNS AND SYMPTOMS
IRRITATION AS NOTED ABOVE. SKIN SENSITIZATION (ALLERGY) MAY BE EVIDENCED BY RASHES, ESPECIALLY HIVES. EARLY TO MODERATE CNS (CENTRAL NERVOUS SYSTEM) DEPRESSION MAY BE EVIDENCED BY GIDDINESS,

UNBRANDED DIESEL

MSDS No.
APPC 943

Rev. Date
04/12/85

ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product.
This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	UNBRANDED DIESEL
Other Names	DIESEL FUEL OIL NO. 2; NO. 2 DIESEL; DIESEL OIL (MEDIUM); ASTM NO. 2-D GRADE DIESEL FUEL OIL (D-975).

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
312/210-3000 COMPANY
CUSTOMER SERVICE
213/486-8258 INFO ONLY

Chemical Family	PETROLEUM HYDROCARBONS
Generic Name	PETROLEUM DISTILLATE FUEL

DOT Hazardous Materials Proper Shipping Name
FUEL OIL, DIESEL, NO. 2

DOT Hazard Class
COMBUSTIBLE LIQUID

CAS No.	68476-34-6*	**Company ID No.**	1009206500

UN/NA ID No. NA 1993

II. WARNING — Summary of Hazards

MAY CAUSE IRRITATION OR MORE SERIOUS SKIN DISORDERS!
AVOID PROLONGED OR REPEATED LIQUID, MIST, AND VAPOR CONTACT WITH EYES, SKIN, AND RESPIRATORY TRACT. LONG-TERM TESTS SHOW THAT SIMILAR DISTILLATES HAVE PRODUCED SKIN TUMORS ON LABORATORY ANIMALS.
WASH THOROUGHLY AFTER HANDLING.
MAY BE HARMFUL IF INHALED! (SEE SECTION IV. & V.)
CONTAINS PETROLEUM DISTILLATES!
IF SWALLOWED, DO NOT INDUCE VOMITING SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. OBTAIN PROMPT MEDICAL ATTENTION.
MODERATELY COMBUSTIBLE! OSHA/NFPA CLASS-II OR IIIA COMBUSTIBLE LIQUID.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
AVOID THE "SWITCH LOADING" HAZARD. (SEE SECTION XI.)
KEEP OUT OF REACH OF CHILDREN!

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure
AP 140°F (D-93)	AP 495°F (E-659)	Lower AP 0.6 Upper AP 7.5
SEE "FIRE & EXPLOSION HAZARDS"	BASED ON NFPA "FUEL OIL NO. 2"	BASED ON NFPA "FUEL OIL NO. 2"

Fire and Explosion Hazards
MODERATELY COMBUSTIBLE! WHEN HEATED ABOVE THE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO AN IGNITION SOURCE CAN BURN IN THE OPEN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT.
FOR "SWITCH LOADING" PROCEDURES, SEE SECTION XI.

Extinguishing Media
FOAM, DRY CHEMICAL, HALON, CARBON DIOXIDE, AND WATER FOG.

Special Fighting Procedures
FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.

MATERIAL SAFETY DATA SHEET

HEATING OIL 1

MSDS No. ARPC 459

Rev. Date 04/12/85

ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product

This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	HEATING OIL 1
Other Names	FUEL OIL NO. 1; NO. 1 HEATING FUEL; HEATING OIL (LIGHT); RANGE OIL; STOVE OIL; ILLUMINATING OIL; ASTM NO. 1 GRADE FUEL OIL (D-396).

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
312/210-3000 COMPANY
CUSTOMER SERVICE
213/486-8258 INFO ONLY

Chemical Family	PETROLEUM HYDROCARBONS
Generic Name	PETROLEUM DISTILLATE FUEL

DOT Hazardous Materials Proper Shipping Name
FUEL OIL, NO. 1

DOT Hazard Class
COMBUSTIBLE LIQUID

CAS No.	SEE SECTION IX	**Company ID No.**	1030610306	**UN/NA ID No.**	UN 1993

II. WARNING — Summary of Hazards

MAY CAUSE IRRITATION OR MORE SERIOUS SKIN DISORDERS!
AVOID PROLONGED OR REPEATED LIQUID, MIST, AND VAPOR CONTACT WITH EYES, SKIN, AND RESPIRATORY TRACT. LONG-TERM TESTS SHOW THAT SIMILAR PETROLEUM DISTILLATES HAVE PRODUCED SKIN TUMORS ON LABORATORY ANIMALS. WASH THOROUGHLY AFTER HANDLING.
MAY BE HARMFUL IF INHALED! (SEE SECTIONS IV. & V.)
CONTAINS PETROLEUM DISTILLATES!
IF SWALLOWED, DO NOT INDUCE VOMITING SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. OBTAIN PROMPT MEDICAL ATTENTION.
HIGHLY COMBUSTIBLE! OSHA/NFPA CLASS-II OR COMBUSTIBLE LIQUID.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
AVOID THE "SWITCH LOADING" HAZARD. (SEE SECTION XI.)
KEEP OUT OF REACH OF CHILDREN!

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol in Air) At Normal Atmospheric Temperature and Pressure
AP 130°F (D-93)	AP 410°F (EST.)	Lower AP 0.7 Upper AP 5.0
SEE "FIRE & EXPLOSION HAZARDS"	BASED ON NFPA "FUEL OIL NO. 1"	BASED ON NFPA "FUEL OIL NO. 1"

Fire and Explosion Hazards
HIGHLY COMBUSTIBLE! WHEN HEATED ABOVE THE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO AN IGNITION SOURCE CAN BURN IN THE OPEN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT. FOR "SWITCH LOADING" PROCEDURES, SEE SECTION XI.

Extinguishing Media
FOAM, DRY CHEMICAL, HALON, CARBON DIOXIDE, AND WATER FOG.

Special Firefighting Procedures
FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.

MATERIAL SAFETY DATA SHEET

UNBRANDED UNLEADED REGULAR GASOLINE

MSDS No. APPC 817

Rev. Date 06/12/85

ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product
This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	UNBRANDED UNLEADED REGULAR GASOLINE
Other Names	UNLEADED MOTOR VEHICLE GASOLINE UNLEADED REGULAR GASOLINE OR PETROL

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
312/210-3000 COMPANY
CUSTOMER SERVICE
213/486-8258 INFO ONLY

Chemical Family	HYDROCARBONS WITH ALCOHOLS AND/OR ETHERS
Generic Name	PETROLEUM NAPHTHAS (BLENDED)

DOT Hazardous Materials Proper Shipping Name
GASOLINE

DOT Hazard Class
FLAMMABLE LIQUID

CAS No.	8006-61-9*	**Company ID No.**	2806828068	**UN/NA ID No.**	UN 1203

II. DANGER — Summary of Hazards

EXTREMELY FLAMMABLE! DSHA/NFPA CLASS-IA FLAMMABLE LIQUID.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME!
MAY CAUSE IRRITATION TO EYES, SKIN, AND RESPIRATORY SYSTEM!
AVOID LIQUID, MIST, AND VAPOR CONTACT. WASH THOROUGHLY AFTER HANDLING.
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN!
AVOID BREATHING VAPORS OR MIST. USE ONLY WITH ADEQUATE VENTILATION.
LONG-TERM EXPOSURE TO COMPLETELY VAPORIZED GASOLINE HAS CAUSED CANCER IN LABORATORY ANIMALS. VAPORS OR LIQUID PENETRATION OF SKIN CAN CUASE CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION AND/OR SYSTEMIC EFFECTS.
HARMFUL OR FATAL IF SWALLOWED! CONTAINS PETROLEUM DISTILLATES!
IF SWALLOWED, DO NOT INDUCE VOMITING SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. OBTAIN PROMPT MEDICAL ATTENTION.
KEEP OUT OF REACH OF CHILDREN!

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure
AP -45° F (D-56)	GT 600° F (E-659)	Lower AP 1.3 Upper AP 8.2
SEE "FIRE & EXPLOSION HAZARDS"	BASED ON ACTUAL LAB TESTS	BASED ON ACTUAL LAB TESTS

Fire and Explosion Hazards
EXTREMELY FLAMMABLE! THIS MATERIAL RELEASES VAPORS AT OR BELOW AMBIENT TEMPERATURES. WHEN MIXED WITH AIR IN CERTAIN PROPORTIONS AND EXPOSED TO AN IGNITION SOURCE, THESE VAPORS CAN BURN IN THE OPEN OR EXPLODE IN CONFINED SPACES. BEING HEAVIER THAN AIR, FLAMMABLE VAPORS MAY TRAVEL LONG DISTANCES ALONG THE GROUND BEFORE REACHING A POINT OF IGNITION AND FLASHING BACK.

Extinguishing Media
FOAM
CO2
DRY CHEMICAL
HALON
CONSULT FOAM MANUFACTURERS FOR APPROPRIATE MEDIA, APPLICATION RATES, AND WATER/FOAM RATIO.

Special Firefighting Procedures
SUB-SURFACE APPLICATION IS ONLY RECOMMENDED WHERE IT IS KNOWN THAT THE FUEL CONTAINS LESS THAN 3% OXYGENATED BLENDING COMPONENTS. FOR FIRES INVOLVING THIS GASOLINE, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. WATER FOG OR SPRAY ARE OF VALUE FOR COOLING TANK SHELLS AND SURFACES EXPOSED TO FIRE, BUT MAY NOT ACHIEVE EXTINGUISHMENT.

UNBRANDED REGULAR GASOLINE

MSDS No.
APPC 816

Rev. Date
06/12/85

ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product
This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	UNBRANDED REGULAR GASOLINE
Other Names	LEADED, NON-PREMIUM MOTOR VEHICLE GASOLINE LEADED REGULAR GASOLINE OR PETROL

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
312/210-3000 COMPANY
CUSTOMER SERVICE
213/486-8258 INFO ONLY

Chemical Family	HYDROCARBONS WITH ALCOHOLS AND/OR ETHERS
Generic Name	PETROLEUM NAPHTHAS (BLENDED)

DOT Hazardous Materials Proper Shipping Name
GASOLINE

DOT Hazard Class
FLAMMABLE LIQUID

CAS No. 8006-61-9*	**Company ID No.** 2718527185	**UN/NA ID No.** UN 1203

II. DANGER — Summary of Hazards

EXTREMELY FLAMMABLE! OSHA/NFPA CLASS-IA FLAMMABLE LIQUID.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME!
MAY CAUSE IRRITATION TO EYES, SKIN, AND RESPIRATORY SYSTEM!
AVOID LIQUID, MIST, AND VAPOR CONTACT. WASH THOROUGHLY AFTER HANDLING.
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN!
AVOID BREATHING VAPORS OR MIST. USE ONLY WITH ADEQUATE VENTILATION.
LONG-TERM EXPOSURE TO COMPLETELY VAPORIZED GASOLINE HAS CAUSED CANCER IN LABORATORY ANIMALS. VAPORS OR LIQUID PENETRATION OF SKIN CAN CAUSE CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION AND/OR SYSTEMIC EFFECTS.
HARMFUL OR FATAL IF SWALLOWED! CONTAINS PETROLEUM DISTILLATES!
IF SWALLOWED, DO NOT INDUCE VOMITING SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. OBTAIN PROMPT MEDICAL ATTENTION.
KEEP OUT OF REACH OF CHILDREN!

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure
AP -45°F (D-56) SEE "FIRE & EXPLOSION HAZARDS"	GT 600°F (E-659) BASED ON ACTUAL LAB TESTS	Lower AP 1.3 Upper AP 8.2 BASED ON ACTUAL LAB TESTS

Fire and Explosion Hazards
EXTREMELY FLAMMABLE! THIS MATERIAL RELEASES VAPORS AT OR BELOW AMBIENT TEMPERATURES. WHEN MIXED WITH AIR IN CERTAIN PROPORTIONS AND EXPOSED TO AN IGNITION SOURCE, THESE VAPORS CAN BURN IN THE OPEN OR EXPLODE IN CONFINED SPACES. BEING HEAVIER THAN AIR, FLAMMABLE VAPORS MAY TRAVEL LONG DISTANCES ALONG THE GROUND BEFORE REACHING A POINT OF IGNITION AND FLASHING BACK.

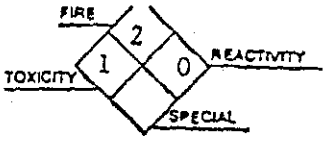
Extinguishing Media
FOAM CO2
DRY CHEMICAL HALON
CONSULT FOAM MANUFACTURERS FOR APPROPRIATE MEDIA, APPLICATION RATES, AND WATER/FOAM RATIO.

Special Firefighting Procedures
SUB-SURFACE APPLICATION IS ONLY RECOMMENDED WHERE IT IS KNOWN THAT THE FUEL CONTAINS LESS THAN 3% OXYGENATED BLENDING COMPONENTS. FOR FIRES INVOLVING THIS GASOLINE, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. WATER FOG OR SPRAY ARE OF VALUE FOR COOLING TANK SHELLS AND SURFACES EXPOSED TO FIRE, BUT MAY NOT ACHIEVE EXTINGUISHMENT.

McCall Oil & Chemical Corporation

MATERIAL SAFETY DATA SHEET

NFPA HAZARD RATING
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT



PRODUCT NAME:	PS-300	DATE ISSUED: 12/31/85	PAGE 1
CHEMICAL NAME:	N/A	CHEMICAL FAMILY:	Petroleum Hydrocarbon
FORMULA:	Proprietary	MOLECULAR WEIGHT:	N/A
SYNONYMS:	None		

I. PHYSICAL DATA

BOILING POINT, 760 mm, Hg	400°F	FREEZING POINT	Unknown
SPECIFIC GRAVITY (H_2O = 1)	0.920 @ 20°C	VAPOR PRESSURE AT 20°C	Negligible
VAPOR DENSITY (air = 1)	Unknown	SOLUBILITY IN WATER, % by wt.	Negligible
PER CENT VOLATILES BY VOLUME	Unknown	EVAPORATION RATE (Butyl Acetate = 1)	Negligible
APPEARANCE AND ODOR	Black liquid; petroleum odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Petroleum Distillates (CAS# 647-41-613)	100	0.2 mg/m^3

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [test method(s)]	150°F, PMCC	AUTOIGNITION TEMPERATURE	Unknown
FLAMMABLE LIMITS IN AIR, % by volume	LOWER: Unknown	UPPER:	Unknown
EXTINGUISHING MEDIA	Water spray, fog, foam, dry chemical, or carbon dioxide. Do not use a straight stream of water. Product will float and can be reignited on the surface of the water.		
SPECIAL FIRE FIGHTING PROCEDURES	Use self-contained breathing apparatus for confined spaces. Use water spray to cool exposed containers and to disperse vapors.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None.		

EMERGENCY PHONE NUMBERS

503/228-2600
McCall

800/424-9300
CHEMTREC

While Chemax believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Chemax assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations.

UNBRANDED UNLEADED PREMIUM GASOLINE

MSDS No. APPC 818

Rev. Date 06/12/85

ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product
This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	UNBRANDED UNLEADED PREMIUM GASOLINE
Other Names	UNLEADED MOTOR VEHICLE GASOLINE UNLEADED PREMIUM GASOLINE OR PETROL

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
312/210-3000 COMPANY
CUSTOMER SERVICE
213/486-8258 INFO ONLY

Chemical Family	HYDROCARBONS WITH ALCOHOLS AND/OR ETHERS
Generic Name	PETROLEUM NAPHTHAS (BLENDED)

DOT Hazardous Materials Proper Shipping Name
GASOLINE

DOT Hazard Class
FLAMMABLE LIQUID

CAS No.	8006-61-9*	**Company ID No.**	1009710097	**UN/NA ID No.**	UN 1203

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MATERIAL SAFETY DATA SHEET

RECEIVED MAY 28 1986 JONES OREGON STEVEDORING CO.

Section I

Supplier's Name Vangas, Inc. Emergency Phone Number 639-8691

Address 10075 S. W. Cascade Blvd., Tigard, OR 97223

Chemical Name *Liquefied Petroleum Gas or Propane* CAS Registry No. *74-98-6*

Chemical Family *Hydrocarbon* Formula C_3H_8

Section II HAZARDOUS INGREDIENTS

Hazardous Mixtures *Air with 2.15 to 9.60 percent propane*

Section III PHYSICAL DATA

Boiling Point *-44°F* Specific Gravity ($H_2O = 1$) *0.51* Vapor Pressure (mm HG) at 100°F *9825* Percent, Volatile by Volume (%) *100* Vapor Density (Air = 1) *1.52* Evaporative Rate *None* Solubility in Water *Slightly* Appearance and Odor *Clear—unpleasant odor (caused by odorant)**

Section IV FIRE AND EXPLOSION HAZARD DATA

Flash Point *N/A* Classification *Flammable Gas UN 1075* Flammable Limits LEL *2.15* UEL *9.60*

Extinguishing Media *Water Spray; Class A-B-C or BC Fire Extinguishers*

Special Fire Fighting Procedures *Stop flow of gas. Use water to keep fire-exposed containers cool. Use water spray to disperse unignited gas or vapor. If ignition has occurred and no water available, tank metal may weaken from overheating. Evacuate area. If gas has not ignited, LP-gas liquid or vapor may be dispersed by water spray or flooding.*

Section V HEALTH HAZARD

Threshold Limit Value *1,000 PPM* Effects of Overexposure *Inhalation—concentration can lead to symptoms ranging from dizziness to anesthesia and respiratory arrest. Eyes—moderate irritation.*

Emergency & First Aid Procedures *Inhalation—Remove to fresh air. Guard against self-injury. Apply artificial respiration if breathing has stopped.*

Section VI REACTIVITY DATA

Stable *X* Unstable ____ Hazardous Decomposition Products *None*

Incompatability (materials to avoid) *Mixing with oxygen or air, except at burner*

Hazardous Polymerization: May occur ____ Will not occur *X*

Section VII SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released: *Keep public away. Shut off supply of gas. Eliminate sources of ignition. Ventilate the area. Disperse with water spray. Contact between skin and these gases in liquid form can cause freezing of tissue causing injury similar to thermal burn.* Waste Disposal Method *Controlled burning. Contact supplier.*

Section VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection *Stay out of gas or vapor (because of fire hazard).*

Ventilation *Explosion-proof motors and keep sources of ignition at safe distances.*

Personal Protective Equipment and Apparel *Leather or equivalent gloves, goggles for protection against accidental release of pressurized products.*

Section IX SPECIAL PRECAUTIONS

Precautions to be taken when handling and storing *Keep containers away from heat sources and store in upright position. Containers should not be dropped. Keep container valve closed when not in use.*

Other Precaution *Install protective caps* when not connected for use.

Section X TOXICOLOGICAL INFORMATION

OSHA Carcinogen Classification (29 CFR 1910)

Category I Carcinogen ____ Listed as Possible Category I ____

Not listed/applicable *X* Category II Carcinogen ____ Listed as Possible Category II ____

Section XI DOT LABELING INFORMATION (49 CFR 100-199)

Proper Shipping Name *Liquefied Petroleum Gas* Hazardous Classification *Flammable Gas*

Identification No. *UN 1075* Label(s) Required *Flammable, Class 2*

Date of Preparation or Last Change: ____

*. For use with unodorized gas, remove these words: "UNPLEASANT ODOR (CAUSED BY ODORANT)"

APPENDIX 1

GLOSSARY OF COMMON MSDS TERMS

-A-

Absolute	A chemical substance that is not mixed; pure. An example is Absolute Alcohol--which is ethyl alcohol containing not more than one percent by weight of water.
Acute Effect	An adverse effect on a human or animal body, with severe symptoms developing rapidly and coming quickly to a crisis. Also see "chronic."
Acute Toxicity	The adverse (acute) effects resulting from a single dose or or exposure to a substance. Ordinarily used to denote effects in experimental animals. Acute effects are defined by the American National Standard Institute (ANSI) Standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1-1982).
ACGIH	American Conference of Governmental Industrial Hygienists; an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits (see TLV) for hundreds of chemical substances and physical agents.
ANSI	American National Standards Institute; a privately funded, voluntary membership organization that identifies industrial and public needs for national concensus standards and coordinates development of such standards. Many ANSI standards relate to safe design/performance of equipment, such as safety shoes, eyeglasses, smoke detectors, fire pumps, household appliances, and safe practices or procedures, such as noise measurement, testing of fire extinguishers and flame arrestors, industrial lighting practices, use of abrasive wheels.
API	American Petroleum Institute; voluntary membership organization of the petroleum industry. Among its services, API assists member committees in developing, by the concensus process, and publishing recommended practices for drilling and well servicing, storage tank installation, tank cleaning, piping and fittings, other industry-related design, installation and operating practices; also funds and publishes basic reference books and manuals (example: "Industrial Hygiene Monitoring Manual for Petroleum Refineries and Selected Petrochemical Operations").

Asphyxiant — A vapor or gas which can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiants are harmful to the body only when they become so concen- trated that they reduce oxygen in the air (normally about 21 percent) to dangerous levels (18 percent of lower). Asphyxiation is one of the principal potential hazards of working in confined spaces.

ASTM — American Society for Testing and Materials; voluntary membership organization with members from broad spectrum of individuals, agencies, and industries concerned with materials. The world's largest source of voluntary concen- sus standards for materials, products, systems and services, ASTM is a resource for sampling and testing methods, health and safety aspects of materials, safe performance guide- lines, effects of physical and biological agents and chemicals.

-B-

Boiling Point — The temperature at which a liquid changes to a vapor state, at a given pressure; usually expressed in degrees Fahrenheit at sea level pressure (760 mmHg, or one atmos- phere). For mixtures, the initial boiling point or the boiling range may be given. Flammable materials with low boiling points generally present special fire hazards. Some approximate boiling points:

Propane	-44° F.
Anhydrous Ammonia	-28° F.
Butane	31° F.
Gasoline	100° F.
Allyl Chloride	113° F.
Ethylene Glycol	387° F.

BOM, or BuMines — Bureau of Mines of the U. S. Department of Interior. BuMines began approving air breathing apparatus in 1918, later added all types of respirators. BOM's respirator testing/approval activities have been discontinued; NIOSH now has this responsibility. BOM-approved Type 14F gas masks are still acceptable; all other BOM approvals have expired or been replaced by NIOSH approvals.

-C-

"C", or Ceiling — The maximum allowable human exposure limit for an airborne substance; not to be exceeded even momentarily. Also see "PEL" and "TLV."

CAA	Clean Air Act; Federal law enacted to regulate/reduce air pollution. Administered by EPA.
Carcinogen	A substance or agent capable of causing or producing cancer in mammals.
C.A.S.	Chemical Abstracts Service; A Columbus, Ohio organization which indexes information published in "Chemical Abstracts" by the American Chemical Society and provides index guides by which information about particular substances may be located in the "Abstracts" when needed. "C.A.S. Numbers" identify specific chemicals.
cc	Cubic centimeter; a volume measurement in the metric system, equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters.
Chemical Family	A group of single elements or compounds with a common general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK) are of the "ketone" family; acrolein, furfural, and acetaldehyde are of the "aldehyde" family.
CHEMTREC	Chemical Transportation Emergency Center; a national center established by the Chemical Manufacturers Association (CMA) in Washington, DC, in 1970, to relay pertinent emergency information concerning specific chemicals on request. CHEMTREC has a 24-hour toll free telephone number (800-424-9300), intended primarily for use by those who respond to chemical transportation emergencies.
Chronic Effect	An adverse effect on a human or animal body, with symptoms which develope slowly over a long period of time or which recur frequently. Also see "acute."
Chronic Toxicity	Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.
CWA	Clean Water Act; Federal law enacted to regulate/reduce water pollution. Administered by EPA.
CO	Carbon monoxide, a colorless, odorless, flammable and very toxic gas produced by the incomplete combustion of carbon; also a by-product of many chemical processes.
CO_2	Carbon dioxide, a heavy, colorless gas produced by the combustion and decomposition of organic substances and as a by-product of many chemical processes. CO_2 will not burn and is relatively nontoxic (although high concentrations,

especially in confined spaces, can create hazardous oxygen-deficient environments).

COC — Cleveland Open Cup; a flash point test method.

Combustible — A term used by NFPA, DOT, and others to classify certain liquids that will burn, on the basis of flash points. In the Hazardous Communication Code, a combustible liquid has a flash point at or above 100° F (37.8° C), but below 200° F. Also, see combustible liquid in Rule 437-155-005(6).

Concentration — The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.

Corrosive — As defined by DOT in Appendix A to 49 CFR Part 173, a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact or, in the case of leakage from its packaging, a liquid that has a severe corrosion rate on steel. See Appendix A in Hazard Communication Rule, Section 2, page 19.

CPSC — Consumer Products Safety Commission; Federal agency with responsibility for regulating hazardous materials when they appear in consumer goods. For CPSC purposes, hazards are defined in the Hazardous Substances Act and the Poison Prevention Packaging Act of 1970.

Cutaneous Toxicity — See "Dermal Toxicity."

-D-

Decomposition — Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into parts or elements or simpler compounds.

Dermal — Used on or applied to the skin.

Dermal Toxicity — Adverse effects resulting from skin exposure to a substance. Ordinarily used to denote effects in experimental animals.

DHHS — U.S. Department of Health and Human Services; created in 1980 to replace the Department of Health, Education, and Welfare (DHEW) as "parent" for NIOSH, Public Health Service, and other agencies related to health and safety.

DOL — U. S. Department of Labor; includes the Occupational Safety and Health Administration (OSHA).

DOT — U. S. Department of Transportation; regulates transportation of chemicals and other substances, to aid in the protection of the public as well as fire, law enforcement, and other emergency response personnel, particularly when transportation incidents occur involving hazardous materials. Detailed DOT classification lists specify appropriate warnings--such as Oxidizing Agent or Flammable Liquid--which must be used for various substances.

-E-

EPA — U. S. Environmental Protection Agency; Federal agency with environmental protection regulatory and enforcement authority. Administers Clean Air Act, Clean Water Act, FIFRA, RCRA, TSCA, other Federal environmental laws.

Epidemiology — The science which deals with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation) may provide information about the causes of the disease.

Evaporation Rate — The rate at which a particular material will vaporize (evaporate) when compared to the rate of vaporization of a known material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The known material is usually normal butyl acetate (NBUAC or n-BuAc), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials are then classified as:

FAST evaporating if greater then 3.0. Examples: Methyl Ethyl Ketone (MEK) = 3.8, Acetone = 5.6, Hexane = 8.3.

MEDIUM evaporating if 0.8 to 3.0. Examples: 190 proof (95 percent) Ethyl Alcohol = 1.4, VM&P Naphtha = 1.4, MIBK = 1.6.

SLOW evaporating if less than 0.8. Examples: Xylene = 0.6, Isobutyl Alcohol = 0.6, Normal Butyl Alcohol = 0.4, Water = 0.3, Mineral Spirits = 0.1.

-F-

FDA — The U. S. Food and Drug Administration; under the provisions of the Federal Food, Drug and Cosmetic Act, the FDA establishes requirements for the labeling of foods and

drugs to protect consumers from misbranded, unwholesome, ineffective, and hazardous products. FDA also regulates materials for food contact service and the conditions under which such materials are approved.

FIFRA — Federal Insecticide, Fungicide, and Rodenticide Act; regulations administered by EPA under this Act require that certain useful poisons, such as chemical pesticides, sold to the public contain labels that carry health hazard warnings to protect users.

Flash Point — The temperature at which a liquid will give off enough flammable vapor to ignite. There are several flash point test methods, and flash points may vary for the same material depending on the method used, so the test method is indicated when the flash point is given (150° PMCC, 200° TCC, etc.). See rule OAR 437-155-005(17).

Flammable — A "flammable liquid" is defined by NFPA and DOT as a liquid with a flash point below 100° F. (37.8° C.). Solids which will ignite readily or are liable to cause fires under ordinary conditions of transportation through friction or retained heat from manufacturing or processing, and which burn so vigorously and persistently as to create a serious transportation hazard, are classified by DOT as "flammable solids." Also see "combustible." See rule OAR 437-155-005(16).

Formula — The conventional scientific designation for a material (water is H_2O, sulfuric acid is H_2SO_4, sulfur dioxide is SO_2, etc.).

-G-

General exhaust — A system for exhausting air containing contaminants from a general work area. Also see "local exhaust."

g — Gram; a metric unit of weight. One ounce U. S. (avoirdupois) is about 28.4 grams.

g/kg — Grams per kilogram; an expression of dose used in oral and dermal toxicology testing to indicate the grams of substance dosed per kilogram of animal body weight. Also see "kg" (kilogram).

-H-

Hazardous Chemical — Any chemical which is a physical or a health hazard. In Hazard Communication rules, see the definition for health hazard 437-155-005(21) and Appendix A, "Health Hazard Definitions."

-I-

Ignitable	Capable of being set afire.
Incompatible	Materials which could cause dangerous reactions from direct contact with one another are described as incompatible.
Ingestion	The taking in of a substance through the mouth.
Inhalation	The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.
Inhibitor	A chemical which is added to another substance to prevent an unwanted chemical change from occurring.
Irritant	A substance which, by contact in sufficient concentration for a sufficient period of time, will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a single exposure or multiple exposures. See Appendix A, Hazard Communication Rule, Section 4, page 19.
Irritating	An irritating material, as defined by DOT, is a liquid or solid substance which, upon contact with fire or when exposed to air, gives off dangerous or intensely irritating fumes (not including poisonous materials; see Poison, Class A and Poison, Class B).

-K-

kg	Kilogram; a metric unit of weight, about 2.2 U. S. pounds. Also see "g/kg," "g," and "mg."

-L-

L	Liter; a metric unit of capacity. A U. S. quart is about 9/10 of a liter.
LC	Lethal concentration; a concentration of a substance being tested which will kill a test animal.
LC_{50}	Lethal concentration $_{50}$; the concentration of a material in air which, on the basis of laboratory tests, is expected to kill 50 percent of a group of test animals when administered as a single exposure (usually 1 or 4 hours). The LC_{50} is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms of material per liter of air(ug/L) or milligrams of material per cubic meter of air (mg/m^3) for dusts and mists, as well as for gases and vapors.

LD	Lethal dose; a concentration of a substance being tested which will kill a test animal.
LD_{50}	Lethal dose; a single dose of a material which on the basis of laboratory tests is expected to kill 50 percent of a group of test animals. The LD_{50} dose is usually expressed as milligrams or grams or material per kilogram of animal body weight (mg/kg or g/kg).
LEL, or LFL	Lower explosive limit or lower flammable limit of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. Also see "UEL."
Local exhaust	A system for capturing and exhausting contaminants from the air at the point where the contaminants are produced (welding, grinding, sanding, other processes or operations). Also see "general exhaust."

-M-

m^3	Cubic meter, or stere; a metric measure of volume, about 35.3 cubic feet or 1.3 cubic yards.
Melting point	The temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.
Mechanical exhaust	A powered device, such as a motor-driven fan or air/stream venturi tube, for exhausting contaminants from a workplace, vessel, or enclosure.
mg	Milligram; a metric unit of weight. There are 1,000 milligrams in one gram (g) of a substance.
mg/kg	Milligrams per kilogram; an expression of toxicological dose. See "g/kg."
mg/m^3	Milligrams per cubic meter; a unit for measuring concentrations of dusts, gases, or mists in air.
mL	Milliliter; a metric unit of capacity, equal in volume to one cubic centimeter (cc), or about 1/16 of a cubic inch. There are 1,000 milliliters in one liter (L).
mmHg	Millliliters (mm) of mercury (Hg); a unit of measurement for low pressures or partial vacuums.

mppcf — Million particles per cubic foot; a unit for measuring particles of a substance suspended in air. Exposure limits for mineral dusts (silica, graphite, Portland cement, nuisance dusts, and others), formerly expressed as mppcf, are now commonly quoted in mg/m^3.

MSHA — The Mining Safety and Health Administration of the U. S. Department of the Interior; Federal agency with safety and health regulatory and enforcement authorities for the mining industry. Also see "OSHA."

Mutagen — A substance or agent capable of altering the genetic material in a living cell.

-N-

NaOH — Sodium hydroxide, or caustic soda.

N_2 — Nitrogen; a colorless, odorless, and tasteless gas that will not burn and will not support combustion. The earth's atmosphere (air) is about 78 percent nitrogen; at higher concentrations, nitrogen can displace oxygen and become a lethal asphyxiant. See "Asphyxiant."

NRC — National Response Center; a notification center in the Coast Guard Building in Washington, DC, U. S., with a toll-free telephone number (1-800-424-8802) which must be called when significant oil or chemical spills or other environmentally related accidents occur.

NFPA — National Fire Protection Association; an international voluntary membership organization to promote/improve fire protection and prevention and establish safeguards against loss of life and property of fire. Best known on the industrial scene for the National Fire Codes--16 volumes of codes, standards, recommended practices, and manuals developed (and periodically updated) by NFPA technical committees. Among these is NFPA 704M, the code for showing hazards of materials using the familiar diamond-shaped label or placard with appropriate numbers or symbols. The brief explanation below illustrates the NFPA principle of using scales of 0 to 4 (low to high) to classify material hazards:

Fire Hazard (Red)

0 - Will not burn
1 - Will ignite if preheated
2 - Will ignite if moderately heated
3 - Will ignite at most ambient conditions
4 - Burns readily at ambient conditions

Health Hazard (Blue)

0 - Ordinary combustible hazards in a fire
1 - Slightly hazardous
2 - Hazardous
3 - Extreme danger
4 - Deadly

Reactivity (Yellow)

0 - Stable and not reactive with water
1 - Unstable if heated
2 - Violent chemical change
3 - Shock and heat may detonate
4 - May detonate

Specific Hazard

OXY	Oxidizer
ACID	Acid
ALKALI	Alkali
COR	Corrosive
-W-	Use No Water
	Radiation Hazard

NIOSH — National Institute for Occupational Safety and Health of the Public Health Service, U. S. Department of Health and Human Services (DHHS); Federal agency which--among other activities--tests and certifies respiratory protective devices and aid sampling detector tubes, recommends occupational exposure limitsfor various substances and assists OSHA and MSHA in occupational safety and health investigations and research.

NO_x — Oxides of nitrogen; undesirable air pollutants. NO_x emissions are regulated by EPA under the Clean Air Act.

-O-

Olfactory — Relating to the sense of smell. The olfactory organ in the nasal cavity is the sensing element that detects odors and transmits information to the brain through the olfactory nerves.

Oral — Used in or taken into the body through the mouth.

Oral Toxicity — Adverse effects resulting from taking a substance into the body via the mouth. Ordinarily used to denote effects in experimental animals.

OSHA — Occupational Safety and Health Administration of the U. S. Department of Labor; Federal agency with safety and health regulatory and enforcement authorities for most U. S. industry and business. Also see "MSHA."

Oxidation — In a literal sense, oxidation is a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent (see definitions below). In a broader sense, based on modern atomic theory, science today defines oxidation as a reaction--brought about by an oxidizing agent--in which atoms, molecules or ions lose electrons. In this broader sense, an oxidation reaction may occur even when oxygen is not present. However it may be defined, an oxidation reaction is always accompanied by an offsetting (balancing) reduction reaction in which (1) oxygen is removed from a compound, or (2) atoms, molecules, or ions gain electrons.

Oxidizer — DOT defines an oxidizer or oxidizing material as a substance which yields oxygen readily to stimulate the combustion (oxidation) of organic matter. Chlorate (ClO_3), permanganate (MnO_4), and nitrate (NO_3) compounds are examples of oxidizers; note that all contain oxygen (O).

-P-

PEL — Permissible exposure limit; an exposure limit established by APD/OSHA regulatory authority. May be a time-weighted average (TWA) limit or a maximum concentration exposure limit. Also see "Skin."

Percent Volatile — Percent volatile by volume; the percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70° F. (unless some other temperature is stated). Examples: butane, gasoline, and paint thinner (mineral spirits) are 100 percent volatile; their individual evaporation rates vary, but over a period of time each will evaporate completely.

PMCC — Pensky-Martens Closed Cup; a flash point test method.

Poison, Class A — A DOT term for extremely dangerous poisons, that is, poisonous gases or liquids of such nature that a very small amount of the gas, or vapor of the liquid, mixed with air is dangerous to life. Some examples: phosgene, cyanogen, hydrocyanic acid, nitrogen peroxide.

Poison, Class B — A DOT term for liquid, solid, paste, or semi-solid substances--other than Class A poisons or irritating materials--which are known (or presumed on the basis of animal tests) to be so toxic to man as to afford a hazard to health during transportation.

Polymerization — A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction which takes place at a rate which releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will list conditions which could start the reaction; and since the material usually contains a polymerization inhibitor, the expected time period before the inhibitor is used up.

ppm — Parts per million; a unit for measuring the concentration of a gas or vapor in air parts (by volume) of the gas or vapor in a million parts of air. Also used to indicate the concentration of a particular substance in a liquid or solid.

ppb — Parts per billion; a unit for measuring the concentration of a gas or vapor in airparts (by volume) of the gas or vapor in a billion parts of air. Usually used to express measurements of extremely low concentrations of unusually toxic gases or vapors. Also used to indicate the concentration of a particular substance in a liquid or solid.

psi — Pounds per square inch; for MSDS purposes, a unit for measuring the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square inch gauge) or psia (pounds per square inch absolute; that is, gauge pressure plus sea level atmospheric pressure, of psig plus about 14.7 pounds per square inch). Also see "mmHg."

-R-

Reaction — A chemical transformation or change; the interaction of two or more substances to form new substances.

Reactivity — A description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects such as pressure buildup, temperature increase, formation of noxious, toxic, or corrosive by-products--may occur because of the reactivity of a substance by heating, burning, direct contact with other materials or other conditions in use or in storage. A solid waste which exhibits a "characteristic of reactivity," as defined by RCRA, may be regulated (by EPA) as a hazardous waste.

Reducing agent — In a reduction reaction (which always occurs simultaneously with an oxidation reaction) the reducing agent is the chemical or substance which (1) combines with oxygen or (2) loses electrons to the reaction. See "oxidation."

Respiratory system — The breathing system; includes the lungs and air passages (trachea or "windpipe," larynx, mouth, and nose) to the air outside the body, plus the associated nervous and circulatory supply.

RCRA — Resource Conservation and Recovery Act; Federal environmental legislation, administered by EPA, aimed at controlling the generation, treating, storage, transportation, and disposal of hazardous wastes.

-S-

Sensitizer — A substance which on first exposure causes little or no reaction in man or test animals, but which on repeated exposure may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of sensitization in the industrial setting, although respiratory sensitization to a few chemicals is also known to occur.

SETA — Setaflash Closed Tester; a flash point test method.

"Skin" — A notation, sometimes used with PEL or TLV exposure data; indicates that the stated substance may be absorbed by the skin, mucous membranes, and eyes--either airborne or by direct contact--and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TLV for that substance.

Skin Sensitizer — See "Sensitizer."

Skin Toxicity — See "Dermal Toxicity."

Solubility in water — A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and fire extinguishing agents and methods for a material. Terms used to express solubility are:

negligible	Less than 0.1 percent
slight	0.1 to 1.0 percent
moderate	1 to 10 percent
appreciable	more than 10 percent
complete	soluble in all proportions

SO_x — Oxides of sulfur; undesirable air pollutants. SO_x emissions are regulated by EPA under the Clean Air Act.

Species — A biological type; on MSDSs, species refers to the test animals--usually rats, mice, or rabbits--which were used to obtain the toxicity test data reported.

Specific gravity — The weight of the material compared to the weight of an equal volume of water; an expression of the density (or heaviness) of the material. Example: if a volume of a material weighs eight pounds, and an equal volume of water weighs ten pounds, the material is said to have a specific gravity of 0.8.

$$\frac{8 \text{ lbs.}}{10 \text{ lbs.}} = 0.8$$

Insoluble materials with specific gravity of less than 1.0 will float in (or on) water. Most (but not all) flammable liquids have specific gravity less than 1.0 and, if not soluble, will float on water--an important consideration for fire suppression and spill clean-up.

Stability — An expression of the ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions which may cause instability (dangerous change) are stated examples, temperatures above 150° F., shock from dropping.

STEL — Short term exposure limit; ACGIH terminology. See "TLV-STEL."

Synonym — Another name or names by which a material is known. Methyl alcohol, for example, is also known as methanol, or wood alcohol.

-T-

TCC — Tag (Tagliabue) Closed Cup; a flash point test method.

Teratogen — A substance or agent to which exposure of a pregnant female can result in malformations in the fetus.

TLV — Threshold Limit Value; a term used by ACGIH to express the airborne concentration of a material to which nearly all persons can be exposed day after day, without adverse effects. ACGIH expresses TLVs in three ways:

TLV-TWA: the allowable Time Weighted Average concentration for a normal 8-hour workday or 40-hour work week.

TLV-STEL: the Short-Term Exposure Limit, or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided that the daily TLV-TWA is not exceeded).

TLV-C: the Ceiling exposure limit--the concentration that should not be exceeded even instantaneously.

Also see "Skin" in the Glossary relative to TLVs.

TOC — TAG Open Cup; a flash point test method.

Toxicity — The sum of adverse effects resulting from exposure to a material, generally by the mouth, skin, or respiratory tract. For RCRA purposes, solid or liquid wastes which exhibit certain specified "characteristics of toxicity" may be regulated by EPA as hazardous wastes.

Trade Name — The trademark name or commercial name for a material.

TSCA — Toxic Substances Control Act; Federal environmental legislation, administered by EPA, for regulating the manufacture, handling, and use of materials classified as "toxic substances."

TWA — Time Weighted Average exposure; the airborne concentration of a material to which a person is exposed, averaged over the total exposure time--generally the total workday (8 to 12 hours). Also see "TLV."

-U-

UEL, or UFL — Upper explosive limit or upper flammable limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too "rich" to burn. Also see "LEL."

Unstable — Tending toward decomposition or other unwanted chemical change during normal handling or storage.

USDA — U.S. Department of Agriculture; prior to 1971, USDA performed tests and issued approvals on respirators for use with pesticides. In 1971, the Bureau of Mines took over the pesticide respirator testing/approval functions--procedures later delegated to the Testing and Certification Branch (TCB) of NIOSH. Also see "BOM."

-V-

Vapor density — The weight of a vapor or gas compared to the weight of an equal volume of air; an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0 (examples: acetylene, methane, hydrogen). Materials heavier than air (examples: propane, hydrogen sulfide, ethane, butane, chlorine, sulfur dioxide) have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate (unless confined). Heavier vapors and gases are likely to concentrate in low places (along or under floors, in sumps, sewers and manholes, in trenches and ditches) where they may create fire or health hazards.

Vapor pressure — The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products the test temperature is usually 100° F. and the vapor pressure is expressed as pounds per square inch (psig or psia)--but vapor pressures reported on MSDSs are in millimeters of mercury (mmHg) at 68° F. (20° C.), unless stated otherwise. Three facts are important to remember:

1. Vapor pressure of a substance at 100° F. will always be higher than the vapor pressure of the substance at 68° F. (20° C.).

2. Vapor pressures reported on MSDSs in mmHg are usually very low pressures; 760 mmHg is equivalent to 14.7 pounds per square inch.

3. The lower the boiling point of a substance, the higher its vapor pressure.

Ventilation — See "general exhaust," "local exhaust," and "mechanical ventilation."

6595a/lin

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-McGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NO. 2004-1517

EMERGENCY TELEPHONE | COMPANY 405/424-3311 | CHEMTREC 800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
AW - 46	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES (last - 0, Slight - 1, oderate - 2, High - 3, Extreme - 4)	HEALTH CODE	FIRE CODE	REACTIVITY CODE
	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	>98	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	<2	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Applicable	Not Available	Amber Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -10°F	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20 °C)**
0.90	49 Centistokes @100°F	Negligible

MATERIAL SAFETY DATA SHEET

HILTON OIL CORPORATION
3000 Northup Way, #100
Bellevue, WA 98004
(206)827-7005

PRODUCT CODE NO. : HPL-201,203,205,255; ATF-HJF-200,203,255 ISSUE DATE: AUG. 13, 19
Hilton Hy-Per-Lube, Inc. MSDS #2

MANUFACTURER:
Hilton Hy-Per-Lube, Inc.
12515-130th Lane NE
Kirkland, WA 98034

CONTACT FOR FURTHER INFORMATION:
CALL (206) 821-5561

PRODUCT IDENTIFICATION

PRODUCT NAME : Hilton Hy-Per-Lube

SYNONYMS : Hilton Hy-Per-lube

GENERIC NAME : Industrial Oil

CHEMICAL FAMILY : Petroleum Hydrocarbon

DOT PROPER SHIPPING NAME : Not Applicable

ID NUMBER : None

SECTION I INGREDIENTS

	TVL	UNITS	AGENCY	TYPE
OIL MIST, IF GENERATED	5.00	MG/M3	OSHA	FULL TERM TWA

The identities of ingredients that are trade secrets are excluded from this list.

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT :
For direct contact, flush the affected eye(s) with clean water. If irritation or redness develops, seek medical attention.

SKIN CONTACT :
Do not use gasolines, thinners or solvents to remove product from skin. Wipe material from skin and remove contaminated clothing. Cleanse affected area(s) thoroughly by washing with soap and water and, if necessary, a waterless skin cleanser. If irritation pr redness develops and persists, seek medical attention.

INHALATION (BREATHING) :
If irritation of nose or throat develops, move away from source of exposure and into fresh air. If irritation persists, seek medical attintion. If victim is not breathing or if breathing difficulties develop, artificial respiration or oxygen should be administered by qualfied personnel. Seek immediate medical attention.

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-MCGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-1634

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
*Mystik® Dimension® Gear Lubricants	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil and Polymer	94	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Additives	6	Ingredients are proprietary. Potential hazards have been evaluated and pertinent information has been included in Sections IV-IX.	

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Amber Liquid
...R AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -15°F to -10°F	Not Applicable
...ECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20°C)**
0.89-0.90	297-693 Centistokes @100°F	Negligible

*SAE 80W/140 and 85W/250.

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-MCGEE REFINING CORPORATION

ATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-5411

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
Mystik® JT-6® Hi Temp Grease	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil and Soap	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES ast - 0 Slight - 1 derate - 2 High - 3 Extreme - 4	HEALTH CODE	FIRE CODE	REACTIVITY CODE
	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	77	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Soap and Additives	23	Ingredients are proprietary. Potential hazards have been evaluated and pertinent information has been included in Sections IV-IX.	

III. PHYSICAL AND CHEMICAL PROPERTIES

	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Applicable	Not Applicable	Not Applicable
LATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
c Applicable	Not Available	Red Grease
R AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Not Applicable	Not Applicable
CIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20 °C)**
0.90	Not Applicable	Insoluble

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR McGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-1289

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
Mystik® JT-8® Motor Oils	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	Up to 99.5	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	Up to 1.5	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Amber Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -30° to 5°F	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20 °C)**
0.87-0.90	58-268 Centistokes @100°F	Negligible

*Includes all SAE grades: JT-8 ; Commercial Extra

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-MCGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-1672

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
Mystik® PT Fluid Universal	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	>99	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	<1	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Red Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -45°F	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20 °C)**
0.87	46 Centistokes @100°F	Negligible

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA.

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9734

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

TEMP 400 GREASE

QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION M. Smith	DATE PREPARED 11-25-85	PACKAGE TYPE Aerosol Container	
FORMULA Proprietary Mixture	TRADE NAME TEMP 400 GREASE		

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
1,1,1-Trichloroethane (The ingredients above are listed in descending order of concentration.)	71-55-6		350
PROPELLANT Carbon Dioxide	124-38-9		N/A

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE N.D.	SPECIFIC GRAVITY (H_2O = 1) @ 75°F OF CONCENTRATE 1.284
VAPOR PRESSURE (psig) IN CAN @ 75°F 90	% VOLATILE BY VOLUME IN CAN >80
VAPOR DENSITY N.D.	FLASH POINT OF CONCENTRATE None up to 150° F tag open cup
SOLUBILITY IN WATER OF CONCENTRATE 0.1%	APPEARANCE AND ODOR OF SPRAY slightly viscous red liquid, sweetish solvent odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST spray non-flammable	FLAMMABLE LIMITS	Lower N/A / Upper N/A

EXTINGUISHING MEDIA

foam, dry chemical, CO_2

SPECIAL FIRE FIGHTING PROCEDURES

KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID Do not expose to temp. above 120° F.
	STABLE	X	

INCOMPATABILITY (Materials to avoid) Strong alkalies, oxidizers, aluminum and other reactive metals.

HAZARDOUS DECOMPOSITION PRODUCTS

Abnormally high temp. Possible trace amounts of phosgene

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

MATERIAL SAFETY
DATA SHEET

SOLUBLE OIL

CAT. NO. 632 & 633

DISTRIBUTED BY:

EMERGENCY INFORMATION: (712) 252-0525

SIOUX TOOLS INC.
2901 Floyd Blvd.
Sioux City, IA 51102

IMPORTANT COMPONENTS: Solvent refined paraffinic petroleum oil (CAS 64741-88-4), ACGIH TLV 5 mg/m3, STEL 10 mg/m3 (oil mist); OSHA PEL 5 mg/m3, STEL 10 mg/m3 (oil mist). Petroleum sulfonate. 2-Butoxyethanol (CAS 111-76-2) ACGIH TLV 25 ppm (skin); OSHA PEL 25 ppm (skin).

WARNING STATEMENT: This product has been evaluated and does not require any hazard warning label under the OSHA Hazard Communication Standard. Store above freezing.

HMIS/NFPA CODES:(HEALTH;0)(FLAMMABILITY;1)(REACTIVITY;0)

APPEARANCE AND ODOR: Light colored, oily liquid.

HEALTH HAZARD INFORMATION

EYE

EFFECT: No significant irritation expected.

FIRST AID: Flush eyes with plenty of water.

PROTECTION: None required; however, use of eye protection is good industrial practice.

SKIN

EFFECT: None expected for single short-term exposures. Prolonged or repeated contact may produce some irritation.

FIRST AID: None required.

PROTECTION: Wear protective clothing and gloves if prolonged or repeated contact is likely.

INHALATION

EFFECT: None expected under normal conditions of use.

FIRST AID: None required.

PROTECTION: None required for normal conditions of use.

INGESTION

EFFECT: Expected to be relatively non-toxic.

FIRST AID: If a large amount is swallowed, induce vomiting. Get medical attention.

3M General Offices
3M Center
St. Paul, Minnesota 55144-1000
612/733-1110
Duns No.: 00-617-3082

AMM I 39

02-60
4168

MATERIAL SAFETY
DATA SHEET

3M

DIVISION: INDUSTRIAL SPECIALTIES
TRADE NAME:
SCOTCH-WELD (TM) 2216 B/A Part A Gray Epoxy Adhesive
3M I.D. NUMBER: 62-2216-0530-6 62-2216-5430-4 62-2216-6430-3 62-2216-7430-2
62-2216-7431-0 62-2217-5530-9 62-2217-7530-7 62-2217-8530-6
62-2217-9530-5

ISSUED: APRIL 12, 1990
SUPERSEDES: SEPTEMBER 21, 1989
DOCUMENT: 10-3174-9

1. INGREDIENT	C.A.S. NO.	PERCENT	EXPOSURE LIMITS VALUE UNIT	TYPE AUTH
amine terminated polymer - N.J. Trade Secret (T.S.) Registry No. 04499600-5569P	T.S.	55.0 - 70.0	NONE NONE	NONE NONE
kaolin	1332-58-7	30.0 - 45.0	10 mg/m3	TWA ACGIH
carbon black	1333-86-4	0.0 - 0.1	3.5 mg/m3	TWA ACGIH

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- NONE: None Established

NOTE: This Accel. (Mfg. EC-2217) used with SCOTCH-WELD 2216 B/A Part B Gray Epoxy Adhesive; (Mfg. EC-2216 -- MSDS DOC #1031673).

2. PHYSICAL DATA

BOILING POINT:..... N/A
VAPOR PRESSURE:..... N/A
VAPOR DENSITY: ..... N/A
EVAPORATION RATE:..... N/A
SOLUBILITY IN WATER: ..... nil
SP. GRAVITY:..... 1.260 Water = 1
PERCENT VOLATILE: ..... 0.00 %
VOLATILE ORGANICS: ..... N/A
pH: ..... N/D
VISCOSITY: ..... 52.0 CPS
APPEARANCE AND ODOR: Gray, paste, pungent odor.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... N/A
FLAMMABLE LIMITS - LEL: ..... N/A
FLAMMABLE LIMITS - UEL: ..... N/A
AUTOIGNITION TEMPERATURE: ... N/D
EXTINGUISHING MEDIA:
CO2, foam, dry chemical, water
SPECIAL FIRE FIGHTING PROCEDURES:
Fire fighters should wear self-contained breathing apparatus when fighting fires involving this material.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
None
NFPA-HAZARD-CODES: HEALTH 2 FIRE 0 REACTIVITY 1
UNUSUAL REACTION HAZARD: NONE

Abbreviations: N/D - Not Determined N/A - Not Applicable

MATERIAL SAFETY DATA SHEET

NFPA 704 DESIGNATION: 3 / 2 / 1

CIN # 6960

DATE OF PREP 11-1-84

Section I 765-1285 + 765-1286

~~Revised~~ New 8/8/85

MANUFACTURER'S NAME: FIBRE GLASS-EVERCOAT CO., INC.

STREET ADDRESS: 6600 CORNELL ROAD

CITY, STATE AND ZIP CODE: CINCINNATI, OHIO 45242

EMERGENCY TELEPHONE NO: (513) 489-7600

PRODUCT CLASS MANUFACTURER'S CODE IDENTIFICATION: Polyester Resin

TRADE NAME: Automotive Resin #497, 498, 499, 500

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/m³	LEL	VAPOR PRESSURE
Styrene (Cas # 100-42-5)	<40	100			4.5mm H
Unsaturated polyester	60>	Non-hazardous.			

Section III — PHYSICAL DATA

BOILING RANGE: Styrene 293°F

VAPOR DENSITY: XX HEAVIER, ☐ LIGHTER THAN AIR

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

PERCENT VOLATILE BY WEIGHT: 40 before cure

WEIGHT PER GALLON: 9.2 lb.

Section IV — FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: Consumer Commodity ORMD

FLASH POINT: 98°F

LEL: 1.

EXTINGUISHING MEDIA: water fog, foam, dry chemical, CO^2

FIRE AND EXPLOSION HAZARDS: At elevated temperature such as fire condition, polymerization may takeplace. If contained, there is possibility of violent rupture.

SPECIAL FIRE FIGHTING PROCEDURES:

FRICTION SUPPLY
5/21/86

PRODUCT FACT SHEET

ASBESTOS FRICTION PRODUCTS

Product

Brake shoes, brake linings, disc brake pads, clutch facings, and other friction products.

Potentially Hazardous Ingredients

Asbestos - Products contain chrysotile asbestos fibers coated with phenolic resin binder.

Physical Hazards

Asbestos friction products do not present any unusual fire, explosion or reactivity hazards.

Health Hazard Data

No threshold limit valve (TLV) has been established for the asbestos fibers coated with phenolic resin. However, a TLV has been established for free asbestos fibers of 2.0 fibers/cc of air. OSHA has proposed a reduction in this TLV to .2 fibers/cc. Inhalation of excessive concentration of asbestos fibers has been associated with certain serious health problems, such as asbestosis or mesothelioma.

Waste Disposal Method

Dispose of asbestos friction products and dust in compliance with local, state, and federal regulations regarding disposal of asbestos-containing waste material, in proper receptacles, appropriately labelled.

Special Protection Information

If airborne concentration of asbestos exceeds 2 fibers/cc, use NIOSH-approved respirator and local ventilation.

Special Precautions

When handling and removing asbestos friction products, precautions should be observed to prevent dust from becoming airborne or being inhaled. See reverse side for procedures recommended by the Friction Materials Standards Institute ("FMSI") for reducing dust during brake servicing.

NOTE

People who work around products containing asbestos should not smoke. Substantial medical evidence indicates that smoking will increase the risk from asbestos exposure.

MATERIAL SAFETY DATA SHEET

Ashland Petroleum Company
DIVISION OF ASHLAND OIL, INC.
P. O. BOX 391 • ASHLAND, KENTUCKY 41101 • (606) 329-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Ashland

000735

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

****

PRODUCT NAME: CARBURTR TUNEUP

NAPA-PORTLAND
PO BOX 3169
PORTLAND OR 97208
ATTN: PLANT MGR / SAFETY DIR.

08 70 000 0862954-010
DATA SHEET NO: 0175961-002
LATEST REVISION DATE: 12/84-84339
PRODUCT: 00008700
INVOICE: 065801
INVOICE DATE: 09/17/85
TO:
12300 S W BROADWAY
BEAVERTON OR 97005

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: MIXTURE-SOLVENTS

HAZARD CLASSIFICATION: (03) FLAMMABLE COMPRESSED GAS (173.300)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	% (BY VOL)	PEL	TLV	NOTE
PROPANE CAS #: 74-98-6	25-30			
XYLENE CAS #: 1330-20-7	70-75	100	100 PPM	
METHYL ETHYL KETONE CAS #: 78-93-3	25-30	200	200 PPM	
DIACETONE ALCOHOL CAS #: 123-42-2	5-10	50	50 PPM	

$THE SPECIFIC CHEMICAL IDENTITY HAS BEEN WITHHELD AS A TRADE SECRET.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR COMPONENT(25-30 %)	-45.00 DEG F (-42.77 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR COMPONENT(25-30 %)	70.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY		HEAVIER THAN AIR
SPECIFIC GRAVITY		.860 @ 68.00 DEG F (20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT -156.00 DEG F
(-104.44 DEG C)

EXPLOSIVE LIMIT UNAVAILABLE

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE., VARIOUS HYDROCARBONS, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 4 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

FIRST AID:

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CONTINUED ON PAGE: 2

TEMPLEX PRODUCTS -- a division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

RECEIVED
MAR 0 7 1987
JONES OREGON STEVEDORING CO.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: CLASS 8 TRUCK WASH
PRODUCT CODE: 2320

EFFECTIVE DATE: 02-10-86

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: ALKALINE CLEANING COMPOUND
HAZARD CLASSIFICATION: Corrosive

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	TLV	PERCENT
2-Butoxyethanol	111-76-2	25 ppm (skin)	5
Sodium hydroxide	1310-73-2	2 mg/m^3	5

SECTION III - PHYSICAL DATA

pH: >13
BOILING POINT: 212 °F
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.066
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: Not applicable.
EVAPORATION RATE (n-BuAc = 1): 0.3
SOLUBILITY IN WATER: complete
APPEARANCE AND ODOR: Blue solution, Butoxyethanol odor.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Setaflash Closed Tester) : 190- °F
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Water spray, dry chemical, chemical foam, or carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Never use welding or cutting torch on or near drum, even empty, because product or residue can ignite explosively.

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established

PRIMARY ROUTES OF ENTRY: Ingestion, inhalation, or skin absorption.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Corrosive - causes irreversible eye damage.
SKIN: Corrosive - causes irreversible skin damage.
BREATHING: Corrosive vapors (mists) (dusts) - causes burns.

MATERIAL SAFETY DATA SHEET

CTD 1

I. PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: CLEVELAND TWIST DRILL CO. TELEPHONE NO.: (216) 431-3120

ADDRESS: P.O. BOX 6656
CLEVELAND, OHIO 44101

DATE PREPARED: November, 1985

TRADE NAME: (Label Identity): CLEVELAND TWIST DRILL CO. FERROUS CUTTING TOOL PRODUCTS

CHEMICAL NAME: (Generic): Ferrous Alloys

COMMON NAME: High Speed, Tool & Die, Carbon and Stainless Steels

II. HAZARDOUS INGREDIENTS

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA Hazard Communication Standard (29 CFR Part 1910, 1200) including cited Appendices, Lists, References, etc., all of which are hereby incorporated by reference.

MATERIAL OR COMPONENT	PERCENT BY WEIGHT	CAS NO.		OSHA PEL (Mg/M3)			ACGIH TLV (Mg/M3)	
COBALT	0.0 - 12.5%	7440-48-4		0.1			0.1	
CHROMIUM	0.0 - 18.0%	7440-47-3		1.0			.50	
IRON	60.0 - 99.5%	1309-37-1		10			5	
MANGANESE	.10 - 2.5%	7439-96-5	(Dust)	5	(Ceiling)		5	(Ceiling)
			(Fume)	--			1	
MOLYBDENUM	0.0 - 10.0%	7439-98-7		15			10	
NICKEL	0.0 - 16.0%	7440-02-0		1			1	
VANADIUM	0.0 - 6.0%	1314-62-1	(Dust)	.5	(Ceiling)		.05	
			(Fume)	.1	(Ceiling)		.05	
TITANIUM	0.0 - 1.0%	13463-67-7		15			5	
CARBON	0.10 - 3.00%	1333-86-4		3.5		5	3.5 (As Carbon Black)	
TUNGSTEN	0.0 - 18.0%	7440-33-7		--		--	5	
SILICON	0.0 - 3.5%	7440-21-2	(Dust)	--		--	5.0	
ALUMINUM	0.0 - 2.0%	7429-90	(Dust)	--		--	10	
			(Fume)	--		--	5	

REFER TO GRADE CHART ATTACHED

III. PHYSICAL DATA

BOILING POINT:	5000 °F	MELTING POINT:	Approx. 2500 °F
SPECIFIC GRAVITY (H_2O = 1):	Approx. 7.8 - 8.2 (60 °F)	VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR = 1):	N/A	SOLUBILITY IN H_2O:	Insoluble
% VOLATILES BY VOLUME:	N/A	EVAPORATION (BUTYL ACETATE = 1):	N/A
APPEARANCE & ODOR:	Various Shapes, Solid, Odorless Metal		

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None FIRE POINT: None

V. HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUME WHICH CAN BE INHALED, SWALLOWED, OR COME IN CONTACT WITH THE SKIN OR EYES.

PRIMARY ROUTES OF ENTRY:	EMERGENCY FIRST AID:
Inhalation	Remove to fresh air, if condition continues, consult physician.
Eye Contact	Flush well with running water to remove particulate. Get medical attention.
Skin Contact	Brush off excess dust. Wash area well with soap & water.
Ingestion	Seek medical help if large quantities of material have been ingested.

EFFECTS OF EXPOSURE: No toxic effects would be expected from exposure to the solid form of specialty steel. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. (See Section II).

CTI/1

MATERIAL SAFETY DATA SHEET

COMPANY NAME: CLEVELAND TWIST DRILL CO.
Address: P.O. BOX 6656
CLEVELAND, OHIO 44101

Telephone No.: 216-431-3120

Chemical Name: Cemented Carbide Product with Cobalt binder.

Trade Name and Synonyms: All Cleveland Carbide Grades

Chemical Family: Refractory Metal Carbide

Molecular Weight: N/A

PHYSICAL DATA

Appearance and Odor:	Dark Gray Metal/No Odor		
Boiling Point:	N/A	Specific Gravity (H_2O = 1):	11.0 to 15.5
Vapor Pressure (mm Hg):	N/A	Percent Volatile by Volume:	0
Vapor Density (Air = 1):	N/A	Evaporation rate:	N/A
Solubility in Water:	Insoluble	How Best Monitored:	Air Sample

HAZARDOUS INGREDIENTS

Material	Percent by Weight		OSHA PEL	ACGIH TLV
Tungsten Carbide (limits for Tungsten dust)	41 - 97%	*	----	5 mg/m^3
Cobalt	3 - 30%	*	0.1 mg/m^3	0.1 mg/m^3
Tantalum Carbide (limits for Tantalum dust)	0.0 - 16.5%	*	5 mg/m^3	5 mg/m^3
Chromium Carbide (limits for Chromium (+3) dust)	0.0 - 5.1%	*	1 mg/m^3	0.5 mg/m^3
Chromium (+3)	0.0 - 4.5%	*	1 mg/m^3	0.5 mg/m^3
Titanium Carbide (limits for Titanium dust)	0.0 - 16.5%	*	----	5 mg/m^3

*Depends on grade specifications

HEALTH HAZARD DATA

Routes of Exposure:
Grinding cemented carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes.

Effects of Overexposure:

Inhalation - Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. It is reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Skin Contact - Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Eye Contact - Can cause irritation.

Ingestion - Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.

Emergency and First Aid Procedures: Applicable for dusts or mists

Inhalation - If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.), remove from exposure and seek medical attention.

Skin Contact - If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.

Eye Contact - If irritation occurs, flush with copious amounts of water. If irritation persists, seek medical attention.

Ingestion - If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, other):
None of the components of this material have been identified as known or suspected carcinogens by NTP, IARC or OSHA.

FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A Test Method Used: --- Flammable Limits: N/A LEL: --- UEL: ---

Cemented Carbide Product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate, and subjected to an ignition source.

Extinguishing Media: For powder fires use dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dusts may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

MT. HOOD CHEMICAL CORPORATION
4444 N.W. Yeon Ave.
Portland, OR 97210

Product Name DRI WALK

Emergency Telephone - 503-227-3505

MATERIAL SAFETY DATA

Prepared by Kathleen Woods - 11-85

Chemical Family Inorganic Salt	Formula Proprietary	
HAZARDOUS MIXTURES	Hazardous Mixtures: NONE	Percent:
		Percent:
		Percent:
		Percent:
PHYSICAL DATA	Boiling Point N/A	% Volatiles by Volume 0%
	Solubility in Water Appreciable	pH (as is) N/A
	Specific Gravity (H_2O=1) N/A	pH (1% solution) 7.0-7.5
	Odor and Appearance: White to light gray pellets-bland odor VAPOR PRESSURE - N/A	
FIRE AND EXPLOSION DATA	Flash Point: NONE	
	Extinguishing Point: NONE	
	Special Fire Fighting Procedures and Unusual Fire and Explosion Hazards: Extinguishing media - Water, CO_2, foam, dry chemicals	
HEALTH HAZARD DATA	Threshold Limit Value: Not Applicable	
	Effects of Over Exposure: May cause skin and eye irritation of mucous membranes may be experienced upon ingestion.	
	Emergency and First Aid Procedures: For skin or eye contact, flush with plenty of water for at least 15 minutes. If swallowed, give large amounts of liquids. May cause vomiting. Maintain fluid levels. PRIMARY ROUTES OF ENTRY: INGESTION	

765-1210, 765-1211

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. 150-005
Ma. 1

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: PERMATEX COMPANY, INC.	EMERGENCY TELEPHONE NO.: (305) 686 0880
ADDRESS (Number, Street, City, State, and ZIP Code): 2300 N. Florida Mango (P.O. Box 1350), West Palm Beach, Florida 33401	
CHEMICAL NAME AND SYNONYMS: None	TRADE NAME AND SYNONYMS: Parts Nos. 4-2170, 4-2171 * GASKET SEALER
CHEMICAL FAMILY: None	FORMULA: Proprietary

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS ISOPROPANOL	23	400ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Based on information from our suppliers, the materials incorporated into this product are not toxic. (Isopropanol is listed for general information purposes only.)		

SECTION III PHYSICAL DATA

BOILING POINT (°F.) (Solvent)	180	SPECIFIC GRAVITY (H_2O=1)	1.11
VAPOR PRESSURE (mm Hg.) (Solvent)	31.2	PERCENT VOLATILE BY VOLUME (%)	~31
VAPOR DENSITY (AIR=1)	--	EVAPORATION RATE (N-bu-Ac=1)	1.7
SOLUBILITY IN WATER	23%**		

APPEARANCE AND ODOR: Dark Brown, Viscous Liquid; Alcoholic Odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 175F, T.O.C.	FLAMMABLE LIMITS	Lel	Uel

EXTINGUISHING MEDIA: CO_2 or Dry Chemical Powder

SPECIAL FIRE FIGHTING PROCEDURES: Same as for oil-based paints.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

* Compounded to meet Military Specification, MIL-S-45180B, Type III.
** Insoluble when dried.

NORTON

MATERIAL SAFETY DATA SHEET

Flammability Rating 0
Health Rating 1 | Reactivity Rating 0
HAZARD RATING
Please rate consistent with NFPA Code

SECTION I NAME AND PRODUCT

MANUFACTURER'S NAME NORTON COMPANY	CONTACT THOMAS Z. RICHARDS
ADDRESS (STREET, CITY, STATE AND ZIP CODE) 1 NEW BOND STREET, WORCESTER, MA 01606-2698	EMERGENCY TELEPHONE NO. 617-795-2690
TRADE NAME, COMMON NAME OR SPECIFICATION ORGANIC BONDED GRINDING WHEELS	APPROVED BY Kmarayanan DATE 8/1/87
CHEMICAL FAMILY OR PRODUCT TYPE ANY GRADE	

SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCINOGEN (Y/N)
Alpha-Alumina	90	Alundum	Y	1344-28-1	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Silicon Carbide	90	Crystolon	Y	409-21-2	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Zirconia Alumina	90	NZ, ZF, ZS	Y	**NAIF	5mg/m³ (as Zirconia)	5mg/m³ (as Zirconia)	N
The grinding wheel may be comprised of 1 or more of the above abrasives. The chemicals listed below may be a part of the bond system.							
Fluorides (as F)	3	***N/A	Y	***N/A	2.5mg/m³	2.5mg/m³	N
Calcium Oxide	3	Lime	Y	1305-78-8	5mg/m³	2mg/m³	N
Glass, Fibrous or Dust	10	Fiberglass	Y	**NAIF	**NAIF	10mg/m³	N
Sulfur	8	Sulfur	Y	7704-34-9	**NAIF	**NAIF	N
Tin	9	Tin	Y	7440-31-5	2mg/m³	2mg/m³	N

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusettts General Law Chapter 111F, Right To Know Regulations.

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT **NAIF	MELTING POINT **NAIF	SPECIFIC GRAVITY 2-4
VAPOR PRESSURE **NAIF	PERCENT VOLATILE BY VOL **NAIF	VAPOR DENSITY **NAIF
EVAPORATION RATE **NAIF	SOLUBILITY IN WATER Slight	SOLUBILITY IN ALCOHOL **NAIF
SOLUBILITY IN OTHER SOLVENT **NAIF	APPEARANCE AND ODOR SOLID PRODUCT: MAY GIVE OFF ODOR IN USE.	

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE – NONE.
OTHER PRECAUTIONS:
**NAIF

SECTION V CORROSIVITY AND REACTIVITY DATA

STABILITY UNSTABLE ☐ STABLE ☒ POLYMERIZATION MAY OCCUR ☐ WILL NOT OCCUR ☒

INCOMPATABILITY (MATERIALS TO AVOID)
**NAIF

DECOMPOSITION PRODUCTS
Use, dust and decomposing organic fumes are generated. In most cases, the material removed from the workpiece will be significantly greater than the grinding wheel components. Coolants may produce other decomposition products.

CONDITIONS TO BE AVOIDED
**NAIF

NAIF = NO APPLICABLE INFORMATION FOUND *** N/A = NOT APPLICABLE

AMERICAN STEEL

Issued date: May 1, 1986

MATERIAL SAFETY DATA SHEET
Carbon and Alloy Steels

I. PRODUCT IDENTIFICATION

Distributor: American Steel, Division of American Industries, Inc. Corporate offices at 4033 NW Yeon/PO Box 10086, Portland, Oregon 97210
Trade Name (Common Name or Synonym): Carbon and Alloy Steels
Chemical Name: Iron Alloy
Form: Plates, Bars, Shapes, Tubes, Sheets
Emergency Telephone: (503) 226-1511 or contact your nearest American Steel office

II. PRODUCT INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits OSHA PEL (mg/m³)	Exposure Limits ACGIH TLV (mg/m³)
Base metal				
Iron (Fe)	7439-89-6	86.5-99.5	10 Oxide Fume	5 Oxide Fume
Alloying Elements				
Aluminum (Al)	7429-90-5	<0.1-0.5	Not Established	10 Dust 5 Fume
Bismuth (Bi)	7440-69-9	<0.2-0.5	Not Established	Not Established
Boron (B)	7440-42-8	<0.1-1.0	15 Oxide Fume	10 Oxide Fume
Carbon (C)	7440-44-0	<.10-1.5	Not Established	Not Established
Chromium (Cr)	7440-47-3	<.40-10	1.0 Chrome Metal	0.5 Chrome Metal
Columbium (Cb)	7440-25-7	<.15-.35	Not Established	Not Established
Copper (Cu)	7440-50-8	<.30-1.90	0.1 Fume/1.0 Dust	0.2 Fume 1.0 Dust
Lead (Pb)	7439-92-1	<.01-.15	.05 Dust & Fume	.15 Dust & Fume
Manganese (Mn)	7439-96-5	<.04-0.7	5c Dust 5c Fume	5c Dust 1 Fume
Molybdenum (Mo)	7439-98-7	<.15-1.10	15 Insoluble Compound	10 Insoluble Compound
Nickel (Ni)	7440-02-0	<.01-10	1 Nickel Metal	1 Nickel Metal
Phosphorous (P)	7723-14-0	<.040-.12	0.1 Phosphorous	0.1 Phosphorous
Silicon (Si)	7440-21-3	<.15-2.00	Not Established	10 Total Dust
Sulfur (S)	7704-34-9	<.050-.35	13 Sulfur Dioxide	5 Sulfur Dioxide
Vanadium (V)	7440-62-2	<.01-0.15	0.5c Dust 0.1c Fume	0.05 Dust 0.05 Fume
Zinc Coating	7440-66-6	2 oz	5 Oxide Fume	10 Dust 5 Fume
Aluminum Coating	7429-90-5	.05 oz	Not Established	10 Dust 5 Fume

Note 1: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. Values shown are applicable to component elements.

Note 2: Coatings as residual rolling lubricants and rust preventatives may be on various products. MSDS' for specific coatings are available upon request.

III. PHYSICAL DATA

Physical Form: Solid under normal conditions
Appearance & Odor: Gray-black odorless metal
Specific Gravity (H2O = 1): Approx. 7
Melting Point: Approx 2800° F
Solubility in Water (% by weight): Not applicable
Boiling Point: Not applicable
Vapor Pressure: Not applicable
Vapor Density: Not applicable
Acidity Alkalinity: Not applicable
% Volitile by Volume: Not applicable

IV. FIRE AND EXPLOSION DATA

Flash Point: Not applicable Auto-ignition Temperature: Not applicable
Flammable Limits in Air: Not applicable Fire & Explosion Hazards-Extinguishing Media: Steel bars, shapes, tubes, plates and sheets do not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire.

Fine metal particles, such as produced in grinding and sawing, can burn. High concentration of metallic fines in the air may present an explosion hazard. Molten metal may explode on contact with water. For these fires, use dry powder or sand extinguishing media.

January 1, 1986

U.S. DEPARTMENT OF LABOR
WORKPLACE STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: CLEANUP HAND CLEANER CO.	EMERGENCY TELEPHONE NO.: 244-7392
ADDRESS (Number, Street, City, State, and ZIP Code): 1829 SE Haig St., Portland, OR. 97202	
CHEMICAL FAMILY: Cleaning Compound	TRADE NAME AND SYNONYMS: Hand Cleaner

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
"NONE"		

SECTION II PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H2O=1)	0.953
SOLUBILITY IN WATER	dispersable	PH of 1% SOLUTION	9.6

APPEARANCE AND ODOR: Light paste w/spec's of wood fiber dispersed. Has light lemon scent.

SECTION III FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lel	Uel

EXTINGUISHING MEDIA: N/A

SPECIAL FIRE FIGHTING PROCEDURES: N/A

SECTION IV HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: N/A

EFFECTS OF OVEREXPOSURE: N/A

EMERGENCY AND FIRST AID PROCEDURES: Eyes - Flush w/water for 10-15 minutes; see physician if required. Ingestion - Don't induce vomiting; drink citrus juices & water; see physician if required.

SECTION V SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Mop or clean up spills as soon as possible to avoid the danger of slippery floors. Otherwise use normal cleaning methods.

SECTION VI SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): N/A

VENTILATION	LOCAL EXHAUST	N/A
	MECHANICAL (General)	N/A

PROTECTIVE GLOVES: N/A	EYE PROTECTION: goggles if required

SECTION VII SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in cool dry area whenever possible.

ESCO CORPORATION

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

Manufacturer:

ESCO Corp., 2141 NW 25th Avenue
Portland, OR 97210

For Additional Information, contact:

Roger Sherwood, Manager-Environmental Affairs
Phone: 503-778-6335

Creation Date: 11/'85
Revision Date: NA

PRODUCT IDENTIFICATION

Product Name:
NICKEL BASE FOUNDRY PRODUCTS

Formula
NA

Synonym(s):
NA

Chemical Family:
NA

TYPICAL CHEMICAL COMPOSITION (1)

Ingredient (2)	CAS No.	Wt. %	Permissible Air Level (3) OSHA PEL	Permissible Air Level (3) ACGIH TLV
Iron	7439-89-6	0.1-25	10(4)	5(4)
Chromium	7740-47-3	0.1-25	0.1(5)	.05(5)
Manganese	7439-96-5	0.0-2	5.0(6)	1.0(7)
Nickel	7440-02-0	Balance	1.0(8)	1.0(8)
Molybdenum	7439-98-7	0.0-35	5 (Soluble Compounds)	5
			15 (Insoluble Compounds)	10
Silicon	7740-21-3	0.0-2	15 (Total Dust)	10
			5 (Respirable Dust)	5
Carbon	7440-44-0	0.0-1	NA	NA
Trace Elements	NA	LT 1.0	NA	NA

PHYSICAL DATA

Physical State:
Solid

Appearance and Odor:
Gray metal; odorless

Boiling Point:
NA

Melting Point:
2800°F

Solubility in Water:
NA

pH:
NA

Specific Gravity:
7.6-7.8

Vapor Pressure:
NA

Vapor Density:
NA

Evaporation Rate:
NA

% Volatile by Volume:
NA

SEE LAST PAGE FOR IMPORTANT ADDITIONAL TERMS AND CONDITIONS INCLUDING DISCLAIMER OF WARRANTIES.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

C.F.R. TITLE 29

CHAPTER XVII PART 1910

MATERIAL SAFETY DATA SHEET

The information requested will be kept confidential and disclosed only as necessary to meet requirements of the Occupational Safety and Health Act of 1970 or as required by any other Federal, State or Local regulations.

SECTION I

MANUFACTURER'S NAME: CERTANIUM ALLOYS & RESEARCH COMPANY	EMERGENCY TELEPHONE NO.: (216) 391-8300
ADDRESS (Number, Street, City, State, and ZIP Code): 4500EUCLID AVENUE, CLEVELAND, OHIO 44103	
CHEMICAL NAME AND SYNONYMS: FAST CURE EPOXY PUTTY	TRADE NAME
CHEMICAL FAMILY: EPOXY AND POLYMER CPTAN RESINS	PRODUCT NAME: PMC SUPER QUICK SET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
Pigments	N/A	N/A	Base Metal	N/A	N/A
Catalyst — Amine Resins	15	100	Alloys	N/A	N/A
Vehicle — Epoxy Resins	15	NE	Metallic Coatings	N/A	N/A
Solvents	N/A	N/A	Filler Metal Plus Coating or Core Flux	N/A	N/A
Additives	N/A	N/A	Others		
Others — Polymer Captan Resins	15	NE			

HAZARDOUS MIXTURES OF OTHER SOLVENTS	%	TLV (Units)
N/A	N/A	N/A

SECTION III - PHYSICAL DATA

Boiling Point (°F)	N/A	Specific Gravity (H_2O = 1)	1.9
Vapor Pressure (mm Hg.)	Nil	Percent Volatile by Volume (%)	0
Vapor Density (Air = 1)	N/A	Evaporation Rate (_____ = 1)	Nil
Solubility in Water	None		
Appearance and Odor	Putty-like; Mercaptan Odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

		LEL	UEL
Flash Point (Method used)	None	Flammable Limits	N/A	N/A

Extinguishing Media — Water spray, Foam CO_2, Dry Chemicals

Special Fire-Fighting Procedures

Unusual Fire and Explosion Hazards CO, Aldehydes and Acids may be formed in the event of a fire.

765-1215

Form Approved
Budget Bureau No. 44-R1387.1
Approval Expires April 30, 1971

Form No. LSA-005
May 1970

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: PERMATEX COMPANY, INC Woodhill

EMERGENCY TELEPHONE NO.: ~~305-844-0550~~ 216-475-34

ADDRESS (Number, Street, City, State, and ZIP Code): 2300 N. Florida Mango Road, West Palm Beach, Fla. 33401

CHEMICAL NAME AND SYNONYMS: n.a.

TRADE NAME AND SYNONYMS: Balkamp Part No. 4-2530

CHEMICAL FAMILY: Moisture-curing Silicone Polymer

FORMULA: n.a.

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Polydimethylsiloxane, fillers, pigments (not hazardous)	96	n.a.
Cyclohexylamine (formed by moisture)	4	20ppm *
* Value given in "Handbook of Organic Industrial Solvents", American Mutual Insurance Alliance		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) n.a.		SPECIFIC GRAVITY (H_2O=1)	1.04
VAPOR PRESSURE (mm Hg.) n.a.		PERCENT VOLATILE BY VOLUME (%)	5
VAPOR DENSITY (AIR=1) 3.4		EVAPORATION RATE (Ether = 1)	n.a.
SOLUBILITY IN WATER Negligible			
APPEARANCE AND ODOR Blue paste with ammoniacal odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Cleveland Open Cup >400F		n.a.	n.a.

EXTINGUISHING MEDIA: Water, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: none

UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustion products toxic. For large fires, wear self-contained breathing apparatus. (There is no unusual hazard with the cured material).

SAFETY-KLEEN 105 PARTS WASHING SOLVENT

MATERIAL SAFETY DATA SHEET

SECTION I -- PRODUCT INFORMATION

Safety-Kleen Corporation - 777 Big Timber Road - Elgin, IL 60123
For Product/Sales Information Call 708/697-8460

EMERGENCY TELEPHONE	*MEDICAL:*	*TRANSPORTATION:*
These numbers are for emergency use only. If you desire non-emergency information about this product, please call the telephone number listed above.	800/942-5969 or 312/942-5969 RUSH POISON CONTROL CENTER CHICAGO, ILLINOIS (24 HOURS)	800/424-9300 CHEMTREC

IDENTITY (TRADE NAME): SAFETY-KLEEN 105 PARTS WASHING SOLVENT

SYNONYMS: PETROLEUM DISTILLATES, PETROLEUM NAPHTHA, MINERAL SPIRITS, STODDARD SOLVENT

SK PART NUMBER: 6617

FAMILY/CHEMICAL NAME: HYDROCARBON SOLVENT

PRODUCT USAGE: SOLVENT FOR CLEANING AND DEGREASING PARTS

SECTION II -- HAZARDOUS COMPONENTS

NAME	SYNONYM	%	CAS NO.	OSHA PEL (ppm)	ACGIH TLV (ppm)
Parts Washer Solvent (consists predominantly of C9-C13 hydrocarbon)	Mineral Spirits	(Typical % by Wt.)			
C9-C13 Saturated Hydrocarbon		85	64741-41-9	100 (Stoddard Solvent)	100 (Stoddard Solvent)
*Toluene		0.5	108-88-3	100 150 STEL	100 150 STEL
*Xylene		1.0	1330-20-7	100 150 STEL	100 150 STEL
*Ethyl Benzene		0.5	100-41-4	100 Skin 125 STEL	100 125 STEL
C8+ Aromatics		12.0	Mixture	N/E	N/E
Chlorinated Solvents		(Max 1% by Wt.)			
*1,1,1 Trichloroethane		< 0.5	71-55-6	350 450 STEL	350 450 STEL
*Tetrachloroethylene		< 0.5	127-18-4	25	50 200 STEL

N/E = Not Established
* See Section X - Other Regulatory Information

SECTION III -- PHYSICAL DATA

PHYSICAL STATE, APPEARANCE AND ODOR: Combustible liquid - clear, green, with characteristic hydrocarbon odor.

BOILING POINT: 300° - 429° F

GW

450 THINNER

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-OOS-4)

PRODUCT NAME: SOLVENT GW 450 J Rev. 10/24/85 PAGE 1

CHEMICAL NAME: N/A CHEMICAL FAMILY: Solvent

FORMULA: Proprietary MOLECULAR WEIGHT: 166

SYNONYMS: None

I. PHYSICAL DATA

BOILING POINT, 760 mm, Hg	360-510°F	FREEZING POINT	-22°F
SPECIFIC GRAVITY (H_2O = 1)	0.810 @ 20°C	VAPOR PRESSURE AT 20°C	1 mm Hg
VAPOR DENSITY (air = 1)	5.7	SOLUBILITY IN WATER, % by wt.	Slight
PER CENT VOLATILES BY VOLUME	100%	EVAPORATION RATE (Butyl Acetate = 1)	0.03
APPEARANCE AND ODOR	Clear, colorless liquid; hydrocarbon odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Paraffin Hydrocarbon (CAS #8002-74-2)		150 ppm

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [test method(s)]	140°F TCC	AUTOIGNITION TEMPERATURE	500°F

FLAMMABLE LIMITS IN AIR, % by volume	LOWER	0.9%	UPPER	6.0%

EXTINGUISHING MEDIA	Carbon dioxide, foam, dry chemical, water spray.
SPECIAL FIRE FIGHTING PROCEDURES	Self-contained breathing apparatus for confined spaces.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Vapor is highly flammable and may accumulate in confined spaces.

EMERGENCY PHONE NUMBER

1-800-424-9300

CHEMTREC

While Great Western Chemical Co. believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Great Western Chemical Co. assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations.

MATERIAL SAFETY DATA SHEET

DIVISION OF ASHLAND OIL, INC.
P. O. BOX 391 • ASHLAND, KENTUCKY 41101 • (606) 329-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Ashland

007324 STARTING FLUID

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

****

PRODUCT NAME: STARTING FLUID
CAS NUMBER:

NAPA-PORTLAND

PO BOX 3169

PORTLAND OR 97208

ATTN: PLANT MGR / SAFETY DIR.

08 70 000 0862954-000
DATA SHEET NO: 0177785-002
LATEST REVISION DATE: 10/25-85276
PRODUCT: 00007212
INVOICE: 069072
INVOICE DATE: 10/01/85
TO:
10515 N LOMBARD
PORTLAND OR 97203

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: SOLVENT BLEND

HAZARD CLASSIFICATION: (04) FLAMMABLE COMPRESSED GAS (173.300)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	% (BY WT)	PEL	TLV		NOTE
CARBON DIOXIDE GAS INDUSTRIAL GRADE CAS #: 124-38-9	1-10		5000	PPM	
ALIPHATIC HYDROCARBON * CAS #: 142-82-5	>60	500	400	PPM	(1)
ETHYL ETHER CAS #: 60-29-7	10-30	400	400	PPM	

(1): NIOSH RECOMMENDS A LIMIT OF 85 PPM - 8 HOUR TIME WEIGHTED AVERAGE, 440 PPM CEILING.

*THE SPECIFIC CHEMICAL IDENTITY HAS BEEN WITHHELD AS A TRADE SECRET.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR COMPONENT(10-30 %)	94.00 DEG F (34.44 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR COMPONENT(10-30 %)	439.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY		HEAVIER THAN AIR
SPECIFIC GRAVITY		LESS THAN WATER
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT < -58.00 DEG F
(-50.00 DEG C)

EXPLOSIVE LIMIT (LOWEST VALUE OF COMPONENT) LOWER - 1.1%

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE., VARIOUS HYDROCARBONS, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

WATER OR FOAM MAY CAUSE FROTHING WHICH CAN BE VIOLENT AND POSSIBLY ENDANGER THE LIFE OF THE FIREFIGHTER, ESPECIALLY IF SPRAYED INTO CONTAINERS OF HOT, BURNING LIQUID.

UNUSUAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR BE MOVED BY VENTILATION AND IGNITED BY HEAT, PILOT LIGHTS, OTHER FLAMES AND IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: FOR COMPONENT

SKIN - NONE EXPECTED AS MATERIAL IS A GAS.
EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
IF SWALLOWED - BY NATURE OF PRODUCT PROBLEMS NOT EXPECTED, BUT INDUSTRIAL PRODUCTS ARE NEVER MEANT TO BE SWALLOWED.

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CONTINUED ON PAGE: 2

METRA STEEL
MATERIAL SAFETY DATA SHEET

PRODUCT: Carbon Steel
Structurals, Plates, Bars, Sheet, Tubing

ISSUE DATE: July 15, 1986

SECTION I — IDENTIFICATION

METRA STEEL
12219 N. Burgard, Portland, Oregon 97203, (503) 285-4611

SECTION II — INGREDIENTS - EXPOSURE LIMITS

Material	% Weight	Exposure Limits	
		OSHA PEL (Mg//M³)	ACGIH TLV (Mg/M³)
Base Metal			
Iron (Fe)	95/99	10 for Fe^2O^3 Fume	5 for Fe^2O^3 Fume
Alloying Elements			
Carbon (C)	.01/1.25	None	None
Manganese (Mn)	.25/1.20	5 as Mn	5 as dust; 1 as Fume
Phosporus (P)	.001/.15	None for inorganic phosphates	None for inorganic phosphates
Sulfur (S)	.001/.05	13 as So^2	5 as So^2
Silicon (Si)	.01/.75	None	10 total dust
Copper (Cu)	.01/.70	.01 Fume; 1.0 dust	.2 Fume; 1.0 as dust
Nickle (Ni)	.01/.65	1 as Ni	1 as Ni
Chromium (Cr)	.01/1.25	1 Cr metal	0.5 Cr metal; .05 Cr compounds
Molybdenum (Mo)	.01/.10	15 insoluble compounds	10 insoluble compounds
Aluminum (Al)	.10 max	None	10 as Al

Note: The above listing is a summary of elements used in alloying steel products. In addition to those listed other elements called "trace elements" may occur in minute quantities,

SECTION III — PHYSICAL CHARACTERISTICS

Base Metal - Solid - **Melting Point** 2750° F
Appearance - Gray - Black Metallic Lustre **Odor** - Odorless

SECTION IV — FIRE AND EXPLOSION HAZARD

Steel in solid state presents no fire or explosion hazard.

SECTION V — REACTIVITY DATA

Steel presents no reactivity problems under normal conditions. In contact with acid it will liberate hydrogen, and at melting point temperature may liberate oxides of the iron and alloying elements.

SECTION VI — HEALTH HAZARD DATA

The steel products listed in their natural state do not present an inhalation, ingestion, or contact health hazard. When operations such as welding, sawing, burning, grinding, etc., are employeed which raise the temperature of the product to its melting point, the result may be the creation of airborne particles which may present hazards.

Major Exposure Hazard - Inhalation

Effects of Overexposure
Excessive inhalation of metallic fumes and dust may result in irritation of eyes, nose and throat. High concentrations of fumes and dust of iron oxide, manganese, copper, zinc and lead may result in Fume Fever. Typical symptoms consist of a metallic taste in mouth, dry nose and irritation of throat, chills, and fever lasting from 12 to 48 hours.
Prolonged inhalation of high concentrations of iron oxide fumes and dust may lead to siderosis,

Emergency and First Aid Procedures
Inhalation - remove to fresh air
Eye Contact - flush eyes well with running water
Skin Contact - remove clothing, wash well with soap and water
Ingestion - if significant amounts ingested - seek medical attention
In all cases if condition persist seek medical attention

SECTION VII — SAFE HANDLING AND USE

Spills - Not applicable to steel products listed
Fire and Explosion - not applicable

SECTION VIII — CONTROL MEASURES

Respiratory Protection - NIOSH/MSHA approved dust and fume protectors should be used to avoid excessive inhalation of particles.
Skin Protection - Use appropriate protective clothing such as gloves and aprons when burning or welding.
Eye Protection - Safety glasses and/or face shields should always be worn when grinding, sawing, welding and burning.
Ventilation - Keep area well ventilated when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust and fume exposure. Areas with operations having a high potential for generating heavy concentration of particulates should be studied for consideration of special exhaust equipment.

The information in this MSDS is taken from sources and data believed to be responsible. Metra Steel makes no warranty, express or implied, regarding accuracy or absolute correctness of any of the above . Further, we do not assume responsibility and disclaim liability for loss, damage or expense arising out of or connected with the handling, storage or use of the steel products listed.

ESCO CORPORATION

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

Manufacturer:

ESCO Corp., 2141 NW 25th Avenue
Portland, OR 97210

For Additional Information, contact:

Roger Sherwood, Manager-Environmental Affairs
Phone: 503-778-6335

Creation Date: 11/'85
Revision Date: NA

PRODUCT IDENTIFICATION

Product Name:
STEEL FOUNDRY PRODUCTS

Synonym(s):
NA

Formula
NA

Chemical Family:
NA

TYPICAL CHEMICAL COMPOSITION (1)

Ingredient (2)	CAS No.	Wt. %	Permissible Air Level (3) OSHA PEL	ACGIH TLV
Iron	7439-89-6	Balance	10(4)	5(4)
Chromium	7740-47-3	0.1-35	0.1(5)	.05(5)
Manganese	7439-96-5	0.1-20	5.0(6)	1.0(7)
Nickel	7440-02-0	0.1-45	1.0(8)	1.0(8)
Molybdenum	7439-98-7	0.1-10	5 (Soluble Compounds)	5
			15 (Insoluble Compounds)	10
Silicon	7740-21-3	0.1-5	15 (Total Dust)	10
			5 (Respirable Dust)	5
Carbon	7440-44-0	0.1-4	NA	NA
Trace Elements	NA	LT 1.0	NA	NA

PHYSICAL DATA

Physical State:
Solid

Appearance and Odor:
Gray metal; odorless

Boiling Point:
NA

Melting Point:
2800°F

Solubility in Water:
NA

pH:
NA

Specific Gravity:
7.6-7.8

Vapor Pressure:
NA

Vapor Density:
NA

Evaporation Rate:
NA

% Volatile by Volume:
NA

SEE LAST PAGE FOR IMPORTANT ADDITIONAL TERMS AND CONDITIONS INCLUDING DISCLAIMER OF WARRANTIES.

NORTHWEST TESTING LABORATORIES, INC.

CONSTRUCTION INSPECTION
MATERIALS INSPECTION
CHEMICAL ANALYSIS
PHYSICAL TESTING

5405 N. Lagoon Avenue
P.O. Box 17126
Portland, Oregon 97217-0126
Phone: (503) 289-1778

NON-DESTRUCTIVE TESTING
WELDING CERTIFICATION
SOIL TESTING
ASSAYING

March 26, 1986

Jones Oregon Stevedoring
2323 N.W. Suffolk
P.O. Box 10167
Portland, OR 97210
Attention: Bob

Subject: Analysis on one (1) waste sample submitted on 3-20-86, per your P.O. Number 23855.

Item: Sump Waste

Analysis:

pH	5.93
PCB's, ppm	<1.0

Extraction Procedure Toxicity - mg/L

Cadmium, Cd	<0.05
Chromium, Cr	<0.1
Lead, Pb	<0.1

Respectfully,
NORTHWEST TESTING LABORATORIES, INC.

Paul McPhail

Paul McPhail/Analyst

Howard Holmes

Howard Holmes,
Assistant Supervisor, Chemistry

Report Number: 295616
cc: Spencer Environmental
15770 Beaver Glen Dr.
Oregon City, OR 97045
Attn: Don Spencer

TEMPLEX PRODUCTS
4401 SE JOHNSON CRK
PORTLAND, OR. 97222
(503) 653-9734

MATERIAL SAFETY DATA SHEET

MSDS NUMBER ▶ 80,070-4

97002 (REV 1-83)

SECTION I NAME

PRODUCT ▶	TEMPLEX - TEMPZONE
CHEMICAL/ SYNONYMS ▶	Antifreeze
CHEMICAL FAMILY ▶	Glycol
▶	94010
C.A.S. NUMBER ▶	Mixture

24 HOUR EMERGENCY ASSISTANC

CHEMTREC 800-424-9300

HAZARD RATING

LEAST 0 ▶ SLIGHT 1 ▶ MODERATE 2 ▶ HIGH 3 ▶ EXTREME 4

HEALTH
FIRE
REACTIVITY

SECTION II INGREDIENTS

COMPOSITION	%	TOXICITY DATA
TEMPZONE	100	Not Determined
Ethylene Glycol (75-21-8)	95	Oral LD_{50} (rat) = 6 g/kg Dermal LD_{50} (rabbit) = 9.5 ml/kg Inh (rat) - In saturated air - no deaths in 8 hr.
Water	3	
Inorganic Salts	2	
Organic Salts	<0.5	
Sodium Hydroxide	<0.5	

SECTION III HEALTH INFORMATION

May be mildly irritating to the eyes. Mildly irritating to the skin only after prolonged and repeated contact.

Absorption through skin may cause damage to kidneys and depression of central nervous system.

Prolonged and repeated overexposure to vapors may cause damage to kidneys liver, lungs, blood or central nervous system.

Ingestion can cause:

1) Central nervous system (CNS) stimulation followed by depression.
2) Respiratory failure secondary to CNS depression and cardiovascular collapse, which may be fatal.
3) Kidney damage which may be fatal.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

Chemical Antifreeze: None established. For ethylene glycol: ACGIH-TLV/TWA (vapor) = 50 ppm (ceiling); ACGIH-TLV/TWA (particulate) = 10 mg/m^3, STEL (particulate) = 20 mg/m^3.

72-[illegible]-01

MATERIAL SAFETY DATA SHEET

DIVISION OF ASHLAND OIL, INC.
P. O. BOX 391 • ASHLAND, KENTUCKY 41101 • (606) 329-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Ashland

001498 THERMO-AID PAGE: 1

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: THERMO-AID
CAS NUMBER: 67 63 0

NAPA-PORTLAND
COOPER AUTO PARTS

PO BOX 3169

PORTLAND OR 97200

ATTN: PLANT MGR / SAFETY DIR.

08 70 000 0862954-007
DATA SHEET NO: 0001444-004
LATEST REVISION DATE: 07/85-85199
PRODUCT: 00007100
INVOICE: 048099
INVOICE DATE: 06/18/85
TO:
2030 COLUMBIA BLVD
ST HELENS OR 97051

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: ALCOHOL

HAZARD CLASSIFICATION: (03) FLAMMABLE LIQUID (173.115)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV	
ISOPROPANOL	>95	400	400	PPM

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR PRODUCT	180.00 DEG F (82.22 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	33.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY	AIR = 1	2.0
SPECIFIC GRAVITY		.783 - .784 @ 77.00 DEG F (25.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE	(ETHYL ETHER = 1)	7.70

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT(TCC) 53.00 DEG F
(11.66 DEG C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - 2.5%

EXTINGUISHING MEDIA: ALCOHOL FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

UNUSUAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 400 PPM

THRESHOLD LIMIT VALUE 400 PPM

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.

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CONTINUED ON PAGE: 2

MATERIAL SAFETY DATA SHEET
TRANS-KLEEN(PT2518-54)

12/10/93

Prepared: 01/09/93

SECTION I - PRODUCT IDENTIFICATION

acturer: Associated Chemists, Inc.
4401 S. E. Johnson Creek Blvd.
Portland OR 97222
Telephone : (503) 659-1708
Emergency Tel. : (800) 535-5053

roduct Use : ALKALINE CLEANING COMPOUND
roduct Name : TRANS-KLEEN
MSDS Code : PT2518-54

Hazard Ratings: Health - 2
none -> extreme Fire - 1
0 ---> 4 Reactivity - 0

Personal Protection - E

TDG Classification: NA
TDG Shipping Name: NA
Packing Group: NA
UN #: NONE

ther Names : NONE
HMIS Class(es) : D2B

Molecular Wt: NA

SECTION II - HAZARDOUS INGREDIENTS

ngredients	CAS #	Weight %	LD50 mg/kg	LC50 4 hr	Exposure Limits ACGIH/TLV		OSHA/PEL	
ODECYLBENZENESULFONIC ACID	27176-87-0	< 5.	N/AV	N/AV	X	N.E.	X	N.E.
				STEL =	X	N.E.	X	N.E.
-BUTOXYETHANOL	111-76-2	< 5.	500	N/AV	25	ppm	50	ppm
				STEL =		N.E.		N.E.
SEE SECTION X SARA TITLE III LISTED SUBSTANCE.								
ODIUM SILICATE	1344-09-8	< 5.	1280	N/AV	X	N.E.	X	N.E.
				STEL =	X	N.E.	X	N.E.

*** ALL Ingredients in this product are listed in the T.S.C.A. Inventory.

.E. = Not Established N/AV = Not Available

SECTION III - PHYSICAL DATA

oiling Range: 212 F
vap. Rate: Unavailable
olatile vol %: N/AV Wgt %: 5
apour Pr. mm Hg: 17
reeze Pt : 32 F
pH : 12.5
Odour : MILD
ppearance : CLEAR LIQUID, GLYCOL ETHER ODOR
V.O.C. :40 G/L

Vapour Density: Non Volatile
Odour Threshold: NA

Sp.Gravity: 1.06
Coef. Water/Oil: NA
Physical State : LIQUID

Hm

MATERIAL SAFETY DATA SHEET

TEMPLEX PRODUCTS -- a division of ASSOCIATED CHEMISTS INC. 4401 SE Johnson Crk. Blvd. Portland, OR 97222	EMERGENCY PHONE NUMBERS: (503) 653-9734 (503) 659-1708

SECTION I-IDENTITY INFORMATION

IDENTITY (TRADENAME): 4140 TREAD SAFE
PART A RESIN

FAMILY/CHEMICAL NAME:
EPOXIDE
PRODUCT TYPE:
LIQUID RESIN
IMPORTANT:

* *
* THIS MATERIAL WILL NOT BE SOLD FOR USE IN PRODUCTS *
* FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES OR *
* ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS *
* SPECIFICALLY INTENDED. BECAUSE OF THE WIDE RANGE OF *
* SUCH POTENTIAL USES, CIBA-GEIGY CORPORATION IS NOT ABLE *
* TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR *
* SUCH USES AND ASSUMES NO LIABILITY FOR ANY SUCH USES. *
* *

HAZARD STATEMENT :

* *
* THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN *
* PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD *
* COMMUNICATION STANDARD 29 CFR 1910.1200. *
* THIS PRODUCT IS CONSIDERED TO BE A HAZARDOUS *
* CHEMICAL UNDER THAT STANDARD. *
* *

SECTION II-HAZARDOUS INGREDIENTS

BISPHENOL A DIGLYCIDYL ETHER RESIN CAS# 25068-38-6
TLV NOT ESTABLISHED

SECTION III-PHYSICAL DATA

4140 TREAD SAFE
PART A RESIN

ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

RECEIVED
MAY 20 1986
OREGON OCCUPATIONAL SAFETY

MATERIAL SAFETY DATA SHEET

WHC-117
PRODUCT NAME: TUFF-T WATERLESS HAND CLNR. EFFECTIVE DATE: Sept. 24, 1985
PRODUCT CODE: 3450

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: Cleaning Compound with Petroleum Distillate and Emulsifiers
HAZARD CLASSIFICATION: None.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	PERCENT	TLV
ght Petroleum Distillate		40 by vol.	100 ppm
y be harmful or fatal if ingested. LD_{50} rats > 10 g/kg			
ep out of reach of children.			
oprietary Nonionic-Anionic Emulsifiers		5	NA

SECTION III - PHYSICAL DATA

pH = 8.7 ± 0.2
BOILING POINT: > 212°F
VAPOR PRESSURE (mm Hg): > 1
SPECIFIC GRAVITY: 0.93
VAPOR DENSITY (air = 1): less than 5.7
PERCENT VOLATILES: 40%
EVAPORATION RATE (water = 1): < 1
SOLUBILITY IN WATER: Dispersible.
APPEARANCE AND ODOR: Slight yellowish viscous liquid, fruity odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Setaflash Closed Tester) : > 200°F Setaflash.
LOWER EXPLOSION LIMIT: 0.9 - 1.0%
EXTINGUISHING MEDIA: CO_2, dry chemical, foam, water spray.
HAZARDOUS DECOMPOSITION PRODUCTS: CO_2, water vapor, CO.
SPECIAL FIREFIGHTING PROCEDURES: Do not enter confined fire spaces without proper equipment.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Fire hazard is greater as temperature increases beyond 140°F.

SECTION V - HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: TLV = 100 ppm parts vapor per million part air.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Causes irritation.
SKIN: May cause irritation to abraided skin. Not toxic by skin contact.
BREATHING: Excessive exposure to vapors may cause headache, dizziness.
SWALLOWING: Not expected to be acutely toxic. LD_{50} rats > 10 g/kg for petroleum distillate.

FIRST AID

IF IN EYES: Flush eyes immediately & continuously for 15 min. Call doctor.
IF ON SKIN: Wash or wipe skin thoroughly.
IF SWALLOWED: Do not induce vomiting. Call physician immediately.
IF BREATHED: Move person to fresh air.
NOTE TO PHYSICIAN: Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid, which can cause pneumonitis.

ASSOCIATED CHEMISTS, INC.

4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: 4140 TREAD SAFE PART B EPOXY HARDENER EFFECTIVE DATE: 03-06-86
PRODUCT CODE: 4140

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: POLYAMINE ADDUCT
HAZARD CLASSIFICATION: Not a DOT Hazard

SECTION II - HAZARDOUS INGREDIENTS

This product contains no hazardous materials as defined by OSHA Hazard Communication (CFR 1910.1200).

SECTION III - PHYSICAL DATA

pH: Not applicable.
BOILING POINT: Not determined.
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.08
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: 0
EVAPORATION RATE (n-BuAc = 1): N
SOLUBILITY IN WATER: MODERATE
APPEARANCE AND ODOR: LT. YELL. LIQ., AMINE ODOR

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Setaflash Closed Tester) : >200 °F
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Water spray, dry chemical, chemical foam, or carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established

PRIMARY ROUTES OF ENTRY: Ingestion and/or inhalation.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Causes slight irritation.
SKIN: Causes slight irritation.
BREATHING: Inhalation of vapors or mists could cause pulmonary irritation, dizziness, and nausea.
SWALLOWING: Ingestion may cause nausea, vomiting, diarrhea.

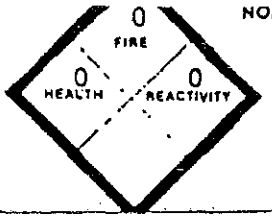
FIRST AID

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. If irritation continues, see a physician.

MATERIAL SAFETY DATA SHEET

NO._____

20/10 Part No.: TTA-32



HAZARD GUIDE
4 EXTREME
3 HIGH
2 MODERATE
1 LOW
0 NEGLIGIBLE

PRODUCT IDENTIFICATION

MANUFACTURER'S NAME 20/10 Products, Inc.	EMERGENCY TELEPHONE NUMBERS Contact manufacturer or nearest poison control center
ADDRESS & TELEPHONE P.O. Box 1726, Beaverton, OR 97075 (503) 646-6841	
TRADE NAME 20/10 Concentrated Winter/ Summer Windshield Cleaner	MANUFACTURER'S CODE IDENTIFICATION UPC 30702 05032
SYNONYMS	

II INGREDIENTS -CONFIDENTIAL-

MATERIAL OR COMPONENT	%	TLV* UNITS	HAZARD

SUM OF REPORTED INGREDIENTS SHOULD EQUAL 100

III PHYSICAL DATA

BOILING RANGE (760 MM HG)	MELTING POINT
SPECIFIC GRAVITY (H_2O=1)	VAPOUR PRESSURE (MM HG)
VAPOUR DENSITY (AIR = 1)	SOLUBILITY IN H_2O (% BY WT.) 100%
% VOLATILES BY VOL.	EVAPORATION RATE (BUTYL ACETATE=1)
APPEARANCE AND ODOUR Clear, Amber; slight ammoniacal odor	pH 9.2

IV FIRE AND EXPLOSION DATA

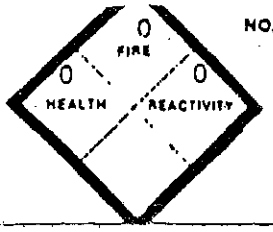
FLASH POINT (TEST METHOD) 167° F C.O.C.	FLAMMABLE LIMITS IN AIR (% BY VOL.) Not determined
AUTOIGNITION TEMPERATURE	EXTINGUISHING MEDIA Foam, CO_2, dry chemical, water
SPECIAL FIRE FIGHTING PROCEDURES	
UNUSUAL FIRE AND EXPLOSION HAZARD None	

V REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	None
INCOMPATIBILITY	N/A
HAZARDOUS DECOMPOSITION PRODUCTS	None
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	Will not occur

MATERIAL SAFETY DATA SHEET

NO. _____



HAZARD GUIDE
4 EXTREME
3 HIGH
2 MODERATE
1 LOW
0 NEGLIGIBLE

20/10 Part #'s: TT-8, TT-32, TT-128

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: 20/10 Products, Inc.	EMERGENCY TELEPHONE NUMBERS: Contact manufacturer or nearest poison control center
ADDRESS & TELEPHONE: P.O. Box 1726, Beaverton, OR 97075 (503) 646-6841	
TRADE NAME: 20/10 Concentrated Instant Windshield Cleaner	MANUFACTURER'S CODE IDENTIFICATION UPC: 307028
SYNONYMS	30702 01032 30702 01128

II INGREDIENTS -CONFIDENTIAL-

MATERIAL OR COMPONENT	%	TLV* UNITS	HAZARD

SUM OF REPORTED INGREDIENTS SHOULD EQUAL 100

III PHYSICAL DATA

BOILING RANGE (760 MM HG)	MELTING POINT
SPECIFIC GRAVITY (H_2O=1): 1.002	VAPOUR PRESSURE (MM HG)
VAPOUR DENSITY (AIR = 1)	SOLUBILITY IN H_2O (% BY WT.): 100%
% VOLATILES BY VOL.	EVAPORATION RATE (BUTYL ACETATE=1)
APPEARANCE AND ODOUR: Clear, light green, slight ammoniacal odor	pH: 9.4

IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD): None	FLAMMABLE LIMITS IN AIR (% BY VOL.)
AUTOIGNITION TEMPERATURE	EXTINGUISHING MEDIA
SPECIAL FIRE FIGHTING PROCEDURES	
UNUSUAL FIRE AND EXPLOSION HAZARD	

V REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	None
INCOMPATIBILITY	N/A
HAZARDOUS DECOMPOSITION PRODUCTS	None
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	Will not occur

Bob

NOV 06 1992

MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Trade Name:	Wood dust
Synonyms:	Sawdust, sanderdust
Description:	Particles generated by any manual or mechanical cutting or abrasion process performed on wood.
Manufacturer's Name:	Universal Forest Products, Inc.
Headquarters Address:	P.O. Box 296 Woodburn, Oregon 97071
Telephone:	(503) 226-6240
Date Prepared:	10/29/92

SECTION 2: HAZARDOUS INGREDIENTS

Component	CAS #	OSHA Permissible Exposure Limit	ACGIH Threshold Limit Value
Wood Dust	None	TWA 5mg/m³ STEL (15 min) 10mg/m³ (all soft and hard wood except Western red cedar) Western red cedar: TWA 2.5mg/m³	TWA 5mg/m³ STEL (15 min) 10mg/m³ (Softwoods) TWA 1mg/m³ (Certain hardwoods such as beech and oak)

SECTION 3: PHYSICAL CHARACTERISTICS

Boiling Point:	N/A
Specific Gravity:	Variable, depends on species and moisture content.
Vapor Pressure:	N/A
Percent Volatiles:	N/A

Loctite Corporation

[illegible]
Telephone (203) 278-1280
Telex [illegible]

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name RETAINING COMPOUND 680 Part No. 680
Product Type Anaerobic Formula No.

II. COMPOSITION

Ingredients	% by Wt.	Hazard
Dimethacrylate Ester	40-45	See Section IV.
Hydroxyalkyl Methacrylate	30-35	
Bis-Phenol A Fumarate Resin	15-20	
Cumene Hydroperoxide*	2-3	
Saccharin**	<1	
Maleic Acid	<1	
N,N-Dialkyltoluidines	<1	
Acetylphenylhydrazine***	<1	

*In a single test, pure cumene hydroperoxide caused tumors in one of thirty experimental animals when injected under the skin. **Saccharin has been shown to cause tumors in experimental animals when fed in large amounts for prolonged periods. ***Acetylphenylhydrazine has been shown to cause tumors in experimental animals wh fed in large amounts for prolonged periods. In light of the low concentration of these components in the product, it is our best technical judgment that normal use this product poses no such hazards. These warnings are present only to comply wit OSHA regulations.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure < 5 mm at 80°F Specific Gravity 1.11 at 80°F
Vapor Density Unknown Boiling Point > 300°F
Solubility in Water Slight pH dna
Appearance Green Liquid Odor Sharp

IV. TOXICITY AND HEALTH HAZARD DATA

Toxicity Eye Irritant
Oral LD 50 >5000 mg/kg TLV Does not apply
Dermal LD 50 >2000 mg/kg
Symptoms of Overexposure May cause dermatitis on prolonged contact in sensitive individuals.

Emergency Treatment Procedures
Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention
Inhalation: Does not apply.
Skin Contact: Flush with water.
Eye Contact: Flush at least 15 minutes with water. Obtain medical attention.

Personal Protection
Eyes: Safety glasses or goggles mandatory.
Skin: Rubber or plastic gloves recommended.
Ventilation: Not normally necessary.

Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard,
29CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY(As used on Label and List) ULTRASORB, OPTISORB, 248, MP FINES and FLOSAFE

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturers Name MOLTAN COMPANY	Emergency Telephone Number 1-901-755-5666
Address (Number, Street, City, State, and ZIP CODE) 3555 Moltan Drive	Telephone Number for Information 1-800-264-5826
Memphis, TN 38115	Date Prepared February 15, 1993
	Signature of Preparer (Optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA TWA	ACGIH TLV	Other Limits Recommended	% (Optional)
NO HAZARDOUS INGREDIENTS				
OSHA AIR CONTAMINANT LIMITS:				
Silica, amorphous, (diatomaceous earth)				
CAS No. 61790-53-2	None	N/A		90.4%*
Dust or Nuisance Dust - Respirable				
agglomerates of amorphous silica and				
inert minerals	6.0	N/A		0.8%*
(Non-respirable inert mineral agglomerates	None	N/A		8.8%*)
TOTAL				(100.0%)*

*Weight percent of packaged product, determined by screen analysis, X-Ray Diffraction and petrographic analysis.

Section III - Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_20 = 1)	2.0-2.2
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate=1)	N/A

Solubility in Water 2.0%

Appearance and Odor Buff to off-white, odorless; granular.

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Non-flammable	Flammable Limits Non-flammable	LEL N/A	UEL N/A

Extinguishing Media Not Applicable (also meant when N/A is used elsewhere)

Special Fire Fighting Procedures None

Unusual Fire and Explosion Hazards None

MATERIAL SAFETY DATA SHEET

UFACTURER'S NAME:

MPLEX PRODUCTS
01 SE Johnson Creek Blvd.
rtland, OR 97222

TE OF PREPARATION: 04-29-1986

EMERGENCY TELEPHONE NO.:

(503) 653-9734

INFORMATION TELEPHONE NO.:

(503) 653-9734

SECTION I - PRODUCT IDENTIFICATION

DUCT NUMBER: 91892
DUCT NAME: 91-892: PEN-IT AEROSOL
DUCT CLASS: AEROSOL

HMIS RATINGS:

H	F	R	PP
1	3	0	G

SECTION II - HAZARDOUS INGREDIENTS

REDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
YLENE GLYCOL MONOBUTYL ETHER	111762	< 5.0%	25 PPM-TLV	0.9	25C
eral oil	64741-96-4	10	5 PPM (mist) TLV	0.0	20C
PANE	74986	15	1000 PPM TLV	5650.0	20C
BUTANE	75285	15	NOT ESTABLISHED	1608.0	20C

SECTION III - PHYSICAL DATA

ILING RANGE: -44 F to 300 F

VAPOR DENSITY: HEAVIER THAN AIR

APORATION RATE: FASTER THAN ETHER

% VOLATILE VOLUME: 100.00 **WT/GAL.:** 6.51

MATERIAL SAFETY DATA SHEET

NPCA

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor. Essentially Similar to Form OSHA-20)

DATE OF PREP

Section I

MANUFACTURER'S NAME PACTRA COATINGS, INC

STREET ADDRESS 420 S. 11th Ave.

CITY, STATE, AND ZIP CODE Upland, CA 91786

EMERGENCY TELEPHONE NO 714-946-3871

INFORMATION TELEPHONE NO " " "

PRODUCT CLASS Aerosol Spray Paint

TRADE NAME Imperial

1 Gloss Black	9 Garden Green	17 Terra Brown	
2 Flat Black	10 Light Green	18 Pebble Beige	
3 Appl White	11 Sunshine Yellow	19 Dusty Rust	
4 Gloss White	12 Sand	23 S.G. White	
5 Flat White	13 Carnival Red	24 S.G. Black	
6 Tusk Ivory	14 Palm Green	49 Almond	
7 Grotto Blue	15 Tiger Orange		
8 Sky Blue	16 Nimus Gray		

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Acetone	67-64-1	10-35	750			
Xylene	1330-20-7	0-10	100			
Aliphatic Hydrocarbon	64742-89-8	0-15	300			
Butanol	71-36-5	0-5	50			
Isoprophy Alcohol	67-63-0	0-3	400			
Butyl Cellosolve	111-76-2	0-3				

Section III — PHYSICAL DATA

BOILING RANGE ____

VAPOR DENSITY [XX] HEAVIER. [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [XX] SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME ____

WEIGHT PER GALLON ____

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely Flammable

FLASH POINT -4°F

LEL ____

EXTINGUISHING MEDIA Carbon dioxide or dry chemical or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors or other ignition sources at locations distant from material handling point.

SPECIAL FIRE FIGHTING PROCEDURES Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferrable.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U S Department of Labor Essentially Similar to Form OSHA-20)

PREP 7/27/84

Section I

MANUFACTURER'S NAME ZYNOLYTE PRODUCTS COMPANY

ADDRESS 2320 E. Dominguez St. CITY, STATE, AND ZIP CODE Carson, CA 90749-6244

EMERGENCY TELEPHONE NO. 213-542-7701

INFORMATION TELEPHONE NO 213-515-0700

PRODUCT CLASS Pressurized Spray Paint MANUFACTURERS CODE IDENTIFICATION

TRADE NAME SPRAY MATE

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Methylene Chloride	20± 5	200		----	340mm/20°C
Toluene	5	100		1.3	28@ 25°C
Aliphatic Hydrocarbon Solvent	6±5	500		1.0	5@ 20°C
Aromatic Hydrocarbon Sovlent	9±5	100		1.3	25@25°C
Isobutane & Propane Propellant	27±5	---		2.0	n/a

Section III — PHYSICAL DATA

BOILING RANGE VAPOR DENSITY [XX] HEAVIER, [ ] LIGHTER THAN AIR

EVAPORATION RATE [XX] FASTER [ ] SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 75-85% WEIGHT PER GALLON 7.0- 8.0

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely flammable FLASH POINT -135°F LEL 1.0

EXTINGUISHING MEDIA Foam, Carbon Dioxide, Dry Chemicals- Class B fire extinguisher foam or water. Spray may be used to cool closed containers to prevent pressure build up.

UNUSUAL FIRE AND EXPLOSION HAZARDS Can may explode if punctured or incinerated - DO NOT SPRAY NEAR HEAT, SPARKS OR OPEN FLAMES.

SPECIAL FIRE FIGHTING PROCEDURES Full protective equipment including self contained breathing apparatus should be used. Water Spray may be ineffective.

DATE OF PREP. 11-10-80

(Approved by U.S. Department of Labor - Essentially Similar to Form OSHA-20)

Section I

MANUFACTURER'S NAME: ZYNOLYTE PRODUCTS COMPANY

ADDRESS (Number, Street): 2320 E. Dominguez St. CITY, STATE, AND ZIP CODE: Carson, CA 90749

EMERGENCY TELEPHONE NO. 213-513-0700 (213) 321-4220

PRODUCT CLASS: Pressurized Spray Paint

MANUFACTURER'S CODE IDENTIFICATION: Speed-E-Namel Spray

TRADE NAME: SPEED-E-NAMEL SPRAY

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Aromatic Hydrocarbon Solvent	8.0	200			
Aliphatic Hydrocarbon Solvent	9.0	300			
Methylene Chloride	45.0	200			
Isobutane - Propane Propellent	30.5	N/A			

Section III — PHYSICAL DATA

BOILING RANGE

VAPOR DENSITY [X] HEAVIER [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [X] SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME: 92

WEIGHT PER GALLON: 7.8

Section IV — FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: Aerosol Paint, Compressed Gas, (No Label Required), Consumer Commodity ORM-D

FLASH POINT: Flame Exten: 28" Flash Back: To Top

LEL: N

EXTINGUISHING MEDIA

Foam, Carbon Dioxide, Dry Chemical

UNUSUAL FIRE AND EXPLOSION HAZARDS

ressurized product. Must be stored at temperatures below 120 degrees. o not store near Heat, Sparks or open Flame. Exposure to heat may ause bursting. Do not puncture or incinerate (burn). Use in well entilated area.

FIRE FIGHTING PROCEDURES

eep cool with water spray. Remove from fire area if possible.

MATERIAL SAFETY DATA SHEET

RECEIVED SEP 04 1996 OREGON STEVEDORING CO.

Used to comply with OSHA's Hazard Communication Standard 29CFR 1910.1200

NFPA HAZARD RATING 1 (0=Insignificant, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

Fire: 1 Reactivity: 0 Health: 1 Special: 0

Section I - PRODUCT IDENTIFICATION

MFG. NAME: ARROW GREASE & OIL CO. INC.
ADDRESS: 255 S. BUCKNER BLVD.
DALLAS, TX. 75217
EMERGENCY PHONE NUMBER: (214)391-2157
SECONDARY EMERGENCY NUMBER:(214)875-9413
CHEM TREC: 1-800-424-9300
PRODUCT NAME: CF5D
HAZARD CLASSIFICATION: Low-Hazard

DISTRIBUTOR NAME: TEMPLEX
ADDRESS: 4401 SE JOHNSON CREEK BLVD.
PORTLAND, OR. 97222
EMERGENCY PHONE NUMBER: 503-653-9734

DIESEL FUEL CONDITIONER

Section II - HAZARDOUS COMPONENTS

INGREDIENT	OSHA PEL	ACGIH TLV	INGREDIENT	OSHA PEL	ACGIH TLV
CUT	200ppm	200ppm	XON	100ppm	100ppm
3D	10ppm	10ppm	PEP	50mg/m3	25ppm
XTRA 7	unknown	5mg/m3			

Section III - PHYSICAL DATA

BOILING POINT: 117 °F/ 47 °C
VAPOR PRESSURE (mm Hg.): §200
VAPOR DENSITY (Air=1): 4
SOLUBILITY IN WATER: §5
SPECIFIC GRAVITY (H2O=1): 0.81
MELTING POINT: N.A.
EVAPORATION RATE (ETAC=1): †10
APPEARANCE & ODOR:Clear amber, oil odor

Section IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 132 °F/ 56 °C METHOD: Tag C.C.
FLAMMABLE LIMITS: LEL: ND % UEL: ND %
EXTINGUISHING MEDIA: Dry Chemical, CO2, Foam, Water.
SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool fire exposed surfaces and to protect personnel. Isolate chemical supply from fire. Use foam, dry chemical or water spray to extinguish fire. Respiratory and eye protection required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Slight when exposed to heat or flame. Combustible at high temperatures.
EMPTY CONTAINERS: May retain product residue including flammable or explosive vapors. Do not cut, drill, grind or weld near full, partially full or empty drums.

Section V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

EYES: Can cause irritation, redness, blurred vision.

SKIN: May cause irritation, defatting, dermatitus.

INHALATION: Excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation.

INGESTION: Can cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush with large amounts of water until irritation subsides, if it does not then seek medical aid.

SKIN: Wash with soap and water.

INHALATION: Remove to fresh air. If not breathing give artificial respiration and once breathing restablished administer O2 if needed. Seek medical aid.

Emergency Phone Number(800) 457-2022

Material Safety Data Sheet

CHEVRON Unleaded Gasoline CPS201110

CARSON OIL CO INC
3125 NW 35TH AVE.
P O BOX 10948
PORTLAND, OR 97210

MATERIAL ORDERED FOR:
P/U AT TERMINAL
PORTLAND, OR 97210

Print Date: May 02, 1990

This Material Safety Data Sheet contains environmental, health and toxicology information for your employees. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information incorporated in your MSDS. Discard any previous edition of this MSDS.

Revised to update Sections 1, 10, 11 and 12.

1. PRODUCT IDENTIFICATION

CHEVRON Unleaded Gasoline

DANGER!
- **HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE**
- **VAPOR HARMFUL**
- **LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS**
- **MAY CAUSE EYE AND SKIN IRRITATION**
- **EXTREMELY FLAMMABLE**
- **KEEP OUT OF REACH OF CHILDREN**

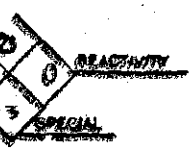
PRODUCT NUMBER(S): CPS201110
PRODUCT INFORMATION: (800)582-3835

Prepared According to the OSHA Hazard Communication Standard (29 CFR 1910.1200) by the Chevron Environmental Health Center, Inc., P.O. Box 4054, Richmond, CA 94804.

McCall Oil & Chemical Corporation

MATERIAL SAFETY DATA SHEET

NFPA HAZARD RATING
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT



PRODUCT NAME: PS-300		DATE ISSUED: 12/31/85	PAGE 1
CHEMICAL NAME: N/A		CHEMICAL FAMILY: Petroleum Hydrocarbon	
FORMULA: Proprietary		MOLECULAR WEIGHT: N/A	
SYNONYMS: None			

I. PHYSICAL DATA

BOILING POINT, 760 mm, Hg	400°F	FREEZING POINT	Unknown
SPECIFIC GRAVITY (H_2O = 1)	0.920 @ 20°C	VAPOR PRESSURE AT 20°C	Negligible
VAPOR DENSITY (air = 1)	Unknown	SOLUBILITY IN WATER, % by wt.	Negligible
PER CENT VOLATILES BY VOLUME	Unknown	EVAPORATION RATE (Butyl Acetate = 1)	Negligible
APPEARANCE AND ODOR	Black liquid; petroleum odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Petroleum Distillates (CAS# 647-41-613)	100	0.2 mg/m^3

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [test method(s)]	150°F, PMCC	AUTOIGNITION TEMPERATURE	Unknown

FLAMMABLE LIMITS IN AIR, % by volume	LOWER	Unknown	UPPER	Unknown

EXTINGUISHING MEDIA	Water spray, fog, foam, dry chemical, or carbon dioxide. Do not use a straight stream of water. Product will float and can be reignited on the surface of the water.
SPECIAL FIRE FIGHTING PROCEDURES	Use self-contained breathing apparatus for confined spaces. Use water spray to cool exposed containers and to disperse vapors.
UNUSUAL FIRE AND EXPLOSION HAZARDS	None.

EMERGENCY PHONE NUMBERS

503/228-2600 — McCall

800/424-9300 — CHEMTREC

While Chemax believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Chemax assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations.

RECEIVED
MAY 28 1986
JONES OREGON DEVELOPING CO.

MATERIAL SAFETY DATA SHEET

Section I

Suppliers Name Vangas, Inc. Emergency Phone Number 639-8691

Address 10075 S. W. Cascade Blvd., Tigard, OR 97223

Chemical Name *Liquefied Petroleum Gas or Propane* CAS Registry No. *74-98-6*

Chemical Family *Hydrocarbon* Formula C_3H_8

Section II HAZARDOUS INGREDIENTS

Hazardous Mixtures *Air with 2.15 to 9.60 percent propane*

Section III PHYSICAL DATA

Boiling Point *-44°F* Specific Gravity ($H_2O = 1$) *0.51* Vapor Pressure (mm HG) at 100°F *9825* Percent, Volatile by Volume (%) *100* Vapor Density (Air = 1) *1.52* Evaporative Rate *None* Solubility in Water *Slightly* Appearance and Odor *Clear—unpleasant odor (caused by odorant)**

Section IV FIRE AND EXPLOSION HAZARD DATA

Flash Point *NA* Classification *Flammable Gas UN 1075* Flammable Limits LEL *2.15* UEL *9.60*

Extinguishing Media *Water Spray: Class A-B-C or BC Fire Extinguishers*

Special Fire Fighting Procedures *Stop flow of gas. Use water to keep fire-exposed containers cool. Use water spray to disperse unignited gas or vapor. If ignition has occurred and no water available, tank metal may weaken from overheating. Evacuate area. If gas has not ignited, LP-gas liquid or vapor may be dispersed by water spray or flooding.*

Section V HEALTH HAZARD

Threshold Limit Value *1,000 PPM* Effects of Overexposure *Inhalation—concentration can lead to symptoms ranging from dizziness to anesthesia and respiratory arrest. Eyes—moderate irritation.*

Emergency & First Aid Procedures *Inhalation—Remove to fresh air. Guard against self-injury. Apply artificial respiration if breathing has stopped.*

Section VI REACTIVITY DATA

Stable *X* Unstable ____ Hazardous Decomposition Products *None*

Incompatability (materials to avoid) *Mixing with oxygen or air, except at burner*

Hazardous Polymerization: May occur ____ Will not occur *X*

Section VII SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released: *Keep public away. Shut off supply of gas. Eliminate sources of ignition. Ventilate the area. Disperse with water spray. Contact between skin and these gases in liquid form can cause freezing of tissue causing injury similar to thermal burn.* Waste Disposal Method *Controlled burning. Contact supplier.*

Section VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection *Stay out of gas or vapor (because of fire hazard).*

Ventilation *Explosion-proof motors and keep sources of ignition at safe distances.*

Personal Protective Equipment and Apparel *Leather or equivalent gloves, goggles for protection against accidental release of pressurized products.*

Section IX SPECIAL PRECAUTIONS

Precautions to be taken when handling and storing *Keep containers away from heat sources and store in upright position. Containers should not be dropped. Keep container valve closed when not in use.*

Other Precaution *Install protective caps* when not connected for use.

Section X TOXICOLOGICAL INFORMATION

OSHA Carcinogen Classification (29 CFR 1910)

Category I Carcinogen ____

Listed as Possible Category I ____

Not listed/applicable *X*

Category II Carcinogen ____

Listed as Possible Category II ____

Section XI DOT LABELING INFORMATION (49 CFR 100-199)

Proper Shipping Name *Liquefied Petroleum Gas* Hazardous Classification *Flammable Gas*

Identification No. *UN 1075* Label(s) Required *Flammable, Class 2*

Date of Preparation or Last Change: ____

*. For use with unodorized gas, remove these words: "UNPLEASANT ODOR (CAUSED BY ODORANT)"

Cato Oil and Grease Co.

P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-McGEE REFINING CORPORATION

TERIAL SAFETY DATA SHEET

NFPA NO. 2004-1517

EMERGENCY TELEPHONE | COMBA 405/424-3311 | CHEMTREC 800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
AW - 46	Not Applicable	
CHEMICAL FAMILY	FORMULA	CAS NUMBER
Petroleum Oil	Not Applicable	Mixture

NFPA HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
ast - 0 Slight - 1 oderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	>98	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	<2	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	MOLECULAR WEIGHT	APPEARANCE
Not Applicable	Not Available	Amber Liquid
ODOR AND THRESHOLD	MELTING POINT	VAPOR DENSITY (AIR = 1)
Mild Petroleum	Pour Point -10°F	Not Applicable
SPECIFIC GRAVITY (H₂O = 1)	VISCOSITY	SOLUBILITY (G/100G WATER AT 20 °C)
0.90	49 Centistokes @100°F	Negligible

MATERIAL SAFETY DATA SHEET

HILTON OIL CORPORATION
3000 Northup Way, #100
Bellevue, WA 98004
(206)827-7005

PRODUCT CODE NO. : HPL-201,203,205,255; ATF-HJF-200,203,255
Hilton Hy-Per-Lube, Inc. MSDS #2

ISSUE DATE: AUG. 13, 1986

MANUFACTURER:
Hilton Hy-Per-Lube, Inc.
12515-130th Lane NE
Kirkland, WA 98034

CONTACT FOR FURTHER INFORMATION:
CALL (206) 821-5561

PRODUCT IDENTIFICATION

PRODUCT NAME	: Hilton Hy-Per-Lube
SYNONYMS	: Hilton Hy-Per-lube
GENERIC NAME	: Industrial Oil
CHEMICAL FAMILY	: Petroleum Hydrocarbon
DOT PROPER SHIPPING NAME	: Not Applicable
ID NUMBER	: None

SECTION I INGREDIENTS

	TVL	UNITS	AGENCY	TYPE
OIL MIST, IF GENERATED	5.00	MG/M3	OSHA	FULL TERM TWA

The identities of ingredients that are trade secrets are excluded from this list.

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT :
For direct contact, flush the affected eye(s) with clean water. If irritation or redness develops, seek medical attention.

SKIN CONTACT :
Do not use gasolines, thinners or solvents to remove product from skin. Wipe material from skin and remove contaminated clothing. Cleanse affected area(s) thoroughly by washing with soap and water and, if necessary, a waterless skin cleanser. If irritation pr redness develops and persists, seek medical attention.

INHALATION (BREATHING) :
If irritation of nose or throat develops, move away from source of exposure and into fresh air. If irritation persists, seek medical attintion. If victim is not breathing or if breathing difficulties develop, artificial respiration or oxygen should be administered by qualfied personnel. Seek immediate medical attention.

Cato Oil and Grease Co.
P. O. Box 26888
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-MCGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

DATA REVISED: C-1634

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
*Mystik® Dimension® Gear Lubricants	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	HEALTH CODE	FIRE CODE	REACTIVITY CODE
	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil and Polymer	94	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Additives	6	Ingredients are proprietary. Potential hazards have been evaluated and pertinent information has been included in Sections IV-IX.	

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION RATE (BUTYL ACETATE = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Amber Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -15°F to -10°F	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (% BY WEIGHT IN WATER AT 20°C)**
0.89-0.90	297-693 Centistokes @100°F	Negligible

*SAE 80W/140 and 85W/250.

Cato Oil and Grease Co.

P. O. Box 26866
Oklahoma City, OK 73126

A SUBSIDIARY OF [illegible]

ERIAL SAFETY DATA SHEET

MSDS NUMBER: C-5411

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

JECT	CHEMICAL NAME	
ystil® JT-6® Hi Temp Grease	Not Applicable	
ICAL FAMILY	FORMULA	CAS NUMBER
etroleum Oil and Soap	Not Applicable	Mixture

NAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
t - 0 Slight - 1 erate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
etroleum Oil	77	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
oap and Additives)	23	Ingredients are proprietary. Potential hazards have been evaluated and pertinent information has been included in Sections IV-IX.	

III. PHYSICAL AND CHEMICAL PROPERTIES

[illegible]	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
ot Applicable	Not Applicable	Not Applicable
ENT VOLATILE BY VOLUME (%)	MOLECULAR WEIGHT	APPEARANCE
Not Applicable	Not Available	Red Grease
OR AND THRESHOLD	MELTING POINT	VAPOR DENSITY (AIR = 1)
Mild Petroleum	Not Applicable	Not Applicable
CIFIC GRAVITY (H₂O = 1)	VISCOSITY	SOLUBILITY (G/100G WATER AT 20°C)
0.90	Not Applicable	Insoluble

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-McGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-1289

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
*Mystik® JT-8® Motor Oils	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	Up to 99.5	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	Up to 1.5	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Amber Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -30° to 5°F	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20°C)**
0.87-0.90	58-268 Centistokes @100°F	Negligible

*Includes all SAE grades: JT-8 ; Commercial Extra

Cato Oil and Grease Co.
P. O. Box 26868
Oklahoma City, OK 73126

A SUBSIDIARY OF KERR-MCGEE REFINING CORPORATION

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: C-1672

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/424-3311	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
Mystik® PT Fluid Universal	Not Applicable	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Oil	Not Applicable	Mixture

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	0	1	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Petroleum Oil	>99	Oil Mist TWA-5mg/M³	Oil Mist TWA-5mg/M³ STEL-10mg/M³
Non-hazardous Additives	<1	Not Applicable	Not Applicable

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION RATE (BUTYL ETHER = 1)
Estimated>600°F	<0.01mm Hg @ 77°F	Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
Not Applicable	Not Available	Red Liquid
ODOR AND TREATMENT	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Mild Petroleum	Pour Point -45°F	Not Applicable
SPECIFIC GRAVITY (H₂O = 1)	**VISCOSITY**	**SOLUBILITY IN (1 PART WATER AT 20°C)**
0.87	46 Centistokes @100°F	Negligible

NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA.

AEROSOL MATERIAL SAFETY DATA SHEET

(ESSENTIALLY SIMILAR TO FORM OSHA-20)

EMERGENCY PHONE (503) 653-9734

TEMPLEX PRODUCTS
4401 SE Johnson Creek Blvd.
Portland, OR 97222

TEMP 400 GREASE

QUICK PRODUCT IDENTIFIER (IN PLANT COMMON NAME)

I — IDENTIFICATION

SIGNATURE OF PERSON RESPONSIBLE FOR PREPARATION	M. Smith	DATE PREPARED 11-25-85	PACKAGE TYPE Aerosol Container
FORMULA Proprietary Mixture		TRADE NAME	TEMP 400 GREASE

II — HAZARDOUS INGREDIENTS

PRINCIPLE HAZARDOUS COMPONENT(s) (CHEMICAL NAME(S))	CAS#	APPROX. %(wt)	TLV (ppm)
1,1,1-Trichloroethane (The ingredients above are listed in descending order of concentration.)	71-55-6		350
PROPELLANT Carbon Dioxide	124-38-9		N/A

III — PHYSICAL DATA

BOILING POINT (°F) OF CONCENTRATE	N.D.	SPECIFIC GRAVITY (H_2O = 1) @75°F OF CONCENTRATE	1.284
VAPOR PRESSURE (psig) IN CAN @ 75°F	90	% VOLATILE BY VOLUME IN CAN	>80
VAPOR DENSITY	N.D.	FLASH POINT OF CONCENTRATE	None up to 150° F tag open cup
SOLUBILITY IN WATER OF CONCENTRATE	0.1%	APPEARANCE AND ODOR OF SPRAY	slightly viscous red liquid, sweetish solvent odor

IV — FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY as per CPSC FLAME EXTENSION TEST spray non-flammable	FLAMMABLE LIMITS	Lower N/A	Upper N/A

EXTINGUISHING MEDIA

foam, dry chemical, CO_2

SPECIAL FIRE FIGHTING PROCEDURES

KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING, RUPTURING OR VENTING CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

AT ELEVATED TEMPERATURES (ABOVE 120°F) CONTAINERS MAY VENT, RUPTURE OR BURST.

V — REACTIVITY DATA

CHEMICAL STABILITY	UNSTABLE		CONDITIONS TO AVOID: Do not expose to temp. above 120° F.
	STABLE	X	

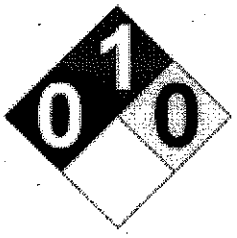
INCOMPATABILITY (Materials to avoid) Strong alkalies, oxidizers, aluminum and other reactive metals.

HAZARDOUS DECOMPOSITION PRODUCTS

Abnormally high temp. Possible trace amounts of phosgene

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

MATERIAL SAFETY DATA SHEET

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
Not Required for Normal Use		Not Dangerous	Not Controlled	Not Regulated

Section 1: Product and Company Information

Product Name: DURA-INK® 200, DURA-INK® 10, DURA-INK® 15, DURA-INK® 25, DURA-INK® 55

Product Code: DURA-INK® 200 – 96916 (red), 96917 (black), 96915 (blue), 96914 (green), 96540 (red carded), 96541 (black carded).
DURA-INK® 10 – 96076 (black), 96077 (black carded).
DURA-INK® 15 – 96022 (red), 96023 (black), 96025 (blue), 96026 (green), 96033 (black carded) 96068 (red carded).
DURA-INK® 25 - 96222 (red), 96223 (black), 96233 (black carded) 96234 (red carded).
DURA-INK® 55 – 96528 (red), 96529 (black), 96530 (blue), 96531 (green), 96532 (red carded), 96533 (black carded).

Product Use: Marker for cardboard, wood, metal, paper, ceramics, glass, leather and rubber.

Manufacturer: LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL.
60007-5746

Phone Number: (847) 956-7600

Fax: (847) 956-9885

24-hour Emergency: **CHEMTREC: (800) 424-9300**

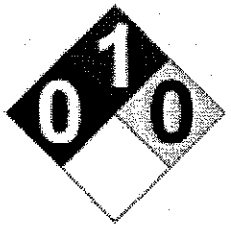
Section 2: Composition and Ingredient Information

Hazardous/Dangerous Ingredients:

Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
Ethanol	64-17-5	40 – 45	200-578-6	F	R11
n-Butyl Alcohol	74-36-3	20 – 25	200-751-6	Xn	R10; R22; 37/38; R41; R67

Note: See Section 8 of this MSDS for exposure limit data for these ingredients.
See Section 16 for the full text of the R-phrases above.

MATERIAL SAFETY DATA SHEET

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
Wear gloves if skin contact with the paint is likely		Not Dangerous	Not Controlled	Not Regulated

Section 1: Product and Company Information

Product Name: Valve Action® Paint Marker – Brown, Purple, White, Yellow, Red, Black, Orange, Blue, Green, Gold, Light Green, Pink, Aluminum, Light Blue

Product Code: 96809 (brown), 96817 (purple), 96820 and 96800 (white), 96821 and 96801 (yellow), 96822 and 96802 (red), 96823 and 96803 (black), 96824 and 96807 (orange), 96825 and 96805 (blue), 96826 and 96806 (green), 96827 (gold), 96828 (light green), 96830 (pink), 96835 (light blue), 96832 and 96804 (aluminum)

Product Use: Marker for metal, wood, glass, plastic, rubber, cardboard and paper.

Chemical Family: Mixture

Manufacturer: LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL.
60007-5746

Phone Number: (847) 956-7600

Fax: (847) 956-9885

24-hour Emergency: **CHEMTREC: (800) 424-9300**

Section 2: Composition and Ingredient Information

Hazardous/Dangerous Ingredients
For All Colors:

Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
Solvent naphtha (petroleum)	64742-88-7	20 – 30	265-191-7	Xn	R65
Stoddard Solvent	8052-41-3	10 – 20	232-489-3	T	R45; R65
Ligroine (VM&P Naphtha)	8032-32-4	10 – 30	232-453-7	T	R45; R65
Xylene	1330-20-7	5 – 10	215-535-7	Xn	R10; R20/21; R38
Ethylbenzene	100-41-4	1 – 5	202-849-4	F; Xn	R11; R20

MATERIAL SAFETY DATA SHEET

Protective Clothing	NFPA Rating (USA)		EC Classification	WHMIS (Canada)	Transportation
Not required for normal use	Health	1	Not Classified	Not Controlled	Not Regulated
	Flammability	1			
	Instability	0			

Section 1: Product and Company Information

Product Name: DURA-INK® 20
DURA-INK® 25
DURA-INK® 100

Product Code: DURA-INK® 20 – 96122 (red), 96123 (black)
DURA-INK® 25 – 96221 (yellow), 96222 (red), 96223 (black), 96225 (blue), 96229 (brown)
DURA-INK® 100 – 96913 (black)

Product Use: Marker for cardboard, wood, metal, paper, ceramics, glass, leather and rubber.

Chemical Family: Mixture

Manufacturer: LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL.
60007-5746

Phone Number: (847) 956-7600

Fax: (847) 956-9885

24-hour Emergency: **CHEMTREC: (800) 424-9300**

Section 2: Composition and Ingredient Information

Hazardous/Dangerous Ingredients For All Colors:

Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
Xylene	1330-20-7	60 – 80	215-535-7	Xn	R10; R20/21; R38
Ethylbenzene	100-41-4	10 – 24	202-849-4	F; Xn	R11; R20

Color-specific ingredients:

Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
Cresol (mixed isomers) Black Marker Only	1319-77-3	1 – 5	215-293-2	T, C	R24/25; R34

Note: See Section 8 of this MSDS for exposure limit data for these ingredients.
See Section 16 for the full text of the R-phrases above.

MATERIAL SAFETY DATA SHEET : CUTOFF WHEEL PAGE : 01

(055312-0423@ -50109877-97600320)	DATE OF ISSUE 04/18/91	SUPERSEDES 03/02/89

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS	TRADE NAME & SYNONYMS
ABRASIVES	CUTOFF WHEEL

CHEMICAL FAMILY
WHEEL, ABRASIVE, CUT OFF ALUMINUM OXIDE

FORMULA
<--MIXTURE

MANUFACTURERS NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 152170
IRVING, TEXAS 75015

PREPARED BY:	PRODUCT CODE NUMBER	EMERGENCY TELEPHONE NUMBER
LINDA M. SILAS	97600320	214-438-1381

SECTION II- HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS.

CHEMICAL NAME (INGREDIENTS)	HAZARD	TLV	PEL	CAS#
ALUMINUM OXIDE	NUISANCE	10 MG/M3	15 MG/M3	1344-28-1
FLUORIDES	IRRITANT	2.5 MG/M3	2.5 MG/M3	VARIOUS
BARIUM SULFATE (TTL DUST)	IRRITANT	5 MG/M3	5 MG/M3	7727-43-7
FURFURAL *	IRRITANT	7.9 MG/M3	20 MG/M3	98-00-0
CRESOL (LINT-FREE DUST) *	IRRITANT	22 MG/M3	22 MG/M3	1319-77-3

* - MAY NOT BE PRESENT IN THE FINAL PRODUCT.

SECTION III - PHYSICAL DATA

BOILING PT.(FAHRENHEIT)	N/A	SPEC GRAVITY (H2O=1)	:2.0
VAPOR PRESSURE (MM HG).	N/A	COLOR	DARK BROWN TO BLACK
VAPOR DENSITY (AIR=1)	N/A	ODOR	SLIGHT PHENOLIC ODOR
PH @ 100%	N/A	CLARITY	OPAQUE
PERCENT, VOLATILE BY VOLUME (%)	0	EVAPORATION RATE (BU AC = 1)	0
SOLUBILITY IN WATER	SLIGHT		
VISCOSITY	SOLID		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
N/A N/A		N/A	N/A

EXTINGUISHING MEDIA "ALCOHOL" DRY WATER
<--FOAM <--FOAM X<--CO2 <--CHEMICAL X<--SPRAY <--OTHER

SPECIAL FIRE FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS TO AVOID INHALATION OF SMOKE OR VAPORS

UNUSUAL FIRE & EXPLOSION HAZARDS
N/A

NFPA HAZARD RATING (0=INSIGNIFICANT;1=SLIGHT;2=MODERATE;3=HIGH;4=EXTREME):
2 <--HEALTH 0 <--FLAMMABILITY 0 <--REACTIVITY <--SPECIAL

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:
NOT ESTABLISHED FOR MIXTURE. SEE SECTION II.

EFFECTS OF OVEREXPOSURE

-ACUTE- - ACUTE - (SHORT TERM EXPOSURE)

DEC 0 2 1985 152

75 Ethylene Glycol, 5 Aqueous Inhibitor Salts

MATERIAL SAFETY DATA SHEET

APPROVED BY U S LABOR DEPT, ESSENTIALLY SIMILAR TO FORM OSHA20

OLD WORLD TRADING CO
AGRANDI DIV
NORTH AMERICAN ENTERPRISES DIV
ONE NORTH BROADWAY
DES PLAINES, IL 60016
EMERGENCY PHONE: 1-312-699-2000

CHEMICAL NAME & SYNONYMS: Solvent TRADE NAME: Advance Antifreeze
CHEMICAL FAMILY: Not Applicable
FORMULA: Not Applicable

I. PHYSICAL DATA

BOILING RANGE :	195 196 196*°C / 383 385 385*°F (*=End Point)
API GRAVITY :	Not Applicable
SPECIFIC GRAVITY (Water=1) :	1.120
POUNDS/GALLON :	9.330
VAPOR PRESSURE (mm of Hg)@20°C :	0.1
VAPOR DENSITY (air=1) :	2.1
SOLUBILITY IN WATER :	Complete
SOLUBILITY IN ACID (85% H_2SO_4) :	Complete
DRY TIME (Ether=1) :	Long
% VOLATILE BY VOL :	95.0
APPEARANCE :	Clear,Bluegreen
ODOR :	Oxygenated
REFRACTIVE INDEX :	1.425

II. HAZARDOUS INGREDIENTS

MATERIAL	CAS #	VOL(%)	TLV(ppm)
Ethylene Glycol	107-21-1	> 9	50

LOWEST KNOWN LD50 (ORAL)	107-21-1	5840 mg/kg(Rats)
LOWEST KNOWN LD50 (SKIN)	107-21-1	9530 mg/kg (Rabbits)

DOT SHIPPING NAME: None

HAZARD RATING
HEALTH: 3 FLAMMABILITY: 1 REACTIVITY: 0

III. FIRE & EXPLOSION HAZARD DATA

LOWER FLAMMABLE LIMIT IN AIR (% by vol): 1.0
FLASH POINT (TEST METHOD): 118°C / 245°F (TCC)
FLAMMABILITY CLASSIFICATION: Class III B

EXTINGUISHING MEDIA : NFPA Class B extinguishers (CO_2 or foam) for class III B liquid fires.

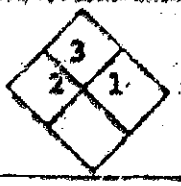
SPECIAL FIRE FIGHTING PROCEDURES : Water spray may be ineffective on fire but can protect fighters & cool closed containers. Use fog nozzles if water is used. Use air-supplied breathing masks.

UNUSUAL EXPLOSION AND FIRE PROCEDURES : SLIGHTLY COMBUSTIBLE! Keep container tightly closed. Isolate from oxidizers, heat, & open flame. Closed containers may explode if exposed to extreme heat. Applying to hot surfaces requires special precautions.

Legal responsibility is assumed only for the fact that all studies reported here & all opinions are those of qualified experts. Buyer assumes all risk & liability. He accepts & uses this material on these conditions. He must have a copy of this MSDS where material is handled.

MATERIAL SAFETY DATA SHEET

NFPA 704 DESIGNATION



CIN # 6960

DATE (OF PREP) 11-1-84

Section I 765-1285 + 765-1286

new 8/9/85

MANUFACTURER'S NAME: FIBRE GLASS-EVERCOAT CO., INC.

STREET ADDRESS: 6600 CORNELL ROAD

CITY, STATE, AND ZIP CODE: CINCINNATI, OHIO 45242

EMERGENCY TELEPHONE NO: (513) 489-7600

PRODUCT CLASS / MANUFACTURER'S CODE IDENTIFICATION: Polyester Resin

TRADE NAME: Automotive Resin #497, 498, 499, 500

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/m³	LEL	VAPOR PRESSURE
Styrene (Cas # 100-42-5)	<40	100			4.5mm H
Unsaturated polyester	60>	Non-hazardous.			

Section III — PHYSICAL DATA

BOILING RANGE: Styrene 293°F

VAPOR DENSITY: XX HEAVIER. ☐ LIGHTER THAN AIR

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

PERCENT VOLATILE BY WEIGHT: 40 before cure

WEIGHT PER GALLON: 9.2 lb.

Section IV — FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: Consumer Commodity ORMD

FLASH POINT: 98°F

LEL: 1.1

EXTINGUISHING MEDIA: water fog, foam, dry chemical, CO^2

UNUSUAL FIRE AND EXPLOSION HAZARDS: At elevated temperature such as fire condition, polymerization may takeplace. If contained, there is possibility of violent rupture.

SPECIAL FIRE FIGHTING PROCEDURES:

FRICTION SUPPLY
5/21/86

PRODUCT FACT SHEET

ASBESTOS FRICTION PRODUCTS

Product

Brake shoes, brake linings, disc brake pads, clutch facings, and other friction products.

Potentially Hazardous Ingredients

Asbestos - Products contain chrysotile asbestos fibers coated with phenolic resin binder.

Physical Hazards

Asbestos friction products do not present any unusual fire, explosion or reactivity hazards.

Health Hazard Data

No threshold limit valve (TLV) has been established for the asbestos fibers coated with phenolic resin. However, a TLV has been established for free asbestos fibers of 2.0 fibers/cc of air. OSHA has proposed a reduction in this TLV to .2 fibers/cc. Inhalation of excessive concentration of asbestos fibers has been associated with certain serious health problems, such as asbestosis or mesothelioma.

Waste Disposal Method

Dispose of asbestos friction products and dust in compliance with local, state, and federal regulations regarding disposal of asbestos-containing waste material, in proper receptacles, appropriately labelled.

Special Protection Information

If airborne concentration of asbestos exceeds 2 fibers/cc, use NIOSH-approved respirator and local ventilation.

Special Precautions

When handling and removing asbestos friction products, precautions should be observed to prevent dust from becoming airborne or being inhaled. See reverse side for procedures recommended by the Friction Materials Standards Institute ("FMSI") for reducing dust during brake servicing.

NOTE

People who work around products containing asbestos should not smoke. Substantial medical evidence indicates that smoking will increase the risk from asbestos exposure.

Friction Dump
5-21-86

PRODUCT FACT SHEET

NON-ASBESTOS FRICTION PRODUCTS

Product

Brake shoes, brake linings, disc brake pads, clutch facings and other friction products.

Potentially Hazardous Ingredients

Lead, glass fibers, silica, talc, graphite, carbon black - Products contain non-asbestos materials coated with phenolic and cashew resin binders.

Physical Hazards

Non-asbestos friction products do not present any unusual fire, explosion or reactivity hazards.

Health Hazard Data

Inhalation of excessive concentrations of certain non-asbestos materials may cause health problems such as pneumoconiosis and other lung damage. Chronic exposure to lead can affect kidneys, blood, gums, gastro-intestinal system, and central nervous system.

Waste Disposal Method

Dispose of materials and dust in compliance with local, state and federal regulations.

Special Protection Information

Special clothing is required if the OSHA P.E.L. for lead is exceeded.

Special Precautions

When handling and removing non-asbestos friction materials, precautions should be observed to prevent dust from being inhaled. Standard industrial hygiene practices, including good housekeeping and vacuuming or wet cleaning work surfaces to prevent dust from becoming airborne, should be implemented.

Ashland Petroleum Company
DIVISION OF ASHLAND OIL, INC.
P. O. BOX 391 • ASHLAND, KENTUCKY 41101 • (606) 329-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

****

PRODUCT NAME: CARBURTR TUNEUP

NAPA-PORTLAND
PO BOX 3169
PORTLAND OR 97208
ATTN: PLANT MGR / SAFETY DIR.

DS 70 000 0862954-010
DATA SHEET NO: 0175961-002
LATEST REVISION DATE: 12/[illegible]-84339
PRODUCT: 00008700
INVOICE: 065801
INVOICE DATE: 09/17/88
TO:
12300 S W BROADWAY
BEAVERTON OR 97005

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: MIXTURE-SOLVENTS

HAZARD CLASSIFICATION: (03) FLAMMABLE COMPRESSED GAS (173.300)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	% (BY VOL)	PEL	TLV	NOTE
PROPANE CAS #: 74-98-6	25-30			
XYLENE CAS #: 1330-20-7	70-75	100	100 PPM	
METHYL ETHYL KETONE CAS #: 78-93-3	25-30	200	200 PPM	
DIACETONE ALCOHOL CAS #: 123-42-2	5-10	50	50 PPM	

*THE SPECIFIC CHEMICAL IDENTITY HAS BEEN WITHHELD AS A TRADE SECRET.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR COMPONENT(25-30 %)	-45.00 DEG F (-42.77 DEG C)
		@ 760.00 MMHG
VAPOR PRESSURE	FOR COMPONENT(25-30 %)	70.00 MMHG
		@ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY		HEAVIER THAN AIR
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F (20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT -156.00 DEG F
(-104.44 DEG C)

EXPLOSIVE LIMIT - UNAVAILABLE

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE., VARIOUS HYDROCARBONS, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 4 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

FIRST AID:

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CONTINUED ON PAGE: 2

TEMPLEX PRODUCTS -- a division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

RECEIVED
MAR 07 1987
JONES OREGON STEVEDORING CO.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: CLASS 8 TRUCK WASH
PRODUCT CODE: 2320

EFFECTIVE DATE: 02-10-86

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: ALKALINE CLEANING COMPOUND
HAZARD CLASSIFICATION: Corrosive

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	TLV	PERCENT
2-Butoxyethanol	111-76-2	25 ppm (skin)	5
Sodium hydroxide	1310-73-2	2 mg/m^3	5

SECTION III - PHYSICAL DATA

pH: >13
BOILING POINT: 212 °F
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.066
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: Not applicable.
EVAPORATION RATE (n-BuAc = 1): 0.3
SOLUBILITY IN WATER: complete
APPEARANCE AND ODOR: Blue solution, Butoxyethanol odor.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Setaflash Closed Tester) : 190- °F
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Water spray, dry chemical, chemical foam, or carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Never use welding or cutting torch on or near drum, even empty, because product or residue can ignite explosively.

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established

PRIMARY ROUTES OF ENTRY: Ingestion, inhalation, or skin absorption.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Corrosive - causes irreversible eye damage.
SKIN: Corrosive - causes irreversible skin damage.
BREATHING: Corrosive vapors (mists) (dusts) - causes burns.

MATERIAL SAFETY DATA SHEET

CTD 1

I. PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: CLEVELAND TWIST DRILL CO. **TELEPHONE NO.:** (216) 431-3120

ADDRESS: P.O. BOX 6656
CLEVELAND, OHIO 44101 **DATE PREPARED:** November, 1985

TRADE NAME: (Label Identity): CLEVELAND TWIST DRILL CO. FERROUS CUTTING TOOL PRODUCTS

CHEMICAL NAME: (Generic): Ferrous Alloys

COMMON NAME: High Speed, Tool & Die, Carbon and Stainless Steels

II. HAZARDOUS INGREDIENTS

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA Hazard Communication Standard (29 CFR Part 1910, 1200) including cited Appendices, Lists, References, etc., all of which are hereby incorporated by reference.

MATERIAL OR COMPONENT	PERCENT BY WEIGHT	CAS NO.		OSHA PEL (Mg/M^3)			ACGIH TLV (Mg/M^3)	
COBALT	0.0 - 12.5%	7440-48-4		0.1			0.1	
CHROMIUM	0.0 - 18.0%	7440-47-3		1.0			.50	
IRON	60.0 - 99.5%	1309-37-1		10			5	
MANGANESE	.10 - 2.5%	7439-96-5	(Dust)	5	(Ceiling)		5	(Ceiling)
			(Fume)	—			1	
MOLYBDENUM	0.0 - 10.0%	7439-98-7		15			10	
NICKEL	0.0 - 16.0%	7440-02-0		1			1	
VANADIUM	0.0 - 6.0%	1314-62-1	(Dust)	.5	(Ceiling)		.05	
			(Fume)	.1	(Ceiling)		.05	
TITANIUM	0.0 - 1.0%	13463-67-7		15			5	
CARBON	0.10 - 3.00%	1333-86-4		3.5		5	3.5 (As Carbon Black)	
TUNGSTEN	0.0 - 18.0%	7440-33-7		—		—	5	
SILICON	0.0 - 3.5%	7440-21-2	(Dust)	—		—	5.0	
ALUMINUM	0.0 - 2.0%	7429-90	(Dust)	—		—	10	
			(Fume)	—		—	5	

REFER TO GRADE CHART ATTACHED

III. PHYSICAL DATA

BOILING POINT:	5000 °F	**MELTING POINT:**	Approx. 2500 °F
SPECIFIC GRAVITY (H_2O = 1):	Approx. 7.8 - 8.2 (60 °F)	**VAPOR PRESSURE:**	N/A
VAPOR DENSITY (AIR = 1):	N/A	**SOLUBILITY IN H_2O:**	Insoluble
% VOLATILES BY VOLUME:	N/A	**EVAPORATION (BUTYL ACETATE = 1):**	N/A
APPEARANCE & ODOR:	Various Shapes, Solid, Odorless Metal		

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None **FIRE POINT:** None

V. HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUME WHICH CAN BE INHALED, SWALLOWED, OR COME IN CONTACT WITH THE SKIN OR EYES.

PRIMARY ROUTES OF ENTRY:	**EMERGENCY FIRST AID:**
Inhalation	Remove to fresh air, if condition continues, consult physician.
Eye Contact	Flush well with running water to remove particulate. Get medical attention.
Skin Contact	Brush off excess dust. Wash area well with soap & water.
Ingestion	Seek medical help if large quantities of material have been ingested.

EFFECTS OF EXPOSURE: No toxic effects would be expected from exposure to the solid form of specialty steel. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. (See Section II).

CTI/1

MATERIAL SAFETY DATA SHEET

COMPANY NAME: CLEVELAND TWIST DRILL CO.
Address: P.O. BOX 6656
CLEVELAND, OHIO 44101

Telephone No.: 216-431-3120

Chemical Name: Cemented Carbide Product with Cobalt binder.

Trade Name and Synonyms: All Cleveland Carbide Grades

Chemical Family: Refractory Metal Carbide

Molecular Weight: N/A

PHYSICAL DATA

Appearance and Odor:	Dark Gray Metal/No Odor		
Boiling Point:	N/A	**Specific Gravity (H_2O = 1):**	11.0 to 15.5
Vapor Pressure (mm Hg):	N/A	**Percent Volatile by Volume:**	0
Vapor Density (Air = 1):	N/A	**Evaporation rate:**	N/A
Solubility in Water:	Insoluble	**How Best Monitored:**	Air Sample

HAZARDOUS INGREDIENTS

Material	Percent by Weight		OSHA PEL	ACGIH TLV
Tungsten Carbide (limits for Tungsten dust)	41 - 97%	*	----	5 mg/m^3
Cobalt	3 - 30%	*	0.1 mg/m^3	0.1 mg/m^3
Tantalum Carbide (limits for Tantalum dust)	0.0 - 16.5%	*	5 mg/m^3	5 mg/m^3
Chromium Carbide (limits for Chromium (+3) dust)	0.0 - 5.1%	*	1 mg/m^3	0.5 mg/m^3
Chromium (+3)	0.0 - 4.5%	*	1 mg/m^3	0.5 mg/m^3
Titanium Carbide (limits for Titanium dust)	0.0 - 16.5%	*	----	5 mg/m^3

*Depends on grade specifications

HEALTH HAZARD DATA

Routes of Exposure:
Grinding cemented carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes.

Effects of Overexposure:

Inhalation - Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. It is reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Skin Contact - Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Eye Contact - Can cause irritation.

Ingestion - Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.

Emergency and First Aid Procedures: Applicable for dusts or mists

Inhalation - If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.), remove from exposure and seek medical attention.

Skin Contact - If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.

Eye Contact - If irritation occurs, flush with copious amounts of water. If irritation persists, seek medical attention.

Ingestion - If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, other):
None of the components of this material have been identified as known or suspected carcinogens by NTP, IARC or OSHA.

FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A **Test Method Used:** --- **Flammable Limits:** N/A **LEL:** --- **UEL:** ---

...rd Cemented Carbide Product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate, and ...jected to an ignition source.

...tinguishing Media: For powder fires use dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dusts may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

MT. HOOD CHEMICAL CORPORATION
4444 N.W. Yeon Ave.
Portland, OR 97210

Product Name DRI WALK

Emergency Telephone - 503-227-3505

MATERIAL SAFETY DATA

Prepared by Kathleen Woods - 11-85

Chemical Family	Formula
Inorganic Salt	Proprietary

HAZARDOUS MIXTURES

Hazardous Mixtures:	Percent:
NONE	
	Percent:
	Percent:
	Percent:

PHYSICAL DATA

Boiling Point N/A	% Volatiles by Volume 0%
Solubility in Water Appreciable	pH (as is) N/A
Specific Gravity (H_2O=1) N/A	pH (1% solution) 7.0-7.5

Odor and Appearance:
White to light gray pellets-bland odor VAPOR PRESSURE - N/A

FIRE AND EXPLOSION DATA

Flash Point:
NONE

Extinguishing Point:
NONE

Special Fire Fighting Procedures and Unusual Fire and Explosion Hazards:
Extinguishing media - Water, CO_2, foam, dry chemicals

HEALTH HAZARD DATA

Threshold Limit Value:
Not Applicable

Effects of Over Exposure:
May cause skin and eye irritation of mucous membranes may be experienced upon ingestion.

Emergency and First Aid Procedures:
For skin or eye contact, flush with plenty of water for at least 15 minutes. If swallowed, give large amounts of liquids. May cause vomiting. Maintain fluid levels.

PRIMARY ROUTES OF ENTRY: INGESTION

765-1210, 765-1211

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. 1[illegible]

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: PERMATEX COMPANY, INC.	EMERGENCY TELEPHONE NO.: (305) 686 0880
ADDRESS (Number, Street, City, State, and ZIP Code): 2300 N. Florida Mango (P.O. Box 1350), West Palm Beach, Florida 33401	
CHEMICAL NAME AND SYNONYMS: None	TRADE NAME AND SYNONYMS: Parts Nos. 4-2170, 4-2171 * GASKET SEALER
CHEMICAL FAMILY: None	FORMULA: Proprietary

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS ISOPROPANOL	23	400ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Based on information from our suppliers, the materials incorporated into this product are not toxic. (Isopropanol is listed for general information purposes only.)		

SECTION III PHYSICAL DATA

BOILING POINT (°F.) (Solvent)	180	SPECIFIC GRAVITY (H_2O=1)	1.11
VAPOR PRESSURE (mm Hg.) (Solvent)	31.2	PERCENT VOLATILE BY VOLUME (%)	~31
VAPOR DENSITY (AIR=1)	--	EVAPORATION RATE (N-bu-Ac=1)	1.7
SOLUBILITY IN WATER	23%**		
APPEARANCE AND ODOR	Dark Brown, Viscous Liquid; Alcoholic Odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 175F, T.O.C.	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA: CO_2 or Dry Chemical Powder			
SPECIAL FIRE FIGHTING PROCEDURES: Same as for oil-based paints.			
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE			

* Compounded to meet Military Specification, MIL-S-45180B, Type III.
** Insoluble when dried.

January 1, 1986

U.S. DEPARTMENT OF LABOR
WORKPLACE STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
CLEANUP HAND CLEANER CO.	244-7392
ADDRESS (Number, Street, City, State, and ZIP Code) 1829 SE Haig St., Portland, OR. 97202	
CHEMICAL FAMILY Cleaning Compound	TRADE NAME AND SYNONYMS Hand Cleaner

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
"NONE"		

SECTION II PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H2O=1)	0.953
SOLUBILITY IN WATER	dispersable	PH of 1% SOLUTION	9.6

APPEARANCE AND ODOR Light paste w/spec's of wood fiber dispersed. Has light lemon scent.

SECTION III FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	N/A			
SPECIAL FIRE FIGHTING PROCEDURES	N/A			

SECTION IV HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A

EFFECTS OF OVEREXPOSURE N/A

EMERGENCY AND FIRST AID PROCEDURES Eyes - Flush w/water for 10-15 minutes; see physician if required. Ingestion - Don't induce vomiting; drink citrus juices & water; see physician if required.

SECTION V SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Mop or clean up spills as soon as possible to avoid the danger of slippery floors. Otherwise use normal cleaning methods.

SECTION VI SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) N/A

VENTILATION	LOCAL EXHAUST	N/A
	MECHANICAL (General)	N/A

PROTECTIVE GLOVES	N/A	EYE PROTECTION	goggles if required

SECTION VII SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in cool dry area whenever possible.

AMERICAN STEEL

Issued date: May 1, 1986

MATERIAL SAFETY DATA SHEET
Carbon and Alloy Steels

I. PRODUCT IDENTIFICATION

Distributor: American Steel, Division of American Industries, Inc. Corporate offices at 4033 NW Yeon/PO Box 10086, Portland, Oregon 97210.
Trade Name (Common Name or Synonym): Carbon and Alloy Steels
Chemical Name: Iron Alloy
Forms: Plates, Bars, Shapes, Tubes, Sheets
Emergency Telephone: (503) 226-1311 or contact your nearest American Steel office

II. PRODUCT INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits OSHA PEL (mg/m³)	Exposure Limits ACGIH TLV (mg/m³)
Base metal				
Iron (Fe)	7439-89-6	86.5-99.5	10 Oxide Fume	5 Oxide Fume
Alloying Elements				
Aluminum (Al)	7429-90-5	<0.1-0.5	Not Established	10 Dust 5 Fume
Bismuth (Bi)	7440-69-9	<0.2-0.5	Not Established	Not Established
Boron (B)	7440-42-8	<0.1-1.0	15 Oxide Fume	10 Oxide Fume
Carbon (C)	7440-44-0	<.10-1.5	Not Established	Not Established
Chromium (Cr)	7440-47-3	<.40-10	1.0 Chrome Metal	0.5 Chrome Metal
Columbium (Cb)	7440-25-7	<.15-.35	Not Established	Not Established
Copper (Cu)	7440-50-8	<.30-1.90	0.1 Fume/1.0 Dust	0.2 Fume 1.0 Dust
Lead (Pb)	7439-92-1	<.01-.15	.05 Dust & Fume	.15 Dust & Fume
Manganese (Mn)	7439-96-5	<.04-0.7	5c Dust 5c Fume	5c Dust 1 Fume
Molybdenum (Mo)	7439-98-7	<.15-1.10	15 Insoluble Compound	10 Insoluble Compound
Nickel (Ni)	7440-02-0	<.01-10	1 Nickel Metal	1 Nickel Metal
Phosphorous (P)	7723-14-0	<.040-.12	0.1 Phosphorous	0.1 Phosphorous
Silicon (Si)	7440-21-3	<.15-2.00	Not Established	10 Total Dust
Sulfur (S)	7704-34-9	<.050-.35	13 Sulfur Dioxide	5 Sulfur Dioxide
Vanadium (V)	7440-62-2	<.01-0.15	0.5c Dust 0.1c Fume	0.05 Dust 0.05 Fume
Zinc Coating	7440-66-6	2 oz	5 Oxide Fume	10 Dust 5 Fume
Aluminum Coating	7429-90-5	.05 oz	Not Established	10 Dust 5 Fume

Note 1: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. Values shown are applicable to component elements.

Note 2: Coatings as residual rolling lubricants and rust preventatives may be on various products. MSDS' for specific coatings are available upon request.

III. PHYSICAL DATA

Physical Form: Solid under normal conditions
Appearance & Odor: Gray-black odorless metal
Specific Gravity (H2O = 1): Approx. 7
Melting Point: Approx 2800° F
Solubility in Water (% by weight): Not applicable
Boiling Point: Not applicable
Vapor Pressure: Not applicable
Vapor Density: Not applicable
Acidity Alkalinity: Not applicable
% Volitile by Volume: Not applicable

IV. FIRE AND EXPLOSION DATA

Flash Point: Not applicable **Auto-ignition Temperature:** Not applicable
Flammable Limits in Air: Not applicable **Fire & Explosion Hazards-Extinguishing Media:** Steel bars, shapes, tubes, plates and sheets do not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire.

Fine metal particles, such as produced in grinding and sawing, can burn. High concentration of metallic fines in the air may present an explosion hazard. Molten metal may explode on contact with water. For these fires, use dry powder or sand extinguishing media.

ESCO CORPORATION

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

Manufacturer:

ESCO Corp., 2141 NW 25th Avenue
Portland, OR 97210

For Additional Information, contact:

Roger Sherwood, Manager-Environmental Affairs
Phone: 503-778-6335

Creation Date: 11/'85
Revision Date: NA

PRODUCT IDENTIFICATION

Product Name:
NICKEL BASE FOUNDRY PRODUCTS

Synonym(s):
NA

Formula
NA

Chemical Family:
NA

TYPICAL CHEMICAL COMPOSITION (1)

Ingredient (2)	CAS No.	Wt. %	Permissible Air Level (3) OSHA PEL	Permissible Air Level (3) ACGIH TLV
Iron	7439-89-6	0.1-25	10(4)	5(4)
Chromium	7740-47-3	0.1-25	0.1(5)	.05(5)
Manganese	7439-96-5	0.0-2	5.0(6)	1.0(7)
Nickel	7440-02-0	Balance	1.0(8)	1.0(8)
Molybdenum	7439-98-7	0.0-35	5 (Soluble Compounds)	5
			15 (Insoluble Compounds)	10
Silicon	7740-21-3	0.0-2	15 (Total Dust)	10
			5 (Respirable Dust)	5
Carbon	7440-44-0	0.0-1	NA	NA
Trace Elements	NA	LT 1.0	NA	NA

PHYSICAL DATA

Physical State:
Solid

Appearance and Odor:
Gray metal; odorless

Boiling Point:
NA

Melting Point:
2800°F

Solubility in Water:
NA

pH:
NA

Specific Gravity:
7.6-7.8

Vapor Pressure:
NA

Vapor Density:
NA

Evaporation Rate:
NA

% Volatile by Volume:
NA

SEE LAST PAGE FOR IMPORTANT ADDITIONAL TERMS AND CONDITIONS INCLUDING DISCLAIMER OF WARRANTIES.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

C.F.R. TITLE 29

CHAPTER XVII PART 1910

MATERIAL SAFETY DATA SHEET

The information requested will be kept confidential and disclosed only as necessary to meet requirements of the Occupational Safety and Health Act of 1970 or as required by any other Federal, State or Local regulations.

SECTION I

MANUFACTURER'S NAME: CERTANIUM ALLOYS & RESEARCH COMPANY	EMERGENCY TELEPHONE NO.: (216) 391-8300
ADDRESS (Number, Street, City, State, and ZIP Code): 4500EUCLID AVENUE, CLEVELAND, OHIO 44103	
CHEMICAL NAME AND SYNONYMS: FAST CURE EPOXY PUTTY	TRADE NAME
CHEMICAL FAMILY: EPOXY AND POLYMER CPTAN RESINS	PRODUCT NAME: PMC SUPER QUICK SET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
Pigments	N/A	N/A	Base Metal	N/A	N/A
Catalyst — Amine Resins	15	100	Alloys	N/A	N/A
Vehicle — Epoxy Resins	15	NE	Metallic Coatings	N/A	N/A
Solvents	N/A	N/A	Filler Metal Plus Coating or Core Flux	N/A	N/A
Additives	N/A	N/A	Others		
Others — Polymer Captan Resins	15	NE			

HAZARDOUS MIXTURES OF OTHER SOLVENTS	%	TLV (Units)
N/A	N/A	N/A

SECTION III - PHYSICAL DATA

Boiling Point (°F)	N/A	Specific Gravity (H_2O = 1)	1.9
Vapor Pressure (mm Hg.)	Nil	Percent Volatile by Volume (%)	0
Vapor Density (Air = 1)	N/A	Evaporation Rate (= 1)	Nil
Solubility in Water	None		
Appearance and Odor	Putty-like; Mercaptan Odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

		LEL	UEL
Flash Point (Method used) — None	Flammable Limits	N/A	N/A

Extinguishing Media — Water spray, Foam CO_2, Dry Chemicals

Special Fire-Fighting Procedures

Unusual Fire and Explosion Hazards — CO, Aldehydes and Acids may be formed in the event of a fire.

MATERIAL SAFETY DATA SHEET New #- 765-1483

SECTION I 765-1480, 765-1481, 765-1482.

PRODUCT NAME OR NUMBER: RTV SEALANT - PRESSURIZED CONTAINER

MANUFACTURERS NAME:
ADDRESS:
PHONE:
PROPER SHIPPING NAME(49 CFR 172.101): CONSUMER COMMODITY
D.O.T. HAZARD NAME (49 CFR 172.101) COMPRESSED GAS
D.O.T. ID NO(49 CFR 172.101): 1956
D.O.T. HAZARD CLASS (49 CFR 172.101): ORM-D
RCRA HAZARD CLASS*(40 CFR 261): NONE
E.P.A. PRIORITY POLLUTANTS (40 CFR 122.53): NONE
HEALTH (NFPA): 1 FLAMABILITY (NFPA): 1 REACTIVITY (NFPA): 1
CAS.NO.: MIXTURE
GENERIC DESCRIPTION: SILICONE
* IF DISCARDED

SECTION II HAZARDOUS INGREDIENTS

Acetoxysilane	5 %	TLV (units): 10 ppm*

* Based on Acetic Acid.

SECTION III HEALTH HAZARD DATA HEALTH (NFPA) 1

EFFECTS OF OVEREXPOSURE: Irritates eyes. Prolonged or repeated contact may irritate skin.

THRESHOLD LIMIT VALUE OF PRODUCT: 10 ppm (based on liberated acetic acid)

EMERGENCY AND FIRST AID PROCEDURES: Wipe off. Flush with water. Obtain medical attention for eyes if necessary.

SECTION IV FIRE AND EXPLOSION HAZARD DATA FLAMMABILITY (NFPA) 1

FLASH POINT (Method Used): Open Cup above 250°F/120°C
FLAMMABLE LIMITS IN AIR, % BY VOLUME: Lower: Not applicable
Upper: Not applicable
EXTINGUISHING MEDIA: Carbon dioxide or foam.
SPECIAL FIRE FIGHTING PROCEDURES: Self contained breathing apparatus and protective clothing should be worn in fighting fires involving chemicals.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents under pressure. High Temperatures may cause the container to rupture.

SECTION V PHYSICAL DATA

BOILING POINT: Above 300°F/149°C
SPECIFIC GRAVITY: 1.05
MELTING POINT: Not applicable
VAPOR PRESSURE: Less than 5 mm (RTV); 70 psig for pressurizing agent
VAPOR DENSITY (AIR=1): Not applicable
PERCENT VOLATILE BY VOLUME (%): Less than 5%
EVAPORATION RATE (ether =1): Less than 1
SOLUBILITY IN WATER (%): Less than 0.1%
FLASH POINT (method used): Open Cup above 250°F/120°C.
ODOR, APPEARANCE, COLOR: Acetic acid-like, paste, various.

ASSOCIATED CHEMISTS, INC.

4401 S.E. Johnson Creek Blvd,
Portland, Oregon 97222
(503) 659-1708

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: RQ-10 STEAM CLEANER EFFECTIVE DATE: 3-4-86
PRODUCT CODE: 4020

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: ALKALINE CLEANING COMPOUND
HAZARD CLASSIFICATION: Corrosive

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	TLV	PERCENT
Potassium hydroxide	1310-58-3	2 mg/m^3	7
Sodium hydroxide	1310-73-2	2 mg/m^3	2
Sodium silicate	13870-28-5	none estab.	2

SECTION III - PHYSICAL DATA

pH: >13
BOILING POINT: 212 °F
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.131
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: Not applicable.
EVAPORATION RATE (n-BuAc = 1): 0.3
SOLUBILITY IN WATER: Completely soluble.
APPEARANCE AND ODOR: Clear yellow liquid, odorless.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Not applicable.
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Product is non-combustible.
HAZARDOUS DECOMPOSITION PRODUCTS: None known.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established

PRIMARY ROUTES OF ENTRY: Ingestion and/or inhalation.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Corrosive - causes irreversible eye damage.
SKIN: Corrosive - causes irreversible skin damage.
BREATHING: Corrosive vapors (mists) (dusts) - causes burns.
SWALLOWING: Ingestion of this material causes burns to the esophagus and could be fatal.

765-1215

Form Approved
Budget Bureau No. 44-R1387.1
Approval Expires April 30, 1971

Form No. 559-005-4
May 1969

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: PERMATEX COMPANY, INC Woodhill
EMERGENCY TELEPHONE NO.: 305-000-0000 216-475-360
ADDRESS (Number, Street, City, State, and ZIP Code): 2300 N. Florida Mango Road, West Palm Beach, Fla. 33401
CHEMICAL NAME AND SYNONYMS: n.a.
TRADE NAME AND SYNONYMS: Balkamp Part No. 4-2530
CHEMICAL FAMILY: Moisture-curing Silicone Polymer
FORMULA: n.a.

SECTION II — HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Polydimethylsiloxane, fillers, pigments (not hazardous)	96	n.a.
Cyclohexylamine (formed by moisture)	4	20ppm *
* Value given in "Handbook of Organic Industrial Solvents", American Mutual Insurance Alliance		

SECTION III — PHYSICAL DATA

BOILING POINT (°F.) n.a.		SPECIFIC GRAVITY (H_2O=1)	1.04
VAPOR PRESSURE (mm Hg.) n.a.		PERCENT VOLATILE BY VOLUME (%)	5
VAPOR DENSITY (AIR=1) 3.4		EVAPORATION RATE (Ether = 1)	n.a.
SOLUBILITY IN WATER Negligible			
APPEARANCE AND ODOR Blue paste with ammoniacal odor.			

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Cleveland Open Cup >400F		n.a.	n.a.

EXTINGUISHING MEDIA: Water, carbon dioxide, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: none

UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustion products toxic. For large fires, wear self-contained breathing apparatus. (There is no unusual hazard with the cured material).

72-42-7825-01

MATERIAL SAFETY DATA SHEET

Ashland Petroleum Company
DIVISION OF ASHLAND OIL, INC.
P. O. BOX 391 • ASHLAND, KENTUCKY 41101 • (606) 329-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Ashland

007324 STARTING FLUID PAGE: 1

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: STARTING FLUID
CAS NUMBER:

NAPA-PORTLAND

PO BOX 3169

PORTLAND OR 97208

ATTN: PLANT MGR / SAFETY DIR.

08 70 000 0862954-000
DATA SHEET NO: 0177785-002
LATEST REVISION DATE: 10/85-85276
PRODUCT: 00007212
INVOICE: 069072
INVOICE DATE: 10/01/85
TO:
10515 N LOMBARD
PORTLAND OR 97203

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: SOLVENT BLEND

HAZARD CLASSIFICATION: (04) FLAMMABLE COMPRESSED GAS (173.300)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	% (BY WT)	PEL	TLV		NOTE
CARBON DIOXIDE GAS INDUSTRIAL GRADE CAS #: 124-38-9	1-10		5000	PPM	
ALIPHATIC HYDROCARBON * CAS #: 142-82-5	>60	500	400	PPM	(1)
ETHYL ETHER CAS #: 60-29-7	10-30	400	400	PPM	

(1): NIOSH RECOMMENDS A LIMIT OF 85 PPM - 8 HOUR TIME WEIGHTED AVERAGE, 440 PPM CEILING.

*THE SPECIFIC CHEMICAL IDENTITY HAS BEEN WITHHELD AS A TRADE SECRET.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR COMPONENT(10-30 %)	94.00 DEG F (34.44 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR COMPONENT(10-30 %)	439.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY		HEAVIER THAN AIR
SPECIFIC GRAVITY		LESS THAN WATER
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT < -58.00 DEG F
(-50.00 DEG C)

EXPLOSIVE LIMIT (LOWEST VALUE OF COMPONENT) LOWER - 1.1%

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE., VARIOUS HYDROCARBONS, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

WATER OR FOAM MAY CAUSE FROTHING WHICH CAN BE VIOLENT AND POSSIBLY ENDANGER THE LIFE OF THE FIREFIGHTER, ESPECIALLY IF SPRAYED INTO CONTAINERS OF HOT, BURNING LIQUID.

UNUSUAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR BE MOVED BY VENTILATION AND IGNITED BY HEAT, PILOT LIGHTS, OTHER FLAMES AND IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: FOR COMPONENT

SKIN - NONE EXPECTED AS MATERIAL IS A GAS.
EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
IF SWALLOWED - BY NATURE OF PRODUCT PROBLEMS NOT EXPECTED, BUT INDUSTRIAL PRODUCTS ARE NEVER MEANT TO BE SWALLOWED.

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CONTINUED ON PAGE: 2

(029345-0222# -50082263-97510080) | DATE OF ISSUE 12/18/86 | SUPERSEDES 12/18/86

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS
N/A

TRADE NAME & SYNONYMS
SURF CUT ABRASIVE ROLL

CHEMICAL FAMILY
SILICON CARBIDE AND RESIN BINDER

FORMULA
<--MIXTURE

MANUFACTURERS NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 162170
IRVING, TEXAS 75015

PREPARED BY:
J. MICHAEL COLE

PRODUCT CODE NUMBER
97510080

EMERGENCY TELEPHONE NUMBER
214-438-4144
EXT.019

SECTION II- HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS AS THE PRODUCT MIXTURE HAS NOT BEEN TESTED AS A WHOLE.

CHEMICAL NAME (INGREDIENTS)	HAZARD	TLV*	PEL*	CAS#
SILICON CARBIDE		10MG/M3	15MG/M3	409-21-2

SECTION III - PHYSICAL DATA

BOILING PT.(FAHRENHEIT)	N/A	SPEC GRAVITY (H20=1)	:N/A
VAPOR PRESSURE (MM HG).	N/A	COLOR	CLOTH COATED
VAPOR DENSITY (AIR=1)	N/A	ODOR	N/A
PH @ 100%	N/A	CLARITY	N/A

(CONTINUED) SECTION III - PHYSICAL DATA

PERCENT VOLATILE BY VOLUME (%)	N/A	EVAPORATION RATE (BU AC = 1)	N/A
SOLUBILITY IN WATER	N/A		
VISCOSITY	N/A		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
N/A N/A	N/A	N/A	N/A

EXTINGUISHING MEDIA "ALCOHOL"
<--FOAM <--FOAM <--CO2 DRY <--CHEMICAL WATER <--SPRAY <--OTHER

SPECIAL FIRE FIGHTING PROCEDURES
BACKINGS AND RESIN BINDER WILL BURN OR DECOMPOSE, USE RESPIRATORY PROTECTION.

UNUSUAL FIRE & EXPLOSION HAZARDS
N/A

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE :

N/A

EFFECTS OF OVEREXPOSURE

- ACUTE - (SHORT TERM EXPOSURE)

MAY CAUSE COUGHING, SHORTNESS OF BREATH.

- CHRONIC - (LONG TERM EXPOSURE)

MAY AFFECT BREATHING CAPACITY.

PRIMARY ROUTE OF ENTRY: <-- INHALATION <-- INGESTION <-- ABSORPTION

EMERGENCY & FIRST AID PROCEDURES

INHALATION :

MAY CAUSE COUGHING, SHORTNESS OF BREATH, MAY AFFECT BREATHING CAPACITY. REMOVE TO FRESH AIR APPLY ARTIFICAL RESPIRATION AS NEEDED. OBTAIN FIRST AID OR MEDICAL ASSISTANCE.

EYE CONTACT:

DUST MAY IRRITATE EYES. WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID OR MEDICAL ASSISTANCE, IF NEEDED.

METRA STEEL
MATERIAL SAFETY DATA SHEET

PRODUCT: Carbon Steel Structurals, Plates, Bars, Sheet, Tubing

ISSUE DATE: July 15, 1986

SECTION I — IDENTIFICATION

METRA STEEL
12219 N. Burgard, Portland, Oregon 97203, (503) 285-4611

SECTION II — INGREDIENTS - EXPOSURE LIMITS

Material	% Weight	Exposure Limits	
		OSHA PEL (Mg//M³)	ACGIH TLV (Mg/M³)
Base Metal			
Iron (Fe)	95/99	10 for Fe^2O^3 Fume	5 for Fe^2O^3 Fume
Alloying Elements			
Carbon (C)	.01/1.25	None	None
Manganese (Mn)	.25/1.20	5 as Mn	5 as dust; 1 as Fume
Phosporus (P)	.001/.15	None for inorganic phosphates	None for inorganic phosphates
Sulfur (S)	.001/.05	13 as So^2	5 as So^2
Silicon (Si)	.01/.75	None	10 total dust
Copper (Cu)	.01/.70	.01 Fume; 1.0 dust	.2 Fume; 1.0 as dust
Nickle (Ni)	.01/.65	1 as Ni	1 as Ni
Chromium (Cr)	.01/1.25	1 Cr metal	0.5 Cr metal; .05 Cr compounds
Molybdenum (Mo)	.01/.10	15 insoluble compounds	10 insoluble compounds
Aluminum (Al)	.10 max	None	10 as Al

Note: The above listing is a summary of elements used in alloying steel products. In addition to those listed other elements called "trace elements" may occur in minute quantities,

SECTION III — PHYSICAL CHARACTERISTICS

Base Metal - Solid - **Melting Point** 2750° F
Appearance - Gray - Black Metallic Lustre **Odor** - Odorless

SECTION IV — FIRE AND EXPLOSION HAZARD

Steel in solid state presents no fire or explosion hazard.

SECTION V — REACTIVITY DATA

Steel presents no reactivity problems under normal conditions. In contact with acid it will liberate hydrogen, and at melting point temperature may liberate oxides of the iron and alloying elements.

SECTION VI — HEALTH HAZARD DATA

The steel products listed in their natural state do not present an inhalation, ingestion, or contact health hazard. When operations such as welding, sawing, burning, grinding, etc., are employeed which raise the temperature of the product to its melting point, the result may be the creation of airborne particles which may present hazards.

Major Exposure Hazard - Inhalation

Effects of Overexposure
Excessive inhalation of metallic fumes and dust may result in irritation of eyes, nose and throat. High concentrations of fumes and dust of iron oxide, manganese, copper, zinc and lead may result in Fume Fever. Typical symptoms consist of a metallic taste in mouth, dry nose and irritation of throat, chills, and fever lasting from 12 to 48 hours.
Prolonged inhalation of high concentrations of iron oxide fumes and dust may lead to siderosis,

Emergency and First Aid Procedures
Inhalation - remove to fresh air
Eye Contact - flush eyes well with running water
Skin Contact - remove clothing, wash well with soap and water
Ingestion - if significant amounts ingested - seek medical attention
In all cases if condition persist seek medical attention

SECTION VII — SAFE HANDLING AND USE

Spills - Not applicable to steel products listed
Fire and Explosion - not applicable

SECTION VIII — CONTROL MEASURES

Respiratory Protection - NIOSH/MSHA approved dust and fume protectors should be used to avoid excessive inhalation of particles.
Skin Protection - Use appropriate protective clothing such as gloves and aprons when burning or welding.
Eye Protection - Safety glasses and/or face shields should always be worn when grinding, sawing, welding and burning.
Ventilation - Keep area well ventilated when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust and fume exposure. Areas with operations having a high potential for generating heavy concentration of particulates should be studied for consideration of special exhaust equipment.

The information in this MSDS is taken from sources and data believed to be responsible. Metra Steel makes no warranty, express or implied, regarding accuracy or absolute correctness of any of the above . Further, we do not assume responsibility and disclaim liability for loss, damage or expense arising out of or connected with the handling, storage or use of the steel products listed.

ESCO CORPORATION

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

Manufacturer:

ESCO Corp., 2141 NW 25th Avenue
Portland, OR 97210

For Additional Information, contact:

Roger Sherwood, Manager-Environmental Affairs
Phone: 503-778-6335

Creation Date: 11/'85
Revision Date: NA

PRODUCT IDENTIFICATION

Product Name:
STEEL FOUNDRY PRODUCTS

Synonym(s):
NA

Formula
NA

Chemical Family:
NA

TYPICAL CHEMICAL COMPOSITION (1)

Ingredient (2)	CAS No.	Wt. %	Permissible Air Level (3) OSHA PEL	Permissible Air Level (3) ACGIH TLV
Iron	7439-89-6	Balance	10(4)	5(4)
Chromium	7740-47-3	0.1-35	0.1(5)	.05(5)
Manganese	7439-96-5	0.1-20	5.0(6)	1.0(7)
Nickel	7440-02-0	0.1-45	1.0(8)	1.0(8)
Molybdenum	7439-98-7	0.1-10	5 (Soluble Compounds)	5
			15 (Insoluble Compounds)	10
Silicon	7740-21-3	0.1-5	15 (Total Dust)	10
			5 (Respirable Dust)	5
Carbon	7440-44-0	0.1-4	NA	NA
Trace Elements	NA	LT 1.0	NA	NA

PHYSICAL DATA

Physical State:
Solid

Appearance and Odor:
Gray metal; odorless

Boiling Point:
NA

Melting Point:
2800°F

Solubility in Water:
NA

pH:
NA

Specific Gravity:
7.6-7.8

Vapor Pressure:
NA

Vapor Density:
NA

Evaporation Rate:
NA

% Volatile by Volume:
NA

SEE LAST PAGE FOR IMPORTANT ADDITIONAL TERMS AND CONDITIONS INCLUDING DISCLAIMER OF WARRANTIES.

NORTHWEST TESTING LABORATORIES, INC.

CONSTRUCTION INSPECTION
MATERIALS INSPECTION
CHEMICAL ANALYSIS
PHYSICAL TESTING

5405 N. Lagoon Avenue
P.O. Box 17128
Portland, Oregon 97217-0128
Phone: (503) 289-1778

NON-DESTRUCTIVE TESTING
WELDING CERTIFICATIONS
SOIL TESTING
WELDING

March 26, 1986

Jones Oregon Stevedoring
2323 N.W. Suffolk
P.O. Box 10167
Portland, OR 97210
Attention: Bob

Subject: Analysis on one (1) waste sample submitted on 3-20-86, per your P.O. Number 23855.

Item: Sump Waste

Analysis:

pH	5.93
PCB's, ppm	<1.0

Extraction Procedure Toxicity - mg/L

Cadmium, Cd	<0.05
Chromium, Cr	<0.1
Lead, Pb	<0.1

Respectfully,
NORTHWEST TESTING LABORATORIES, INC.

Paul McPhail

Paul McPhail/Analyst

Howard Holmes

Howard Holmes,
Assistant Supervisor, Chemistry

Report Number: 295616
cc: Spencer Environmental
15770 Beaver Glen Dr.
Oregon City, OR 97045
Attn: Don Spencer

(029345-0222* -50082260-97510120)

DATE OF ISSUE	SUPERSEDES
12/18/86	12/18/86

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS
N/A

TRADE NAME & SYNONYMS
SURF CUT

CHEMICAL FAMILY
SILICON CARBIDE AND RESIN BINDER

FORMULA
<--MIXTURE

MANUFACTURERS NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 152170
IRVING, TEXAS 75015

PREPARED BY:	PRODUCT CODE NUMBER	EMERGENCY TELEPHONE NUMBER
J. MICHAEL COLE	97510120	214-438-4144 EXT.013

SECTION II- HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS AS THE PRODUCT MIXTURE HAS NOT BEEN TESTED AS A WHOLE.

CHEMICAL NAME (INGREDIENTS)	HAZARD	TLV*	PEL*	CAS#
SILICON CARBIDE		10MG/M3	15MG/M3	408-21-2

SECTION III - PHYSICAL DATA

BOILING PT.(FAHRENHEIT)	N/A	SPEC GRAVITY (H2O=1)	N/A
VAPOR PRESSURE (MM HG).	N/A	COLOR	CLOTH COATED
VAPOR DENSITY (AIR=1)	N/A	ODOR	N/A
PH @ 100%	N/A	CLARITY	N/A

SURF CUT

(CONTINUED) SECTION III - PHYSICAL DATA PAGE : 02

PERCENT, VOLATILE BY VOLUME (%)	N/A	EVAPORATION RATE (BU AC = 1)	N/A
SOLUBILITY IN WATER	N/A		
VISCOSITY	N/A		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
N/A N/A	N/A	N/A	N/A

EXTINGUISHING MEDIA "ALCOHOL" DRY WATER
<--FOAM <--FOAM <--CO2 <--CHEMICAL <--SPRAY <--OTHER

SPECIAL FIRE FIGHTING PROCEDURES
BACKINGS AND RESIN BINDER WILL BURN OR DECOMPOSE, USE RESPIRATORY PROTECTION.

UNUSUAL FIRE & EXPLOSION HAZARDS
N/A

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE :

N/A

EFFECTS OF OVEREXPOSURE
- ACUTE - (SHORT TERM EXPOSURE)
MAY CAUSE COUGHING, SHORTNESS OF BREATH.
- CHRONIC - (LONG TERM EXPOSURE)
MAY AFFECT BREATHING CAPACITY.

PRIMARY ROUTE OF ENTRY: <-- INHALATION <-- INGESTION <-- ABSORPTION

EMERGENCY & FIRST AID PROCEDURES
INHALATION :
MAY CAUSE COUGHING, SHORTNESS OF BREATH. MAY AFFECT BREATHING CAPACITY. REMOVE TO FRESH AIR APPLY ARTIFICAL RESPIRATION AS NEEDED. OBTAIN FIRST AID OR MEDICAL ASSISTANCE.

EYE CONTACT:
DUST MAY IRRITATE EYES. WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID OR MEDICAL ASSISTANCE, IF NEEDED.

TEMPLEX PRODUCTS
4401 SE JOHNSON CRK
PORTLAND, OR. 97222
(503) 653-9734

MATERIAL SAFETY DATA SHEET

MSDS NUMBER ▶ 80,070-4

87002 (REV 1-83)

SECTION I NAME

PRODUCT ▶ TEMPLEX - TEMPZONE

CHEMICAL/ SYNONYMS ▶ Antifreeze

CHEMICAL FAMILY ▶ Glycol

94010 | C.A.S. NUMBER ▶ Mixture

24 HOUR EMERGENCY ASSISTANCE

CHEMTREC 800-424-9300

HAZARD RATING

LEAST 0 ▶ SLIGHT 1 ▶ MODERATE 2 ▶ HIGH 3 ▶ EXTREME 4

HEALTH	2
FIRE	1
REACTIVITY	0

SECTION II INGREDIENTS

COMPOSITION	%	TOXICITY DATA
TEMPZONE	100	Not Determined
Ethylene Glycol (75-21-8)	95	Oral LD_{50} (rat) = 6 g/kg Dermal LD_{50} (rabbit) = 9.5 ml/kg Inh (rat) - In saturated air - no deaths in 8 hr.
Water	3	
Inorganic Salts	2	
Organic Salts	<0.5	
Sodium Hydroxide	<0.5	

SECTION III HEALTH INFORMATION

May be mildly irritating to the eyes. Mildly irritating to the skin only after prolonged and repeated contact.

Absorption through skin may cause damage to kidneys and depression of central nervous system.

Prolonged and repeated overexposure to vapors may cause damage to kidneys, liver, lungs, blood or central nervous system.

Ingestion can cause:

1) Central nervous system (CNS) stimulation followed by depression.
2) Respiratory failure secondary to CNS depression and cardiovascular collapse, which may be fatal.
3) Kidney damage which may be fatal.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

Chemical Antifreeze: None established. For ethylene glycol: ACGIH-TLV/TWA (vapor) = 50 ppm (ceiling); ACGIH-TLV/TWA (particulate) = 10 mg/m³, STEL (particulate) = 20 mg/m³.

MATERIAL SAFETY DATA SHEET

Ashland

001498 THERMO-AID PAGE: 1

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: THERMO-AID
CAS NUMBER: 67 63 0

NAPA-PORTLAND
COOPER AUTO PARTS
PO BOX 3169
PORTLAND OR 97208
ATTN: PLANT MGR / SAFETY DIR.

08 70 000 0862954-007
DATA SHEET NO: 0001444-004
LATEST REVISION DATE: 07/22-85109
PRODUCT: 00007400
INVOICE: 0+0099
INVOICE DATE: 06/18/85
TO:
2030 COLUMBIA BLVD
ST HELENS OR 97051

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: ALCOHOL

HAZARD CLASSIFICATION: (03) FLAMMABLE LIQUID (173.115)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV	%
ISOPROPANOL	>95	400	400 PPM	

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR PRODUCT	180.00 DEG F (82.22 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	33.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY	AIR = 1	2.0
SPECIFIC GRAVITY		.783 - .784 @ 77.00 DEG F (25.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE	(ETHYL ETHER = 1)	7.70

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT(TCC) 53.00 DEG F
(11.66 DEG C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - 2.5%

EXTINGUISHING MEDIA: ALCOHOL FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

UNUSUAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT. ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 400 PPM

THRESHOLD LIMIT VALUE 400 PPM

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.

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CONTINUED ON PAGE: 2

MATERIAL SAFETY DATA SHEET : HIGH STR. THREADLOCKER PAGE : 01

(029045-0222* -60082263-57004712)

DATE OF ISSUE	SUPERSEDES
03/28/86	12/18/85

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS	TRADE NAME & SYNONYMS
N/A	HIGH STR. THREADLOCKER

CHEMICAL FAMILY	FORMULA
CYANOACRYLATE	X<--MIXTURE

MANUFACTURERS NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 152170
IRVING, TEXAS 75015

PREPARED BY:	PRODUCT CODE NUMBER	EMERGENCY TELEPHONE NUMBER
J. MICHAEL COLE	57004712	214-438-4144 EXT.013

SECTION II- HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS AS THE PRODUCT MIXTURE HAS NOT BEEN TESTED AS A WHOLE.

CHEMICAL NAME (INGREDIENTS)	HAZARD	TLV*	PEL*	CAS#
HYDROPEROXIDE	IRRITANT	1.5 MG/M3	N/A	7722-84-1
N, N-DIALKYLTOLUIDINES	IRRITANT	N/A	N/A	N/A

SECTION III - PHYSICAL DATA

BOILING PT.(FAHRENHEIT)	>300 F	SPEC GRAVITY (H20=1)	1.10 @ 80 F
VAPOR PRESSURE (MM HG).	<5MM@80F	COLOR	RED
VAPOR DENSITY (AIR=1)	UNKNOWN	ODOR	MILD

(CONTINUED) SECTION III - PHYSICAL DATA PAGE : 02

PH @ 100%	N/A	CLARITY	N/A
PERCENT, VOLATILE BY VOLUME (%)	N/A	EVAPORATION RATE (BU AC = 1)	N/A
SOLUBILITY IN WATER	SLIGHT		
VISCOSITY	N/A		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
>200 F T.C.C.		N/A	N/A

EXTINGUISHING MEDIA	"ALCOHOL"		DRY		WATER	
X<--FOAM	<--FOAM	X<--CO2	X<--CHEMICAL	<--SPRAY	<--OTHER	

SPECIAL FIRE FIGHTING PROCEDURES

NONE

UNUSUAL FIRE & EXPLOSION HAZARDS

NONE

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE :

N/A

EFFECTS OF OVEREXPOSURE

- ACUTE - (SHORT TERM EXPOSURE)
MAY CAUSE DERMATITIS ON PROLONGED CONTACT IN SENSITIVE INDIVIDUALS.
- CHRONIC - (LONG TERM EXPOSURE)
MAY CAUSE DERMATITIS ON PROLONGED CONTACT IN SENSITIVE INDIVIDUALS.

PRIMARY ROUTE OF ENTRY: <-- INHALATION <-- INGESTION <-- ABSORPTION

EMERGENCY & FIRST AID PROCEDURES
INHALATION :
REMOVE TO FRESH AIR.

EYE CONTACT:
FLUSH WITH WATER.

Hm

MATERIAL SAFETY DATA SHEET

TEMPLEX PRODUCTS -- a division of ASSOCIATED CHEMISTS INC. 4401 SE Johnson Crk. Blvd. Portland, OR 97222	EMERGENCY PHONE NUMBERS: (503) 653-9734 (503) 659-1708

SECTION I-IDENTITY INFORMATION

IDENTITY (TRADENAME): 4140 TREAD SAFE
PART A RESIN

FAMILY/CHEMICAL NAME:
EPOXIDE
PRODUCT TYPE:
LIQUID RESIN
IMPORTANT:

* *
* THIS MATERIAL WILL NOT BE SOLD FOR USE IN PRODUCTS *
* FOR WHICH PROLONGED CONTACT WITH MUCOUS MEMBRANES OR *
* ABRADED SKIN, OR IMPLANTATION WITHIN THE HUMAN BODY, IS *
* SPECIFICALLY INTENDED. BECAUSE OF THE WIDE RANGE OF *
* SUCH POTENTIAL USES, CIBA-GEIGY CORPORATION IS NOT ABLE *
* TO RECOMMEND THIS MATERIAL AS SAFE AND EFFECTIVE FOR *
* SUCH USES AND ASSUMES NO LIABILITY FOR ANY SUCH USES. *
* *

HAZARD STATEMENT :

* *
* THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN *
* PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD *
* COMMUNICATION STANDARD 29 CFR 1910.1200. *
* THIS PRODUCT IS CONSIDERED TO BE A HAZARDOUS *
* CHEMICAL UNDER THAT STANDARD. *
* *

SECTION II-HAZARDOUS INGREDIENTS

BISPHENOL A DIGLYCIDYL ETHER RESIN CAS# 25068-38-6
TLV NOT ESTABLISHED

SECTION III-PHYSICAL DATA

4140 TREAD SAFE
PART A RESIN

NORTON

MATERIAL SAFETY DATA SHEET

Flammability Rating: 0
Health Rating: 1
Reactivity Rating: 0
HAZARD RATING
Please rate consistent with NFPA Code

NBA 9

SECTION I NAME AND PRODUCT

MANUFACTURER'S NAME NORTON COMPANY	CONTACT THOMAS Z. RICHARDS
ADDRESS (STREET, CITY, STATE AND ZIP CODE) 1 NEW BOND STREET, WORCESTER, MA 01606-2698	EMERGENCY TELEPHONE NO. 617-795-2690
TRADE NAME, COMMON NAME OR SPECIFICATION ORGANIC BONDED GRINDING WHEELS	APPROVED BY Kmarayanan DATE 8/1/87
CHEMICAL FAMILY OR PRODUCT TYPE ANY GRADE	

SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

CHEMICAL NAME	MAX %	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCINOGEN (Y/N)
Alpha-Alumina	90	Alundum	Y	1344-28-1	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Silicon Carbide	90	Crystolon	Y	409-21-2	15mg/m³ (Total Dust)	10mg/m³ (Total Dust)	N
Zirconia Alumina	90	NZ, ZF, ZS	Y	**NAIF	5mg/m³ (as Zirconia)	5mg/m³ (as Zirconia)	N
The grinding wheel may be comprised of 1 or more of the above abrasives. The chemicals listed below may be a part of the bond system.							
Fluorides (as F)	3	***N/A	Y	***N/A	2.5mg/m³	2.5mg/m³	N
Calcium Oxide	3	Lime	Y	1305-78-8	5mg/m³	2mg/m³	N
Glass, Fibrous or Dust	10	Fiberglass	Y	**NAIF	**NAIF	10mg/m³	N
Sulfur	8	Sulfur	Y	7704-34-9	**NAIF	**NAIF	N
Tin	9	Tin	Y	7440-31-5	2mg/m³	2mg/m³	N

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusettts General Law Chapter 111F, Right To Know Regulations.

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT **NAIF	MELTING POINT **NAIF	SPECIFIC GRAVITY 2-4
VAPOR PRESSURE **NAIF	PERCENT VOLATILE BY VOL **NAIF	VAPOR DENSITY **NAIF
EVAPORATION RATE **NAIF	SOLUBILITY IN WATER Slight	SOLUBILITY IN ALCOHOL **NAIF
SOLUBILITY IN OTHER SOLVENT **NAIF	APPEARANCE AND ODOR SOLID PRODUCT: MAY GIVE OFF ODOR IN USE.	

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE – NONE.
OTHER PRECAUTIONS:
**NAIF

SECTION V CORROSIVITY AND REACTIVITY DATA

STABILITY UNSTABLE ☐ STABLE ☒ POLYMERIZATION MAY OCCUR ☐ WILL NOT OCCUR ☒

INCOMPATABILITY (MATERIALS TO AVOID)
**NAIF

DECOMPOSITION PRODUCTS
In use, dust and decomposing organic fumes are generated. In most cases, the material removed from the workpiece will be significantly greater than the grinding wheel components. Coolants may produce other decomposition products.

CONDITIONS TO BE AVOIDED
**NAIF

NAIF = NO APPLICABLE INFORMATION FOUND * N/A = NOT APPLICABLE

Loctite Corporation

705 North Mountain Road
Newington, Connecticut 06111
Telephone (203) 278-1280
Telex 99348

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name RETAINING COMPOUND 680 Part No. 680
Product Type Anaerobic Formula No.

II. COMPOSITION

Ingredients	% by Wt.	Hazard
Dimethacrylate Ester	40-45	See Section IV.
Hydroxyalkyl Methacrylate	30-35	
Bis-Phenol A Fumarate Resin	15-20	
Cumene Hydroperoxide*	2-3	
Saccharin**	<1	
Maleic Acid	<1	
N,N-Dialkyltoluidines	<1	
Acetylphenylhydrazine***	<1	

*In a single test, pure cumene hydroperoxide caused tumors in one of thirty experimental animals when injected under the skin. **Saccharin has been shown to cause tumors in experimental animals when fed in large amounts for prolonged periods. ***Acetylphenylhydrazine has been shown to cause tumors in experimental animals whe fed in large amounts for prolonged periods. In light of the low concentration of these components in the product, it is our best technical judgment that normal use this product poses no such hazards. These warnings are present only to comply with OSHA regulations.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure < 5 mm at 80°F Specific Gravity 1.11 at 80°F
Vapor Density Unknown Boiling Point > 300°F
Solubility in Water Slight pH dna
Appearance Green Liquid Odor Sharp

IV. TOXICITY AND HEALTH HAZARD DATA

Toxicity Eye Irritant
Oral LD 50 >5000 mg/kg TLV Does not apply
Dermal LD 50 >2000 mg/kg
Symptoms of Overexposure May cause dermatitis on prolonged contact in sensitive individuals.

Emergency Treatment Procedures
Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation: Does not apply.
Skin Contact: Flush with water.
Eye Contact: Flush at least 15 minutes with water. Obtain medical attention.

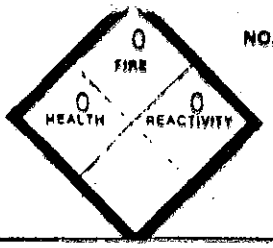
Personal Protection
Eyes: Safety glasses or goggles mandatory.
Skin: Rubber or plastic gloves recommended.
Ventilation: Not normally necessary.

-CONFIDENTIAL-

MATERIAL SAFETY DATA SHEET

NO.

20/10 Part No.: TTA-32



HAZARD GUIDE
4 EXTREME
3 HIGH
2 MODERATE
1 LOW
0 NEGLIGIBLE

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: 20/10 Products, Inc.	EMERGENCY TELEPHONE NUMBERS: Contact manufacturer or nearest poison control center
ADDRESS & TELEPHONE: P.O. Box 1726, Beaverton, OR 97075 (503) 646-6841	
TRADE NAME: 20/10 Concentrated Winter/ Summer Windshield Cleaner	MANUFACTURER'S CODE IDENTIFICATION UPC 30702 05032
SYNONYMS	

II INGREDIENTS -CONFIDENTIAL-

MATERIAL OR COMPONENT	%	TLV* UNITS	HAZARD

SUM OF REPORTED INGREDIENTS SHOULD EQUAL 100

III PHYSICAL DATA

BOILING RANGE (760 MM HG)	MELTING POINT
SPECIFIC GRAVITY (H_2O=1)	VAPOUR PRESSURE (MM HG)
VAPOUR DENSITY (AIR = 1)	SOLUBILITY IN H_2O (% BY WT.) 100%
% VOLATILES BY VOL.	EVAPORATION RATE (BUTYL ACETATE=1)
APPEARANCE AND ODOUR: Clear, Amber, slight ammoniacal odor	pH 9.2

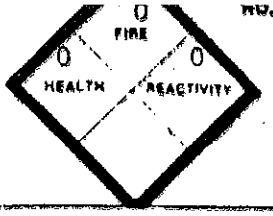
IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD) 167°F C.O.C.	FLAMMABLE LIMITS IN AIR (% BY VOL.) Not determined
AUTOIGNITION TEMPERATURE	EXTINGUISHING MEDIA Foam, CO_2, dry chemical, water
SPECIAL FIRE FIGHTING PROCEDURES	
UNUSUAL FIRE AND EXPLOSION HAZARD: None	

V REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	None
INCOMPATIBILITY	N/A
HAZARDOUS DECOMPOSITION PRODUCTS	None
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	Will not occur

MATERIAL SAFETY DATA SHEET



NO.

HAZARD GUIDE
4 EXTREME
3 HIGH
2 MODERATE
1 LOW
0 NEGLIGIBLE

20/10 Part #'s: TT-8, TT-32, TT-128

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: 20/10 Products, Inc.	EMERGENCY TELEPHONE NUMBERS: Contact manufacturer or nearest poison control center
ADDRESS & TELEPHONE: P.O. Box 1726, Beaverton, OR 97075 (503) 646-6841	
TRADE NAME: 20/10 Concentrated Instant Windshield Cleaner	MANUFACTURER'S CODE IDENTIFICATION: UPC 307028
SYNONYMS	30702 01032 30702 01128

II INGREDIENTS -CONFIDENTIAL-

MATERIAL OR COMPONENT	%	TLV* UNITS	HAZARD

SUM OF REPORTED INGREDIENTS SHOULD EQUAL 100

III PHYSICAL DATA

BOILING RANGE (760 MM HG)	MELTING POINT
SPECIFIC GRAVITY (H_2O=1): 1.002	VAPOUR PRESSURE (MM HG)
VAPOUR DENSITY (AIR = 1)	SOLUBILITY IN H_2O (% BY WT.): 100%
% VOLATILES BY VOL.	EVAPORATION RATE (BUTYL ACETATE=1)
APPEARANCE AND ODOUR: Clear, light green, slight ammoniacal odor	pH: 9.4

IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD): None	FLAMMABLE LIMITS IN AIR (% BY VOL.)
AUTOIGNITION TEMPERATURE	EXTINGUISHING MEDIA
SPECIAL FIRE FIGHTING PROCEDURES	
UNUSUAL FIRE AND EXPLOSION HAZARD	

V REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	None
INCOMPATIBILITY	N/A
HAZARDOUS DECOMPOSITION PRODUCTS	None
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	Will not occur

TEMPLAR PRODUCTS -- a division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

RECEIVED
MAY 20 1986
JONES OREGON STEVEDORING CO

MATERIAL SAFETY DATA SHEET

WHC-117
PRODUCT NAME: TUFF-T WATERLESS HAND CLNR. EFFECTIVE DATE: Sept. 24, 1985
PRODUCT CODE: 3450

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: Cleaning Compound with Petroleum Distillate and Emulsifiers
HAZARD CLASSIFICATION: None.

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	PERCENT	TLV
ht Petroleum Distillate		40 by vol.	100 ppm

be harmful or fatal if ingested. LD_{50} rats > 10 g/kg

p out of reach of children.

prietary Nonionic-Anionic Emulsifiers	5	NA

SECTION III - PHYSICAL DATA

pH = 8.7 ± 0.2
BOILING POINT: > 212°F
VAPOR PRESSURE (mm Hg): > 1
SPECIFIC GRAVITY: 0.93
VAPOR DENSITY (air = 1): less than 5.7
PERCENT VOLATILES: 40%
EVAPORATION RATE (water = 1): < 1
SOLUBILITY IN WATER: Dispersible.
APPEARANCE AND ODOR: Slight yellowish viscous liquid, fruity odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Setaflash Closed Tester) : > 200°F Setaflash.
LOWER EXPLOSION LIMIT: 0.9 - 1.0%
EXTINGUISHING MEDIA: CO_2, dry chemical, foam, water spray.
HAZARDOUS DECOMPOSITION PRODUCTS: CO_2, water vapor, CO.
SPECIAL FIREFIGHTING PROCEDURES: Do not enter confined fire spaces without proper equipment.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Fire hazard is greater as temperature increases beyond 140°F.

SECTION V - HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: TLV = 100 ppm parts vapor per million part air.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Causes irritation.
SKIN: May cause irritation to abraided skin. Not toxic by skin contact.
BREATHING: Excessive exposure to vapors may cause headache, dizziness.
SWALLOWING: Not expected to be acutely toxic. LD_{50} rats > 10 g/kg for petroleum distillate.

FIRST AID

IF IN EYES: Flush eyes immediately & continuously for 15 min. Call doctor.
IF ON SKIN: Wash or wipe skin thoroughly.
IF SWALLOWED: Do not induce vomiting. Call physician immediately.
IF BREATHED: Move person to fresh air.
NOTE TO PHYSICIAN: Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid, which can cause pneumonitis.

TEMPLEX PRODUCTS -- a division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

MATERIAL SAFETY DATA SHEET

TREAD SAFE
PRODUCT NAME: 4140 PART B EPOXY HARDENER EFFECTIVE DATE: 03-06-86
PRODUCT CODE: 4140

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: POLYAMINE ADDUCT
HAZARD CLASSIFICATION: Not a DOT Hazard

SECTION II - HAZARDOUS INGREDIENTS

This product contains no hazardous materials as defined by OSHA Hazard Communication (CFR 1910.1200).

SECTION III - PHYSICAL DATA

pH: Not applicable.
BOILING POINT: Not determined.
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.08
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: 0
EVAPORATION RATE (n-BuAc = 1): N
SOLUBILITY IN WATER: MODERATE
APPEARANCE AND ODOR: LT. YELL. LIQ., AMINE ODOR

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Setaflash Closed Tester) : >200 °F
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Water spray, dry chemical, chemical foam, or carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established

PRIMARY ROUTES OF ENTRY: Ingestion and/or inhalation.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES: Causes slight irritation.
SKIN: Causes slight irritation.
BREATHING: Inhalation of vapors or mists could cause pulmonary irritation, dizziness, and nausea.
SWALLOWING: Ingestion may cause nausea, vomiting, diarrhea.

FIRST AID

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. If irritation continues, see a physician.

DEC 03 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENCY
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-1, 83-2

PRODUCT NAME: LOG MARKING PAINT WHITE, BLUE

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

UNUSUAL FIRE & EXPLOSION HAZARDS: DO NOT APPLY TO HOT SURFACES. KEEP AWAY FROM HEAT, SPARKS OR OPEN FLAME. DO NOT STORE OR MIX WITH STRONG OXIDANTS. KEEP CONTAINERS TIGHTLY CLOSED. CLOSED CONTAINERS MAY EXPLODE

DEC 03 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENCY
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-3

PRODUCT NAME: LOG MARKING PAINT YELLOW

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg
NORMAL LEAD CHROMATE (CAS.# 7758-97-6)	<5%	0.05MG/M3 AS LEAD		N/A

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

DEC 03 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENCY
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-6, 83-4

PRODUCT NAME: LOG MARKING PAINT RED, ORANGE

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg
NORMAL LEAD CHROMATE (CAS.# 7758-97-6)	<5%	0.05MG/M3 AS LEAD		N/A

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

LAC-RM

MATERIAL SAFETY DATA SHEET

86 FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5822 Banshee Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(218) 566-2917

DATE OF PREPARATION
1-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME * - Trade Mark
Acrylic Lacquer Thinner (Non-Photochemical)

PRODUCT NUMBERS AND COLORS

3088	Non-Penetrat. Spot	3095	Twin-Thin
3094	Acrylic/Lac. Thinner	CA3099	Acrylic/Lac. Thinner

PRODUCT CLASS
Reducer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	INGREDIENT	PERCENT	TLV-PPM	TLV-MG/M3	LEL	V.P.
110-54-3	Hexane	0-5	50.	180.	1.0	127.0
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent.	5-20	100.	364.	1.0	53.0
64742-48-9	V. M. & P. Naphtha.	0-10	300.	1350.	0.9	12.0
108-88-3	Toluene.	10-20	100.	375.	1.3	22.0
1330-20-7	Xylene.	0-10	100.	435.	1.0	5.9
67-56-1	Methanol	0-5	200.	260.	6.0	92.0
64-17-5	Ethanol	0-15	1000.	1900.	3.3	44.0
78-83-1	2-Methyl-1-propanol	0-5	50.	150.	1.2	8.7
67-64-1	Acetone.	10-65	750.	1780.	2.2	180.0
78-93-3	Methyl Ethyl Ketone.	0-5	200.	590.	1.8	70.0
123-86-4	n-Butyl Acetate.	0-25	150.	710.	1.3	10.0
108-65-6	1-Methoxy-2-Propanol Acetate	0-20	Not Estab.		1.3	1.8

For specific percent hazardous ingredients in each product, see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
132 - 419	100.0	6.8

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 2 F TCC LEL 0.9
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

continued on page 2

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II
EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable
HAZARDOUS DECOMPOSITION PRODUCTS
By Fire: Carbon Dioxide, Carbon Monoxide
HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Incinerate in approved facility. Do not incinerate closed containers. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.
PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Continued on page 3

LAC-RP

MATERIAL SAFETY DATA SHEET
FOR COATINGS, RESINS AND RELATED MATERIALS
(Approved by U.S. Department of Labor "Essentially Similar" to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5122 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
2-Jan-85

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Acrylic Lacquer Thinner (Photochemical)

® - Trade Mark

PRODUCT NUMBERS AND COLORS
3092 Acrylic Lacquer Thinner
3099 Acrylic/Lacquer Thinner

PRODUCT CLASS
Reducer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-TWA	TLV-STEL	LEL	V.P.
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent.	5-15	100.	364.	1.0	53.0
108-88-3	Toluene.	50-55	100.	375.	1.0	22.0
67-56-1	Methanol	<5	200.	260.	6.0	92.0
64-17-5	Ethanol	<5	1000.	1900.	3.3	44.0
78-83-1	2-Methyl-1-propanol	0-5	50.	150.	1.2	8.7
67-64-1	Acetone.	20	750.	1780.	2.2	180.0
108-10-1	Methyl Isobutyl Ketone.	5	50.	205.	1.4	16.0
108-65-6	1-Methoxy-2-Propanol Acetate	<5	Not Estab.		1.3	1.8

For specific percent hazardous ingredients in each product, see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
232 - 302	100.0	6.9

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 4 F TCC LEL 1.0
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARDS DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES
IF INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By Fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Incinerate in approved facility. Do not incinerate closed containers. Dispose of in accordance with Federal, State, and local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Continued on page 2

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
2526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-16-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 2021
PRODUCT NAME: 2021 M&E EN. JONES GREEN
PRODUCT CLASS: MEDIUM-SHORT OIL ALKYD

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
LEADED CHROMATE 55% LEAD 32% CHROMATE	1344-37-2	(5.0%	.05 MG / CUBIC METER	0.0	20C
ALIPHATIC SOLVENT	64742-88-7	(5.0%	100 PPM	2.0	20C
[illegible] NAPTHA	64742-89-8	5	400 PPM	53.0	25C
XYLOL	1330-20-7	40	100 PPM	5.1	20C
BUTYL ACETATE	123-86-4	(0.5%	150 PPM	8.0	20C
ISOBUTYL ALCOHOL	78-83-1	(0.5%	100 PPM	8.8	20C
LEAD CHROMATE/LEAD SULFATE 60% LEAD 14% CHROMATE	UNKNOWN	(0.5%	.1 MG / CUBIC METER	0.0	20C
METHANOL	67-56-1	(0.5%	200 PPM	97.7	20C
BUTYL ALCOHOL	71-36-3	(5.0%	50 PPM	4.4	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 96-140 DEG. C **VAPOR DENSITY:** HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER **% VOLATILE VOLUME:** 60.75 **WT/GAL:** 8.35

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
2536 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-18-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 2002
PRODUCT NAME: 2002 INDUSTRIAL EN. WHITE
PRODUCT CLASS: MEDIUM OIL ALKYD

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
METHANOL	67-56-1	(0.5%	200 PPM	97.7	20C
ALIPHATIC SOLVENT	64742-88-7	40	100 PPM	2.0	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 157-204 DEG. C. **VAPOR DENSITY:** HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER **% VOLATILE VOLUME:** 59.73 **WT/GAL.:** 9.45

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-05-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 1902
PRODUCT NAME: 1902 LACQUER THINNER, MEDIUM
PRODUCT CLASS: SOLVENT BLEND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP
KETONE BLEND	UNKNOWN	15	200 PPM	70.0 20C
ACETONE	67-64-1	(5.0%	750 PPM	186.0 20C
DIACETONE ALCOHOL	UNKNOWN	(5.0%	50 PPM	0.8 20C
ETHANOL	67-56-1	(5.0%	200 PPM	97.7 20C
TOLUOL	108-88-3	10	100 PPM	22.0 20C
XYLOL	1330-20-7	10	100 PPM	5.1 20C
MINERAL NAPTHA	UNKNOWN	30	400 PPM	53.0 25C
ISOPROPYL ALCOHOL	67-63-0	20	400 PPM	33.0 20C
BUTYL ALCOHOL	UNKNOWN	(5.0%	50 PPM	4.4 20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 56-172 DEG. C. VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 100.00 WT/GAL.: 6.60

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
2526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 12-20-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 7300
PRODUCT NAME: 7300 PAINT THINNER
PRODUCT CLASS: ALIPHATIC SOLVENTS

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP
ALIPHATIC SOLVENT	64742-88-7	100	100 PPM	2.0 20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 157-204 DEG. C. **VAPOR DENSITY:** HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER **% VOLATILE VOLUME:** 100.00 **WT/GAL:** 6.57

MATERIAL SAFETY DATA SHEET

(Required under OSHA 29 CFR 1910.1200)

PREPARATION DATE April 1, 1990

MOLTAN CO
3555 MOLTAN DRIVE • MEMPHIS, TN 38115-4431
(901) 755-5666 Toll Free (800) 666-5826

I. NOMENCLATURE

CHEMICAL NAME: **(CAS #7631-86-9), 0_2Si diatomaceous earth, diatomite, or kieselguhr**

CHEMICAL FAMILY - Amorphous Silica

TRADE NAME: **ULTRASORB, 248 and DIATOMITE SAFETY ABSORBENT**

CHARACTERISTICS: Product is 100% dried, kiln-fired and ground natural diatomaceous earth.

II. HAZARDOUS INGREDIENTS

NOTE: This product has been manufactured and screened to eliminate all but a small portion of dust which can become airborne and be breathed (respirable dust, an air contaminant). Chemical analysis, X-ray diffraction and microscopic examination have revealed that the respirable dust contains 9.6% non-hazardous minerals, at least 72.2% amorphous silica (CAS No. 68855-54-9), not more than 9.1% crystalline silica as quartz (CAS No. 14808-60-7) and not more than 9.1% crystalline silica as cristobalite (CAS No. 14464-46-1).

OSHA Time Weighted Average (TWA) Exposure Limits:

Amorphous silica	6.0 mg/m^3
Crystalline silica as quartz	0.1 mg/m^3
Crystaline silica as cristobalite	0.05 mg/m^3
(Total respirable dust to avoid exceeding any of these limits $(\frac{.05}{.091})$	0.55 mg/m^3)

III. PHYSICAL DATA

Boiling Point (°F)	N/A	Specific Gravity ($H_20 = 1$)	2.2
Vapor Pressure (mmAg.)	N/A	Percent Volatile by Volume (%)	N/A
Vapor Density (Air = 1)	N/A	Evaporation Rate	N/A
Solubility in Water	2.0%		

Appearance and Odor: Buff to off-white; odorless; granular

NOTE: N/A means Not Applicable to this product.

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method	NONE	Flammable Limits	NONE
Extinguishing Media	N/A	Special Fire Fighting Procedure	N/A

Unusual Fire and Explosion Hazards: NONE

V. HEALTH HAZARD DATA

Threshold Limit Value: See Section II.

Effects of Overexposure:	**Type**	**First Aid Procedures:**
Years of long term acute exposure to respirable silica above the TWA may produce pneumoconiosis (silicosis) in susceptible persons.	INHALATION	Remove to fresh air.

Continued on Back

MT. HOOD
CHEMICAL

PRODUCT INFORMATION

HAMMER - HEAVY DUTY CLEANER / DEGREASER

GENERAL DESCRIPTION:

HAMMER's heavy-duty concentrated formula does a fantastic job of cleaning grease and grime from equipment, floors and walls. Ideal for food processing plants, truck shops, and manufacturing plants. HAMMER emulsifies and melts away baked on grease, carbonized soils, and oily grime. Free-rinsing and completely biodegradable. Hammer is safe on aluminum at concentrations up to 1 oz. per gallon.

USDA authorized for use in federally inspected food processing plants.

PROPERTIES:

Form:	Liquid
Color:	Yellow
Odor:	Bland

USE DIRECTIONS:

For pressure washing equipment or floors: Use 1/2 - 4 oz. HAMMER per gallon of water, depending on type of soil to be removed. Rinse with fresh water.

For use in an automatic floor scrubber, dilute 1 to 2 ounces of HAMMER per gallon of warm water in the holding tank.

For mop or compression sprayer, dilute 1 to 4 ounces of HAMMER per gallon of warm water. Apply solution to the surface. Let stand a few minutes. Rinse with clear water.

CAUTION:

Contains sodium hydroxide. Can cause burns to eyes, skin, and mucous membranes. For contact with skin or eyes, flush thoroughly with plenty of water for at least 15 minutes. Get medical attention. Do not ingest. Consult the Material Safety Data Sheet for additional precautions.

KEEP OUT OF REACH OF CHILDREN.

PACKAGING:

55 gallon drum
5 gallon pail

11/95

4444 NW Yeon Avenue | Portland, Oregon 97210 | T 503-227-3505 | F 503-225-9143 | Toll Free 800-547-2594 | www.mthoodchem.com

RECEIVED
JAN 12 1992
MINES OREGON STEVEDORING CO.

TEMPLEX
A Division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

MATERIAL SAFETY DATA SHEET

FOR CHEMICAL TRANSPORTATION EMERGENCY CALL INFOTRAC 1-800-535-5053

PRODUCT NAME: 853 WATER BASE DEGREASER EFFECTIVE DATE: 02-26-91
PRODUCT CODE: 3043

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: ALKALINE CLEANING COMPOUND
HAZARD CLASSIFICATION: Corrosive

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	TLV	PERCENT
2-Butoxyethanol*	111-76-2	25 ppm (skin)	10
Sodium hydroxide	1310-73-2	2 mg/m^3	1
Sodium silicate	6834-92-0	10 mg/m^3	2

*See Section X Title III Substance

SECTION III - PHYSICAL DATA

pH: 13.4
BOILING POINT: 212 °F
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.04
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: 10
EVAPORATION RATE (n-BuAc = 1): 0.3
SOLUBILITY IN WATER: SOLULBLE
APPEARANCE AND ODOR: TURQ. LIQ; GLYCOL ETHER ODOR

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Pensky-Martens Closed Cup): >212 °F
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Water spray, dry chemical, chemical foam, or carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Never use welding or cutting torch on or near drum, even empty, because product or residue can ignite explosively.

MATERIAL SAFETY DATA SHEET
MT. HOOD CHEMICAL CORPORATION

MT. HOOD CHEMICAL CORPORATION
4444 N.W. Yeon Avenue
Portland, Oregon 97210
Emergency Phone: 503-227-3505

N/A = NOT APPLICABLE
NA = NOT AVAILABLE

PRODUCT NAME: HOT FLASH PREPARED BY: K. Woods DATE: July 12, 1991

CHEMICAL FAMILY: Alkaline Detergent Mixture FORMULA: Proprietary

---

HAZARDOUS INGREDIENTS (CAS #):	%	EXPOSURE LIMITS, ppm: ACGIH TLV	OSHA-PEL
Sodium metasilicate (6834-92-0)	Less than 25%	N/A	N/A
Sodium carbonate (49-71-98)	Less than 50%	N/A	N/A

CARCINOGENIC INGREDIENTS: Contains no known or suspected carcinogens.

PHYSICAL PROPERTIES:

Boiling Point: N/A
Solubility in Water: Appreciable
Specific Gravity - Liquid (H_2O = 1): N/A
Odor and Appearance: Bright pink granules; mild scent
% Volatiles: N/A
% Volatile Organic Content (VOC): 0
Vapor Pressure: N/A
Vapor Density (Air = 1): N/A

FIRE AND EXPLOSION DATA:

Flash Point: None
Flammability Limits: N/A
Extinguishing Media: Water, CO_2, foam, dry chemical
Special Firefighting Procedures: None

Unusual Hazards: None

HEALTH EFFECTS:

Effects of overexposure: May cause eye or skin irritation. Ingestion may cause nausea or diarrhea. Ingestion may also cause irritation or burns to mouth, throat, and esophagus. Inhalation of dust may cause irritation to the respiratory tract.

Chronic effects of overexposure: None known or expected.

Medical conditions that may be aggravated by exposure: None known or expected.

Primary routes of entry: Ingestion, skin contact, inhalation of dust.

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29CFR 1910. 1200. Standard must be consulted for specific requirements.

INDUSTRIAL CLEANER #91 #1

QUICK IDENTIFIER
Common Name: (used on label and list)

DNA - Does Not Apply
NA - Not Available

RECEIVED
MAY 17 1988
JONES OREGON STEVEDORING CO.

SECTION 1 -

Manufacturer's Name: Jadco Chemical Ltd.

Address: 16055 SW 74th Avenue

Emergency Telephone No.: 503-684-0044

City, State, and ZIP: Tigard, OR 97224

Other Information Calls:

Signature of Person Responsible for Preparation (Optional): Tom Lilly, Pat Clary

Date Prepared: 7/8/87

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Sodium Hydroxide	2mg/m^3	2mg/m^3	2mg/m^3	<1	1310-72-2
Monoethanolamine	3ppm	3ppm	NA	<4	141-43-5

Seller makes no warranty, expressed or implied, as to the use of this material beyond label instructions. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: 100°C

Specific Gravity (H_2O=1): 1.1

Vapor Pressure (mm Hg): Est. 18mm

Vapor Density (Air = 1): NA

pH: 13.0

Solubility in Water: 100%

Reactivity in Water: Non reactive

Appearance and Odor: Dark blue

Melting Point: Est. 0°C

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point: DNA F. C.

Method Used: DNA

Flammable Limits in Air % by Volume: LEL Lower: DNA

UEL Upper: DNA

Auto-Ignition Temperature: DNA

Extinguisher Media: DNA

Special Fire Fighting Procedures: DNA

Unusual Fire and Explosion Hazards: DNA - A water solution of inorganic material that has fire and explosion properties similar to water.

450 THINNER

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSP-OOS-A)

PRODUCT NAME: SOLVENT GW 450 Rev. 10/24/85 PAGE 1

CHEMICAL NAME: N/A CHEMICAL FAMILY: Solvent

FORMULA: Proprietary MOLECULAR WEIGHT: 166

SYNONYMS: None

I. PHYSICAL DATA

BOILING POINT, 760 mm, Hg	360-510°F	FREEZING POINT	-22°F
SPECIFIC GRAVITY (H_2O = 1)	0.810 @ 20°C	VAPOR PRESSURE AT 20°C	1 mm Hg
VAPOR DENSITY (air = 1)	5.7	SOLUBILITY IN WATER, % by wt.	Slight
PER CENT VOLATILES BY VOLUME	100%	EVAPORATION RATE (Butyl Acetate = 1)	0.03
APPEARANCE AND ODOR	Clear, colorless liquid; hydrocarbon odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Paraffin Hydrocarbon (CAS #8002-74-2)		150 ppm

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method(s))	140°F TCC	AUTOIGNITION TEMPERATURE	500°F
FLAMMABLE LIMITS IN AIR, % by volume	LOWER 0.9%	UPPER	6.0%

EXTINGUISHING MEDIA	Carbon dioxide, foam, dry chemical, water spray.
SPECIAL FIRE FIGHTING PROCEDURES	Self-contained breathing apparatus for confined spaces.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Vapor is highly flammable and may accumulate in confined spaces.

EMERGENCY PHONE NUMBER

1-800-424-9300

CHEMTREC

While Great Western Chemical Co. believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Great Western Chemical Co. assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations.

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
2536 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0209

DATE OF PREPARATION: 11-16-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 1925
PRODUCT NAME: 1925 SYNTHETIC REDUCER
PRODUCT CLASS: SOLVENT BLEND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
TOLUOL	108-88-3	55	100 PPM	22.0	20C
XYLOL	1330-20-7	40	100 PPM	5.1	20C
BUTYL ALCOHOL	71-36-3	(5.0%	50 PPM	4.4	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 110-140 DEG. C. VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 100.00 WT/GAL: 7.23

TEMPLEX

A Division of
ASSOCIATED CHEMISTS, INC.
4401 S.E. Johnson Creek Blvd.
Portland, Oregon 97222
(503) 659-1708

MATERIAL SAFETY DATA SHEET

FOR CHEMICAL TRANSPORTATION EMERGENCY CALL INFOTRAC 1-800-535-5053

PRODUCT NAME: FLOC AIDE
PRODUCT CODE: 9930
EFFECTIVE DATE: 04-12-91

SECTION I - PRODUCT IDENTIFICATION

PRODUCT CLASS: WATER TREATMENT COMPOUND (WATERBASE)
HAZARD CLASSIFICATION: Not a DOT Hazard

SECTION II - HAZARDOUS INGREDIENTS

This product contains no hazardous materials as defined by OSHA Hazard Communication (CFR 1910.1200).

SECTION III - PHYSICAL DATA

pH: 8.7
BOILING POINT: 212 °F
VAPOR PRESSURE (mm Hg): Not determined.
SPECIFIC GRAVITY: 1.026
VAPOR DENSITY (air = 1): Not determined.
PERCENT VOLATILES: 0
EVAPORATION RATE (n-BuAc = 1): Not applicable.
SOLUBILITY IN WATER: SOLUBLE IN WATER
APPEARANCE AND ODOR: AMBER LIQUID, MILD ODOR

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Not applicable.
LOWER EXPLOSION LIMIT: Not determined.
EXTINGUISHING MEDIA: Product is non-combustible.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.
SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus with full facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA

This product does not contain any substance(s) listed as a carcinogen by NTP, IARC, or OSHA.

PERMISSIBLE EXPOSURE LEVEL: None established for product. (Current industrial experience suggests 10 mg/m^3 as a nuisance mist.)

PRIMARY ROUTES OF ENTRY: Ingestion.

Material Safety Data Sheet

January 1988

I. General Information

Chemical Name & Synonyms ACETYLENE - ACETYLEN; ETHINE, NARCYLENE	Trade Name & Synonyms ACETYLENE
Chemical Family ALKYNE	Formula C2 H2
Proper DOT Shipping Name ACETYLENE	DOT Hazard Classification FLAMMABLE GAS - UN 1001
Manufacturer DISTRIBUTOR QUIMBY WELDING SUPPLIES, INC.	Manufacturer's Phone Number (503) 221-1100
Manufacturer's Address 1603 NW 14th, PORTLAND, OR 97209	Chemtrec Phone Number (800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
ACETYLENE	100	SIMPLE ASPHYXIANT

III. Physical Data

Boiling Point (°F) NOT APPLICABLE	Specific Gravity (H_2O = 1) NOT APPLICABLE
Vapor Pressure (mm Hg.) @ 21° C 635 PSIG	Percent Volatile By Volume (%) 100
Vapor Density (Air = 1) 0.91	Evaporation Rate (_____ = 1) NOT APPLICABLE
Solubility in Water SLIGHT	pH N/A

Appearance & Odor
COLORLESS GAS AT NORMAL TEMPERATURE AND PRESSURE; GARLIC LIKE ODOR.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method) -17.8° C (0°F) T.C.C.	Auto Ignition Temperature 299° C (571° F)	
Flammable Limits	LEL 2.3%	UEL 100%

Extinguishing Media

Special Fire Fighting Procedures Cool containers with water spray from maximum distance. If flames are accidentally extinguished, explosive re-ignition may occur.

Stop flow of gas if without risk, while continuing cooling water spray.

Unusual Fire & Explosion Hazards
EXTREMELY FLAMMABLE GAS. FORMS EXPLOSIVE MIXTURES WITH AIR AND OXIDIZING AGENTS. CONTAINER MAY RUPTURE DUE TO HEAT OF FIRE.

BOWMAN DISTRIBUTION
MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME Welding Anti Spatter	BOWMAN PART NO. 21957
SUPPLIER BOWMAN DISTRIBUTION, BARNES GROUP INC.	EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103	DATE 7/10/86
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity, ORM-D, UN 1956	
ADDITIONAL HAZARD CLASSES (as applicable) None	
CHEMICAL FAMILY Pressurized Product	FORMULA TM-1246

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	%V	CHEMICAL NAME(S)	Listed as a Carcinogen in NTP, IARC or OSHA 1910(z) (specify)
71-55-6		93	1,1,1, Trichloroethane	None

SECTION III - PHYSICAL DATA

BOILING POINT ____°F ____°C N.A.		SPECIFIC GRAVITY (H_2O = 1)	N.A.		
VAPOR PRESSURE @ 70 °F ____°C ☐ mm Hg ☒ psi	100	PERCENT VOLATILE BY VOLUME (%)	97	PERCENT SOLID BY WEIGHT (%)	3
VAPOR DENSITY (AIR = 1)	4.0	EVAPORATION RATE (= 1)	N.A.		
SOLUBILITY IN WATER	<1%	pH =	None		
APPEARANCE AND ODOR Clear Solvent Odor				MATERIAL IS: LIQUID GAS	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT ____°F ____°C	method used None	FLAMMABLE LIMITS None	LEL None	UEL None
EXTINGUISHING MEDIA Waterfog, Foam CO_2, or dry chemical				
SPECIAL FIRE FIGHTING PROCEDURES Keep containers cool. Use equipment or shielding required to protect personnel against bursting or venting containers.				
UNUSUAL FIRE AND EXPLOSION HAZARDS At elevated temperatures (130° or over) containers may vent, rupture or burst.				

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

UNIBRAZE
SUBSIDIARY OF J.W. HARRIS CO. INC.

MATERIAL SAFETY DATA SHEET

ALUMINUM WELDING WIRE AND ROD

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name **J. W. Harris Co., Inc.** Distributor Name (If Applicable)

Address **10930 Deerfield Road**

Address **Cincinnati, Ohio 45242**

Emergency Telephone **(513) 891-2000**

MSDS Date **November 1985**

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See Section 2 and especially Section 6 for important health hazard data.**

Trade Name	Chemical Composition (%)								
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
1100	a	a	0.05-0.20	0.05			0.10		99.0 Minimum
2319	0.20	0.30	5.8-6.8	0.20-0.40	0.02		0.10	0.10-0.20	Remainder
4043	4.5-6.0	0.8	0.30	0.05	0.05		0.10	0.20	Remainder
5183	0.40	0.40	0.10	0.05-1.0	4.3-5.2	0.05-0.25	0.25	0.15	Remainder
5356	0.25	0.40	0.10	0.50-0.20	4.5-5.5	0.5-0.20	0.10	0.06-0.20	Remainder
5554	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	0.25	0.05-0.20	Remainder
5556	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	0.25	0.05-0.20	Remainder
5654	c	c	0.10	0.10	3.1-3.9	0.15-0.35	0.20	0.05-0.15	Remainder
718 (4047)	11.0-13.0	0.8	0.30	0.15	0.10		0.20		Remainder

Single figures are maximum
a. - Si + Fe = 0.95 max.
b. - Vanadium 0.05-0.15, c. - Si + Fe = 0.45 max.

Material Safety Data Sheet

January 1988

I. General Information

Chemical Name & Synonyms ARGON - SHIELDING GAS	Trade Name & Synonyms ARGON - SHIELDING GAS
Chemical Family (RARE GAS) NOBLE GAS	Formula Ar
Proper DOT Shipping Name ARGON OR ARGON COMPRESSED	DOT Hazard Classification NONFLAMMABLE GAS - UN 1006
Manufacturer DISTRIBUTOR QUIMBY WELDING SUPPLIES, INC.	Manufacturer's Phone Number (503) 221-1100
Manufacturer's Address 1603 NW 14th, PORTLAND, OR 97209	Chemtrec Phone Number (800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
ARGON	100	SIMPLE ASPHYXIANT

III. Physical Data

Boiling Point (°F) -302.6° F	Specific Gravity (H_2O = 1) GAS
Vapor Pressure (mm Hg.) GAS	Percent Volatile By Volume (%) 100
Vapor Density (Air = 1) 1.378 @ 70° F	Evaporation Rate (_____ = 1) HIGH
Solubility in Water NEGLIBLE	pH N/A

Appearance & Odor
COLORLESS, ODORLESS GAS AT NORMAL TEMPERATURE AND PRESSURE.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method) NOT APPLICABLE	Auto Ignition Temperature NOT APPLICABLE	
Flammable Limits	LEL NOT APPLICABLE	UEL NOT APPLICABLE

Extinguishing Media
ARGON CONNOT CATCH FIRE

Special Fire Fighting Procedures
COOL CONTAINERS WITH WATER SPRAY

Unusual Fire & Explosion Hazards
CONTAINERS ARE PROVDED WITH A PRESSURE RELIEF DEVICE DESIGNED TO VENT

CONTENTS WHEN THEY ARE EXPOSED TO ELEVATED TERMPERATURES.

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MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-005-4)

9/9/85

Section I

Certanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 83F P.N.'s 14400, 14410	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (—)	TLV (Units) MG/M3	DESCRIPTION	WT. % (—)	TLV (Units) MG/M3
Copper	7440-50-8	N	0.2*			
Boric Acid	10043-35-3	M	10**			
Zinc	7440-66-6	M	5*			
* WHEN PRESENT AS FUME						
** AS BORON OXIDE						
N=10-30%						
M=Greater than 30%						

NOTE: *Ranges utilized to protect proprietary formulas.*

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

DATE: 9/23/85

Section I

Certanium Alloys & Research Co.	**Emergency Telephone No.** 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 701	
P.N.'s 12815, 12807, 12804, 12798	

Section II — HAZARDOUS INGREDIENTS

DESCRIPTION		WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	WT. % (~)	TLV (Units) MG/M3
Manganese	7439-96-5	L	1*	Iron 7439-89-6	M	5*
Rutile	1317-80-2	N	10	Carbon 7440-44-0	T	3.5
Kaolin	1332-58-7	L	10			
Calcium Carbonate	471-34-1	T	10			
Cellulose	9004-34-6	T	10			
Potassium Silicate	10006-28-7	L	10			
Phosphorus	7723-14-0	T	0.1			

* When present as fume

T = 1% or less

L = 1-10%

N = 10-30%

M = Greater than 30%

NOTE: *Ranges utilized to protect proprietary formulas.*

Section III — PHYSICAL DATA

NOT APPLICABLE

Section IV — FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-OOS-4)

7/3/85

Section I

Certanium Alloys & Research Co.	**Emergency Telephone No.** 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 702	
P.N.'s 12576, 12556, 12415, 12395, 12385, 12375	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3
Titanium Dioxide	13463-67-7	M	10	Rutile	1317-80-2	N	10
Calcium Magnesium Carbonate/Carbonate	471-34-1	L	5	Kaolin	1332-58-7	T	10
Potassium Silicate	10006-28-7	L	10	Phosphorus	7723-14-0	T	0.1
Feldspar	68476-25-5	N	10	Iron	7439-89-6	M	5*
Zircon	14940-68-2	L	inert	Carbon	7440-44-0	L	3.5
Ferro-Manganese	12604-53-4	N	5				
Cellulose	9004-34-6	L	10				
Silica	7631-86-9	T	10				
* WHEN PRESENT AS FUME							
T=1% or less				NOTE: *Ranges utilized to protect proprietary formulas.*			
L=1-10%							
N=10-30%							
M=30% or more							

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

6/7/85

Section I

Certanium Alloys & Research Co.	**Emergency Telephone No.** 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 889 P.N.'s 12570, 12560, 12550, 12770	
P.N.'s 12570, 12560, 12550, 12770	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	WT. % (~)	TLV (Units) MG/M3
Calcium Carbonate 471-34-1	L	10	Silicon 7440-21-3	T	10
Calcium Fluoride 7789-75-5	L	2.5***	Copper 7440-50-8	T	0.2*
Carbon 7440-44-0	T	3.5	Graphite 7782-42-5	L	15 MPPCF
Aluminum 7429-90-5	T	5	Iron 7439-89-6	M	5*
Sodium Silicate 13472-30-5	T	**			
Nickel 7440-02-0	M	1			
Manganese 7439-96-5	T	1*			

* When present as fume

** Unknown possibly 10 mg/m3

*** As fluoride

T=1% or less

L=1-10%

M=Greater than 30%

NOTE: *Ranges utilized to protect proprietary formulas.*

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

9/9/85

Section I

Certanium Alloys & Research Co.	**Emergency Telephone No.** 216 / 391-8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 889SP	
P.N.'s 12009, 12006, 12003, 12001	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3
Calcium Carbonate	471-34-1	L	10	Silicon	7440-21-3	T	10
Calcium Fluoride	7789-75-5	L	2.5***	Copper	7440-50-8	T	0.2*
Carbon	7440-44-0	T	3.5	Graphite	7782-42-5	L	15 MPPCF
Aluminum	7429-90-5	T	5	Iron	7439-89-6	M	5*
Sodium Silicate	13472-30-5	T	**				
Nickel	7440-02-0	M	1				
Manganese	7439-96-5	T	1*				
* WHEN PRESENT AS FUME							
** UNKNOWN POSSIBLY 10 mg/m3							
*** AS FLUORIDE							
T=1% or less							
L=1-10%							
M=Greater than 30%							

NOTE: *Ranges utilized to protect proprietary formulas.*

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

ALLOY RODS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)
For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION

Identity: DUAL SHIELD T-1 AND T-2 FLUX CORED WELDING ELECTRODES

Manufacturer's Name: ALLOY RODS CORPORATION	Emergency Telephone No. - 717/637-8911
Address: P. O. Box 517, Wilson Avenue, Hanover, PA 17331	Telephone No. for Information - 717/637-8911

Product Trade Name(s):	Product Classification(s):
DUAL SHIELD SP, T-63, and 110	AWS A5.20, E70T-2 (SP, T-63, and 110)
T-62; T-62 IMP; 78; 111A; 111A-C; 111HD; 111-10; 7000; II71; R-70; ACF-63; 7100; II 70; 111RB; II 70LC	AWS A5.20, E70T-1 - T62 THRU II 70LC
T-8; 78 Mo; 88-C3; 88CM; 88CM-MC; T-90C-1; 98; 98CM; 88-F3	THE FOLLOWING ARE ALL AWS A5.29; E110T1-G; E80T1-A1; E80T1-N11; E80T1-B2; E80T1-B2H; E90T1-N12; E90T1-K2; E90T1-B3; E80T1-G
98CM-MC; T-100; 150; 151; 7000-A1; 8000C-3	E90T1-B3H; E100T1-K3; E90T1-D3; E80T1-B2; E81T1-A1; E81T1-N11
8000N12; II-101TM; 9000M; 9000C1; 900083; 800082; II 110	E81T1-N12; E91T1-G; E91T1-K2; E91T1-N12; E91T1-B3; E81T1-B2; E110T1-K3
II 100; II 90-K2; II80Ni-1; 8100W; 88W; 9100K2; II 100-D1; T-4130; AND DH-80	E101T1-K3; E91T1-K2; E81T1-N11; E80T1-W; E80T1-W; E91T1-K2; E101T1-G; E120T1-K5; NOT CLASSIFIED

SECTION II - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V.

THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source	Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source
Iron	(7439-89-6)	5	(2)	Manganese (A)	(7439-96-5)	5 ci	(1)
Silicon	(7440-21-3)	10	(2)	Chromium [Cr] (B)	(7440-47-3)	0.5	(2)
Molybdenum (C)	(7439-98-7)	5	(2)	Nickel [Ni] (D)	(7440-02-0)	1	(2)
Copper (E)	(7440-50-8)	1 (Dust)	(1)	Titanium Dioxide (F)	(13463-67-7)	10	(2)
Quartz (E) (G)	(14808-60-7)	0.1	(2)	Sodium Titanate (F) (G)	(N/A)	(N/A)	(3)

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygenists (ACGIH) Threshold Limit Value (TLV[R]).
3. Not known; nuisance particulate concentration per ACGIH is 10 mg/M^3.

(A) In T-8, 88CM, 98CM, 98CM-MC, 151, 900083, 800082, 8100W, 88W, T-4130. (B) In T-8, 78MO, 88CM, 88CM-MC, 98, 98CM, 98CM-MC, T-100, 150, 151, 7000A1, 9000M, 900083, 800082, II-110, II 100, 9100K2, T-4130 and DH-80. (C) In T-8, 88C3, 88F3, T-90C-1, 98, T-100, 8000C3, 8000Ni-2, II 101-TM, 9000M, 9000C1, II 110, II 100, II 90-K2, 8100W, 88W, 9100K2, T4130, DH-80. (D) In 8100W, 88W. (E) In SP, T-63, 78, T-8, 88C3, 88CM, 98, 98CM, 98CM-MC, T-100. (F) In II 71, II 70, II 70LC, II 101-TM, 900083, 800082, II 110, II 100, II 80Ni-1, II 10001. (G) Not in DH-80.

SECTION III - PHYSICAL DATA

NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VII.

Date Revised: 12/05/85

ALLOY RODS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)
For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION

Identity: MILD STEEL COVERED ELECTRODES

Manufacturer's Name: ALLOY RODS CORPORATION	Emergency Telephone No. - 717/637-8911
Address: P. O. Box 517, Wilson Avenue, Hanover, PA 17331	Telephone No. for Information - 717/637-8911

Product Trade Name(s):	Product Classification(s):
SW14, SW15, SW15IP, 7024, SW610, AP100, SW612, 70LA-2, XP-60, AND 6013	AWS A5.1, E6011, E6013, E7014, E7024, E6010, E6010, E6012, E7016, E6010, AND E6013
XP-70, XP-80, AND XP-90	AWS A5.5, E7010-G, E8010-G, AND E9010-G

SECTION II - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V.

THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source	Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source
(A) Iron	(7439-89-6)	5	(2)	(B) Cellulose	(9004-34-6)	10	(2)
(C) Potassium Titanate	(N/A)	(N/A)	(3)	(D) Calcium Carbonate	(1317-65-3)	10	(2)
(E) Magnesium Carbonate	(546-93-0)	10	(2)	(A) Titanium Dioxide	(13463-67-7)	10	(2)
(A) Managanese	(7439-96-5)	5 ci	(1)	(F) Sodium Silicate	(6834-92-0)	(N/A)	(3)
(G) Potassium Silicate	(1312-76-1)	(N/A)	(3)	Potassium (H) Aluminum Silicate	(N/A)	(N/A)	(3)
(I) Aluminum Oxide	(1344-28-1)	10	(2)	(J) Aluminum Silicate	(1332-58-7)	10	(2)
(I) Magnesium Oxide	(1309-48-4)	10	(2)	(L) Calcium Fluoride	(7789-75-5)	2.5	(2)
(E) Silicon	(7440-21-3)	10	(2)	(L) Zirconium Dioxide	(1314-23-4)	5	(2)
(H) Nickel [Ni]	(7440-02-0)	1	(2)	(N) Molybdenum	(7439-98-7)	5	(2)
(N) Chromium [Cr]	(7440-47-3)	0.5	(2)	(O) Mica	(12001-21-2)	3	(2)
(O) Zirconium Silicate	(1314-23-4)	5	(2)				

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygenists (ACGIH) Threshold Limit Value (TLV[R]).
3. Not known; nuisance particulate concentration per ACGIH is 10 mg/M³.

(A) In all electrodes. (B) IN SW14, SW15, SW15IP, 7024, SW75, SW610, AP100, XP-60, XP-70, XP-80, XP-90 and 6013. (C) In SW14 only. (D) In SW14, 7024, SW612 and 70LA-2. (E) In SW14, SW75 and SW612. (F) In all electrodes except 70LA-2 and 6013. (G) In SW15, SW612, 70LA-2 and 6013. (H) In SW15 and 7024. (I) In SW15IP and 7024. (J) In SW15IP, SW612, and 70LA-2. (K) In SW15IP and AP100. (L) In 70LA-2. (M) In XP-60, XP-70, XP-80 and XP-90. (N) In XP-80 and XP-90. (O) In 6013 only.

SECTION III - PHYSICAL DATA

NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VII.

Date Revised: 11/19/85

Material Safety Data Sheet

I. General Information

Chemical Name & Synonyms OXYGEN	**Trade Name & Synonyms** OXYGEN
Chemical Family NOT APPLICABLE	**Formula** O_2
Proper DOT Shipping Name OXYGEN	**DOT Hazard Classification** NON FLAMMABLE GAS - UN 1072
Manufacturer DISTRIBUTOR QUIMBY WELDING SUPPLIES, INC.	**Manufacturer's Phone Number** (503) 221-1100
Manufacturer's Address 1603 NW 14th, PORTLAND, OR 97209	**Chemtrec Phone Number** (800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
OXYGEN	100	NONE CURRENTLY ESTABLISHED

III. Physical Data

Boiling Point (°F) -297.4° F	**Specific Gravity (H_2O = 1)** GAS
Vapor Pressure (mm Hg.) GAS	**Percent Volatile By Volume (%)** 100
Vapor Density (Air = 1) 1.105 @ 25° C	**Evaporation Rate (_____ = 1)** NOT APPLICABLE
Solubility in Water NEGLIGIBLE	**pH**

Appearance & Odor
COLORLESS, ODORLESS GAS AT AN NORMAL TEMPERATURE AND PRESSURE.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method) NOT APPLICABLE	**Auto Ignition Temperature** NOT APPLICABLE	
Flammable Limits	**LEL** NOT APPLICABLE	**UEL** NOT APPPLICABLE.

Extinguishing Media
VIGOROUSLY ACCELERATES COMBUSTION.

Special Fire Fighting Procedures
COOL CONTAINERS WITH WATER SPRAY.

Unusual Fire & Explosion Hazards
OXIDIZING AGENT, CONTACT WITH FLAMMABLE MATERIALS MAY CAUSE FIRE OR EXPLOSION.

ENRICHED OXYGEN ATMOSPHERES ARE POTENTIAL EXPLOSION HAZARDS.

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U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
THERMACOTE-WELCO COMPANY	704-739-6421
ADDRESS (Number, Street, City, State, and ZIP Code)	
HWY. 161, YORK ROAD P.O. BOX 112 KINGS MOUNTAIN, NORTH CAROLINA 28086	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	WELCO W1060 & W1200
CHEMICAL FAMILY	FORMULA

SECTION II. HAZARDOUS INGREDIENTS*

IMPORTANT! This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are covered in Section V.

Material (CAS No.)	Weight %	Exposure Limit 1984-85 TLV-TWA (OSHA PEL)
	Less Than	
Carbon (1333-86-4)	.50	3.5 mg/m^3 Carbon Black
Manganese (7439-96-5)	2.50	C 5 mg/m^3 Mn and Mn Compounds
Silicon (7440-21-3)	.50	10 mg/m^3 total dust
Copper (7440-50-8)	.50	.2 mg/m^3 (.10 mg/m^3)
Molybdenum (7439-98-7)	.75	5 mg/m^3
Iron (7439-89-6)	Bal.	5 mg/m^3 Fe_2O_3 as Fe (10 mg/m^3)

*The term "Hazardous" should be interpreted as a term required and defined in the OSHA Hazard Communications Standard (29CFR 1910.1200) and does not necessarily imply the existence of any hazard. Some of the products listed may not contain all of the ingredients shown in Section II. Typical analyses can be found in the appropriate AWS Specification or from your supplier.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Copper coated or bare solid steel wire or rods.

SECTION IV. FIRE & EXPLOSION HAZARD DATA

Fire and Explosion Hazard: Welding arc and sparks can ignite combustible and flammable products. See ANSI Z49.1 "Safety in Welding and Cutting" referenced in Section VII for fire prevention and protection information.

MATERIAL SAFETY DATA SHEET

MAY 01 199

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U S Department of Labor Essentially Similar to Form OSHA-20)

DATE OF PREP 9/19/85

Section I

MANUFACTURER'S NAME PACTRA COATINGS, INC

STREET ADDRESS 420 S. 11th Ave.

CITY, STATE, AND ZIP CODE Upland, CA 91786

EMERGENCY TELEPHONE NO 714-946-3871

INFORMATION TELEPHONE NO " " "

PRODUCT CLASS Aerosol Spray Paint

MANUFACTURERS CODE IDENTIFICATION

TRADE NAME Imperial

30 Aluminum

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERCENT	TLV PPM	TLV mg/M³	LEL	VAP PRES
Acetone	67-64-1	50-51	750			
Xylene	133-20-7	15-16	100			
Aliphatic Hydrocarbons	64742-88-7	1-2	500			

Section III — PHYSICAL DATA

BOILING RANGE _____

VAPOR DENSITY [XX] HEAVIER. [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [ ] SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME _____

WEIGHT PER GALLON _____

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely Flammable

FLASH POINT -4°F

LEL ___

EXTINGUISHING MEDIA Carbon dioxide or dry chemical or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or ma be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking electric motors or other ignition sources at locations distant from material handling point

SPECIAL FIRE FIGHTING PROCEDURES Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferrable.

Section V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II

EFFECTS OF OVEREXPOSURE Breathing - excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation. Swallowing - can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal. CHRONIC

EMERGENCY AND FIRST AID PROCEDURES If swallowed: Do not induce vomiting, keep person warm, quiet and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal. If breathed: If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiratio Keep person warm, quiet and get medical attention.

Section VI — REACTIVITY DATA

STABILITY [ ] UNSTABLE [X] STABLE CONDITIONS TO AVOID Heat, sparks and open flame.

INCOMPATABILITY (Materials to avoid) Avoid contact with: strong oxidizing agents and heat.

HAZARDOUS DECOMPOSITION PRODUCTS When exposed to heat and product is burning, CO can be given off.

HAZARDOUS POLYMERIZATION [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS TO AVOID

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to a closed container. Eliminate all ignition sources.

WASTE DISPOSAL METHOD Material collected on absorbent material may be deposited in a posted toxic substance landfill in accordance with local, state and federal regulations.

Section VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full face piece operated in pressure demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier.)

VENTILATION Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV (S).

PROTECTIVE GLOVES Wear chemical resistant gloves.

EYE PROTECTION Chemical splash goggles in compliance with OSHA regulations are advised.

OTHER PROTECTIVE EQUIPMENT

Section IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store in areas above 120° F. or in direct sunlight or near heat or open flames.

OIL STORAGE CATEGORY

OTHER PRECAUTIONS Store large quantities in buildings protected for storage of NFPA Class IC flammable liquids.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

MAY 01 1992

(Approved by U S Department of Labor Essentially Similar to Form OSHA-20)

DATE OF PREP

Section I

MANUFACTURER'S NAME PACTRA COATINGS, INC

STREET ADDRESS 420 S. 11th Ave.

CITY, STATE, AND ZIP CODE Upland, CA 91786

EMERGENCY TELEPHONE NO 714-946-3871

INFORMATION TELEPHONE NO " " "

PRODUCT CLASS Aerosol Spray Paint

TRADE NAME Imperial

1 Gloss Black
2 Flat Black
3 Appl White
4 Gloss White
5 Flat White
6 Tusk Ivory
7 Grotto Blue
8 Sky Blue
9 Garden Green
10 Light Green
11 Sunshine Yellow
12 Sand
13 Carnival Red
14 Palm Green
15 Tiger Orange
16 Nimus Gray
17 Terra Brown
18 Pebble Beig
19 Dusty Rus
23 S.G. White
24 S.G. Black
49 Almond

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERCENT	TLV PPM	TLV mg/M³	LEL	VAP PRES
Acetone	67-64-1	10-35	750			
Xylene	1330-20-7	0-10	100			
Aliphatic Hydrocarbon	64742-89-8	0-15	300			
Butanol	71-36-5	0-5	50			
Isoprophy Alcohol	67-63-0	0-3	400			
Butyl Cellosolve	111-76-2	0-3				

Section III — PHYSICAL DATA

BOILING RANGE ____

VAPOR DENSITY [XX] HEAVIER. [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [XX] SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME ____

WEIGHT PER GALLON ____

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely Flammable

FLASH POINT -4°F

LEL ____

EXTINGUISHING MEDIA Carbon dioxide or dry chemical or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or ma be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking electric motors or other ignition sources at locations distant from material handling point

SPECIAL FIRE FIGHTING PROCEDURES Water spray may be ineffective, Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferrable.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

MAY 01 1992

(Approved by U S Department of Labor Essentially Similar to Form OSHA-20)

DATE OF PREP 9/19/85

Section I

MANUFACTURER S NAME PACTRA COATINGS, INC

STREET ADDRESS 420 S. 11th Ave. CITY, STATE, AND ZIP CODE Upland, CA 91786

EMERGENCY TELEPHONE NO 714-946-3871

INFORMATION TELEPHONE NO " " "

PRODUCT CLASS Aerosol Spray Paint

TRADE NAME Imperial

MANUFACTURERS CODE IDENTIFICATION

25 Gray Hot Rod Primer
27 Red Oxide Primer
28 Dark Gray Primer
46 Black Primer
47 White Primer

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Xylene	1330-20-7	30-35	100			
Acetone	67-64-1	10-15	750			
Aliphatic Hydrocarbons	64742-89-8	4-8	300			

Section III — PHYSICAL DATA

BOILING RANGE ____ VAPOR DENSITY [XX] HEAVIER. [ ] LIGHTER. THAN AIR

EVAPORATION RATE [ ] FASTER [XX] SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME ____ WEIGHT PER GALLON ____

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely Flammable FLASH POINT -4°F LEL

EXTINGUISHING MEDIA Carbon dioxide or dry chemical or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors or other ignition sources at locations distant from material handling point.

SPECIAL FIRE FIGHTING PROCEDURES Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferrable.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor Essentially Similar to Form OSHA-20)

DATE OF PREP

Section I

MANUFACTURER'S NAME PACTRA COATINGS, INC

STREET ADDRESS 420 S. 11th Ave.

CITY, STATE, AND ZIP CODE Upland, CA 91786

EMERGENCY TELEPHONE NO 714-946-3871

INFORMATION TELEPHONE NO " " "

PRODUCT CLASS Aerosol Spray Paint

TRADE NAME Imperial

1 Gloss Black	9 Garden Green	17 Terra Brown	
2 Flat Black	10 Light Green	18 Pebble Beige	
3 Appl White	11 Sunshine Yellow	19 Dusty Rust	
4 Gloss White	12 Sand	23 S.G. White	
5 Flat White	13 Carnival Red	24 S.G. Black	
6 Tusk Ivory	14 Palm Green	49 Almond	
7 Grotto Blue	15 Tiger Orange		
8 Sky Blue	16 Nimus Gray		

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Acetone	67-64-1	10-35	750			
Xylene	1330-20-7	0-10	100			
Aliphatic Hydrocarbon	64742-89-8	0-15	300			
Butanol	71-36-5	0-5	50			
Isopropyl Alcohol	67-63-0	0-3	400			
Butyl Cellosolve	111-76-2	0-3				

Section III — PHYSICAL DATA

BOILING RANGE _____ VAPOR DENSITY [XX] HEAVIER. [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [XX] SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME ____ WEIGHT PER GALLON ____

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Extremely Flammable FLASH POINT -4°F LEL ____

EXTINGUISHING MEDIA Carbon dioxide or dry chemical or alcohol foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors or other ignition sources at locations distant from material handling point.

FIRE FIGHTING PROCEDURES Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferrable.

THRESHOLD LIMIT VALUE See Section II

EFFECTS OF OVEREXPOSURE Breathing - excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation. Swallowing - can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal. CHRONIC

EMERGENCY AND FIRST AID PROCEDURES If swallowed: Do not induce vomiting, keep person warm, quiet and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal. If breathed: If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiratio keep person warm, quiet and get medical attention.

Section VI — REACTIVITY DATA

TABILITY ☐ UNSTABLE ☒ STABLE CONDITIONS TO AVOID Heat, sparks and open flame.

NCOMPATABILITY (Materials to avoid) Avoid contact with: strong oxidizing agents and heat.

AZARDOUS DECOMPOSITION PRODUCTS When exposed to heat and product is burning, CO can be given off.

AZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

ONDITIONS TO AVOID

Section VII — SPILL OR LEAK PROCEDURES

EPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to a closed container. Eliminate all ignition sources.

ASTE DISPOSAL METHOD Material collected on absorbent material may be deposited in a posted toxic substance landfill in accordance with local, state and federal regulations.

Section VIII — SPECIAL PROTECTION INFORMATION

PIRATORY PROTECTION If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full face piece operated in pressure demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MSA respirators under specified conditions. (See your safety equipment supplier.)

ILATION Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain posure below TLV (S).

TECTIVE GLOVES Wear chemical resistant gloves.

PROTECTION Chemical splash goggles in compliance with OSHA regulations are advised.

ER PROTECTIVE EQUIPMENT

Section IX — SPECIAL PRECAUTIONS

AUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store in areas above 120° F. or in direct sunlight near heat or open flames.

STORAGE CATEGORY

R PRECAUTIONS Store large quantities in buildings protected for storage of NFPA Class 1C mmable liquids.

MATERIAL SAFETY DATA SHEET

NFPA

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U S Department of Labor Essentially Similar to Form OSHA-20)

PREP 7/27/84

Section I

FACTURER'S NAME ZYNOLYTE PRODUCTS COMPANY

T ADDRESS 2320 E. Dominguez St. CITY, STATE, AND ZIP CODE Carson, CA 90749-6244

ENCY TELEPHONE NO 213-542-7701

MATION TELEPHONE NO 213-533-0700

ICT CLASS Pressurized Spray Paint MANUFACTURERS CODE IDENTIFICATION

NAME SPRAY MATE

Section II — HAZARDOUS INGREDIENTS

DIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
ethylene Chloride	20± 5	200		----	340mm/20°C
oluene	5	100		1.3	28@ 25°C
liphatic Hydrocarbon Solvent	6±5	500		1.0	5@ 20°C
romatic Hydrocarbon Sovlent	9±5	100		1.3	25@25°C
sobutane & Propane Propellant	27±5	---		2.0	n/a

Section III — PHYSICAL DATA

G RANGE VAPOR DENSITY [XX] HEAVIER, [ ] LIGHTER THAN AIR

RATION RATE [XX] FASTER [ ] SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 75-85% WEIGHT PER GALLON 7.0- 8.0

Section IV — FIRE AND EXPLOSION HAZARD DATA

IABILITY CLASSIFICATION Extremely flammable FLASH POINT -135°F LEL 1.0

UISHING MEDIA Foam, Carbon Dioxide, Dry Chemicals- Class B fire extinguisher fog or water. pray may be used to cool closed containers to prevent pressure build up.

JAL FIRE AND EXPLOSION HAZARDS Can may explode if punctured or incinerated - DO NOT SPRAY NEAR EAT, SPARKS OR OPEN FLAMES.

E FIGHTING PROCEDURES Full protective equipment including self contained breathing itus should be used. Water Spray may be ineffective.

Section V — HEALTH HAZARD DATA

RESHOLD LIMIT VALUE SEE SECTION II.

ECTS OF OVEREXPOSURE Anesthetic.

ACUTE

CHRONIC

ERGENCY AND FIRST AID PROCEDURES : Over exposure: Remove from area. Call a Doctor. If spray gets in eyes, flush with large quantities of clear water, take to a physician.

Section VI — REACTIVITY DATA

BILITY ☐ UNSTABLE ☒ STABLE

CONDITIONS TO AVOID Sotrage above 120°F.

OMPATABILITY (*Materials to avoid*)

ZARDOUS DECOMPOSITION PRODUCTS

ARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

IDITIONS TO AVOID

Section VII — SPILL OR LEAK PROCEDURES

PS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED N.A

STE DISPOSAL METHOD : Full or empty containers should not be punctured or incinerated.

Section VIII — SPECIAL PROTECTION INFORMATION

RATORY PROTECTION Approved mechanical filter respiratore to remove solid airborne particles of overspray during spray application.

TILATION Use in well ventilated areas.

TECTIVE GLOVES n.a

PROTECTION n.a

ER PROTECTIVE EQUIPMENT n.a

Section IX — SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store above 120°F . Do not puncture or incinerate

STORAGE CATEGORY SEE SECTIONS IV, V, & VII.

ER PRECAUTIONS

(Approved by U.S. Department of Labor - Essentially Similar to Form OSHA-20)

OR PREP. 11-18-80

Section I

MANUFACTURER'S NAME ZYNOLYTE PRODUCTS COMPANY

ADDRESS 2320 E. Dominguez St. CITY, STATE, AND ZIP CODE Carson, CA 90749

EMERGENCY TELEPHONE NO. 213-513-0700 (213) 321-4220

PRODUCT CLASS Pressurized Spray Paint

MANUFACTURER'S CODE IDENTIFICATION Speed-E-Namel Spray

TRADE NAME SPEED-E-NAMEL SPRAY

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Aromatic Hydrocarbon Solvent	8.0	200			
Aliphatic Hydrocarbon Solvent	9.0	300			
Methylene Chloride	45.0	200			
Isobutane - Propane Propellent	30.5	N/A			

Section III — PHYSICAL DATA

BOILING RANGE VAPOR DENSITY [ ] HEAVIER [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [X] SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 92 WEIGHT PER GALLON 7.8

Section IV — FIRE AND EXPLOSION HAZARD DATA

CATEGORY Aerosol Paint, Compressed Gas, (No Label Required), Consumer Commodity ORM-D FLASH POINT Flame Exten: 28" Flash Back: To Tip LEL N.

EXTINGUISHING MEDIA

Foam, Carbon Dioxide, Dry Chemical

SPECIAL FIRE AND EXPLOSION HAZARDS

Pressurized product. Must be stored at temperatures below 120 degrees F. Do not store near Heat, Sparks, or open Flame. Exposure to heat may cause bursting. Do not puncture or incinerate (burn). Use in well ventilated area.

SPECIAL FIRE FIGHTING PROCEDURES

Cool with water spray. Remove from fire area if possible.

RESHOLD LIMIT VALUE SEE SECTION II.

FECTS OF OVEREXPOSURE Anesthetic.

ACUTE

CHRONIC

ERGENCY AND FIRST AID PROCEDURES : Over exposure: Remove from area. Call a Doctor. If spray gets in eyes, flush with large quantities of clear water, take to a physician.

Section VI — REACTIVITY DATA

BILITY ☐ UNSTABLE ☒ STABLE CONDITIONS TO AVOID Sotrage above 120°F.

OMPATABILITY (*Materials to avoid*)

ZARDOUS DECOMPOSITION PRODUCTS

ZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

NDITIONS TO AVOID

Section VII — SPILL OR LEAK PROCEDURES

PS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED N.A

STE DISPOSAL METHOD : Full or empty containers should not be punctured or incinerated.

Section VIII — SPECIAL PROTECTION INFORMATION

IRATORY PROTECTION Approved mechanical filter respiratore to remove solid airborne particles of overspray during spray application.

ITILATION Use in well ventilated areas.

TECTIVE GLOVES n.a

PROTECTION n.a

ER PROTECTIVE EQUIPMENT n.a

Section IX — SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store above 120°F . Do not puncture or incinerate

STORAGE CATEGORY SEE SECTIONS IV, V, & VII.

ER PRECAUTIONS

MATERIAL SAFETY DATA SHEET

MANUFACTURER: KLEAN-STRIP, DIVISION OF
W.M. BARR & COMPANY
2105 CHANNEL AVENUE
P.O. BOX 1879
MEMPHIS, TENNESSEE

DATE PREPARED: 6/13/89

TELEPHONE NUMBER: (901) 775-

RECEIVED
JUL 31 1989

JOHN SORENSEN
KEN R. HUMKE CO.
2211 NORTHWEST NICOLAI
P.O. BOX 5128
PORTLAND OR 97208

SECTION I - PRODUCT IDENTIFICATION

FORMULA NUMBER: 1635
PRODUCT NUMBER: ME-71
PRODUCT NAME : M. E. K. KLEAN STRIP
PRODUCT CLASS : SOLVENT-THINNER

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS#	PERC WT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPO PRESSU MM
1. METHYL ETHYL KETONE	78-93-3	<100	200 ppm	200 ppm	71
Teh ACGIH STEL for Methyl Ethyl ketone is 300 ppm.					

SECTION III - PHYSICAL DATA

BOILING RANGE: 175 F
VAPOR DENSITY: Heavier Than Air.
EVAPORATION RATE: Slower Than Ether.
% VOLATILE: 100.0 LBS/Gal.: 6.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASS: OSHA-Class IB FLASH POINT: 21F LEL: 1.8
DOT-Flammable Liquid. Tag c/c

EXTINGUISHING MEDIA: Use Carbon Dioxide, Dry Powder or Foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep container tightly closed. DANGER! FLAMMABLE. KEEP AWAY FROM HEAT, SPARKS, FLAME, AN D ALL OTHER SOURCES OF IGNITION. Do not smoke. Extinguish all flames and pilot lights,and turn off stoves,hearters, electric motors and all other sources of ignition during use and until all vapors are gone. Beware of static electricity that may be generated by synthetic clothing and other sources.

SPECIAL FIREFIGHTING PROCEDURES: Self-contained respiratory protection should be provided for firefighters fighting fires in buildings or confined areas. Storage containers exposed to fire should be kept cool with water spray to prevent pressure build-up.

SECTION V - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation _X_ Ingestion _X_ Dermal _X_

MATERIAL SAFETY DATA SHEET

ODUCT NAME: 1832 WHITE POLAR LATEX HMIS CODES: H F R P
JDUCT CODE: 1832 1 0 0 B

SECTION I - MANUFACTURER IDENTIFICATION

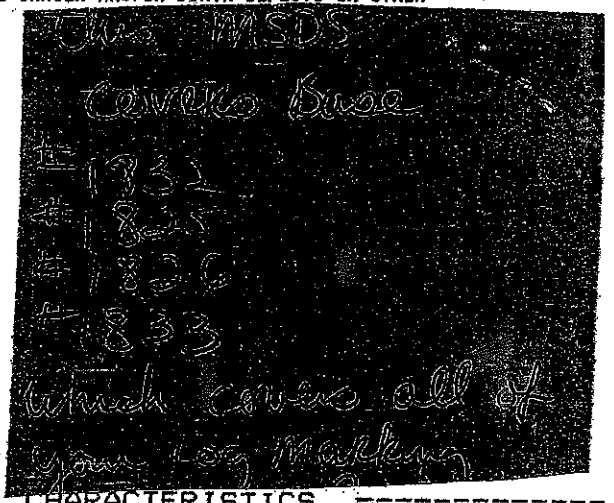
MANUFACTURER'S NAME: IMPERIAL PAINT COMPANY
ADDRESS: 2525 N.W. YEON AVENUE, PORTLAND, OR 97210
EMERGENCY PHONE: CHEMTREC800-424-9300 INFORMATION PHONE: 503-228-0208
DATE REVISED : 01-01-92 NAME OF PREPARER : SFR

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS OSHA PEL	OCCUPATIONAL EXPOSURE LIMITS ACGIH TLV	VAPOR PRESSURE mm Hg @ TEMP	WEIGHT PERCENT

*** NO REPORTABLE QUANTITIES OF HAZARDOUS INGREDIENTS ARE PRESENT ***

*** No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present. ***
WARNING: DETECTABLE AMOUNTS OF A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM MAY BE PRESENT IN THIS PRODUCT.



SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE: N/A SPECIFIC GRAVITY (H2O=1): 1.4
VAPOR DENSITY: HEAVIER THAN AIR EVAPORATION RATE: SLOWER THAN ETHER
COATING V.O.C. : 0.22 LB/GL (26 G/L)
MATERIAL V.O.C.: 0.07 LB/GL (9 G/L)
SOLUBILITY IN WATER: YES.
APPEARANCE AND ODOR: VISCOUS LIQUID, TYPICAL ODOR OF SOLVENT(s) LISTED ABOVE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A
FLAMMABLE LIMITS IN AIR BY VOLUME- LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG

SPECIAL FIREFIGHTING PROCEDURES
O SPRAY MAY BE INEFFECTIVE. WATER SPRAY MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND E RUPTURE OF CONTAINERS. WATER FOG IS PREFERRED. FIRE FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS
LOSED CONTAINERS MAY EXPLODE OR BURST, DUE TO THE BUILD UP OF STEAM PRESSURE WHEN EXPOSED TO EXTREME HEAT.

SECTION V - REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID
NONE

INCOMPATIBILITY (MATERIALS TO AVOID)
VOID CONTACT WITH STRONG ALKALIES, STRONG MINERAL ACIDS OR STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS
Y MATERIAL EXPOSED TO HIGH HEAT SUCH AS WELDING OR FLAME-CUTTING OPERATIONS MAY RELEASE CARBON MONOXIDE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
FECTS FROM VAPORS OR SPRAY MISTS IN POORLY VENTILATED AREAS MAY INCLUDE IRRITATION OF THE MUCUS MEMBRANES. INHALATION VAPORS OR SPRAY MISTS MAY ALSO RESULT IN NAUSEA, DIZZINESS, BREATHING DIFFICULTY, HEADACHES, AND LOSS OF COORDINATION

SKIN AND EYE CONTACT HEALTH RISKS AND SYMPTOMS OF EXPOSURE
IN CONTACT: MAY CAUSE SKIN IRRITATION OR SENSITIVITY. SYMPTOMS INCLUDE REDNESS, CRACKS, SWELLING, AND DERMITIS.
CONTACT:CAUSES SEVERE EYE IRRITATION. SYMPTOMS INCLUDE REDNESS, TEARING, BURNING, AND VISUAL DISTURBANCES.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
BE HARMFUL IF ABSORBED THROUGH THE SKIN. SYMPTOMS INCLUDE, NAUSEA, HEADACHE, IRRITATION, SWELLING, AND REDNESS.

INGESTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
FUL OR FATAL IF SWALLOWED. SYMPTOMS INCLUDE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.

HEALTH HAZARDS (ACUTE AND CHRONIC)
LATION-DIZZINESS, BREATHING DIFFICULTY, HEADACHES & LOSS OF COORDINATION. EYE CONTACT-SEVERE IRRITATION, TEARING, ESS, AND BLURRED VISION, SKIN CONTACT-CAN DRY AND DEFAT SKIN CAUSING CRACKS, IRRITATION, AND DERMATITIS. STION-CAN CAUSE GASTROINTESTINAL IRRITATION, VOMITING, & DIARRHEA. CHRONIC EFFECTS UNKNOWN.

CARCINOGENICITY: NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
WN.

EMERGENCY AND FIRST AID PROCEDURES
TION: DO NOT INDUCE VOMITING. CAN CAUSE CHEMICAL PNEUMONITIS AND PULMONARY EDEMA. CALL PHYSICAN OR EMERGENCY USE AGENCY IMMEDIATELY. EYE CONTACT: FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEEK AL ATTENTION. SKIN CONTACT: FLUSH WITH WATER FOLLOWED BY WASHING WITH SOAP AND WATER.
TION: REMOVE VICTIM TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION AND OTHER SUPPORTIVE MEASURES AS REQUIRED. EDICAL ATTENTION.

========== SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE ==========

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
DIKE AND CONTAIN SPILL WITH INERT MATERIAL (SAND, EARTH, ETC.). TRANSFER LIQUID TO CONTAINERS FOR RECOVERY OR DISPOSAL. DO NOT ALLOW SPILLED MATERIAL TO ENTER DRAINS OR SEWER SYSTEMS.

WASTE DISPOSAL METHOD
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
KEEP FROM FREEZING. PRODUCT STABILITY MAY BE AFFECTED IF FROZEN. KEEP CONTAINER CLOSED WHEN NOT IN USE. SPILLS ON FLOORS MAY BE SLIPPERY, CARE SHOULD BE TAKEN TO AVOID FALLS. KEEP OUT OF THE REACH OF CHILDREN.

OTHER PRECAUTIONS
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT. KEEP CLOSURE TIGHT AND CONTAINER UPRIGHT TO PREVENT LEAKAGE. AVOID BREATHING SANDING DUST.

========== SECTION VIII - CONTROL MEASURES ==========

RESPIRATORY PROTECTION
IN OUTDOOR OR OPEN AREAS WITH UNRESTRICTED VENTILATION USE APPROVED MECHANICAL FILTER RESPIRATOR TO REMOVE SOLID ...E PARTICLES OF OVERSPRAY DURING APPLICATION. IF VENTILATION IS POOR WEAR NIOSH/MSHA TC 23C OR EQUIVALENT ...ATOR SUITABLE FOR VAPOR OR MIST CONCENTRATIONS ENCOUNTERED.

VENTILATION
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO KEEP THE CONCENTRATION OF INGREDIENTS LISTED IN SECTION II BELOW THE LOWEST SUGGESTED EXPOSURE LIMITS.

PROTECTIVE GLOVES
GLOVES SHOULD BE CONSTRUCTED OF NITRILE, NEOPRENE, OR LATEX. OR IMPERVIOUS TO THE INGREDIENTS LISTED IN SECTION II.

EYE PROTECTION
USE CHEMICAL SAFETY GLASSES, GOGGLES OR FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR GLOVES, CLOTHING AND FOOTWEAR WHICH ARE DESIGNED FOR PROTECTION WHEN USING THIS MATERIAL.

WORK/HYGIENIC PRACTICES
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING OR FOOTWEAR IS CONTAMINATED, DISCARD OR LAUNDER.

========== SECTION IX - DISCLAIMER ==========

DISCLAIMER
THE ABOVE INFORMATION IS BASED ON TECHNICAL DATA WHICH THE SELLER BELIEVES TO BE RELIABLE AND ARE INTENDED FOR USE BY PERSONS HAVING PROPER SKILL AND KNOWLEDGE, AT THEIR DISCRETION AND RISK. SELLER ASSUMES NO RESPONSIBILITY FOR RESULTS OBTAINED OR DAMAGES INCURRED FROM THEIR USE BY BUYER WHETHER AS RECOMMENDED HEREIN OR OTHERWISE.

DEC 0.3 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENCY
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-1, 83-2

PRODUCT NAME: LOG MARKING PAINT WHITE, BLUE

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

UNUSUAL FIRE & EXPLOSION HAZARDS: DO NOT APPLY TO HOT SURFACES. KEEP AWAY FROM HEAT, SPARKS OR OPEN FLAME. DO NOT STORE OR MIX WITH STRONG OXIDANTS. KEEP CONTAINERS TIGHTLY CLOSED. CLOSED CONTAINERS MAY EXPLODE

WHEN EXPOSED TO EXTREME HEAT.

SPECIAL FIREFIGHTING PROCEDURES: USE AIR SUPPLIED RESCUE EQUIPMENT FOR ENCLOSED AREAS. FULL STREAM WATER MAY BE UNSUITABLE AS EXTINGUISHING METHOD, BUT IS HELPFUL IN KEEPING NEARBY CONTAINERS COOL. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: INHALATION OF HIGH VAPOR CONCENTRATIONS MAY HAVE RESULTS RANGING FROM DIZZINESS AND HEADACHES TO UNCONSCIOUSNESS. PROLONGED OR REPEATED LIQUID CONTACT WITH THE SKIN WILL DRY AND DEFAT THE SKIN, LEADING TO IRRITATION AND DERMATITIS. EYE CONTACT CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING AND BLURRED VISION. INGESTION CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

FIRST AID: IF OVERCOME BY VAPOR, REMOVE FROM EXPOSURE IMMEDIATELY AND CALL A PHYSICIAN. IF BREATHING IS IRREGULAR OR STOPPED, START RESUSCITATION AND ADMINISTER OXYGEN. IF INGESTED, DO NOT INDUCE VOMITING, CALL A PHYSICIAN. IN CASE OF SKIN CONTACT, REMOVE ANY CONTAMINATED CLOTHING AND WASH SKIN WITH SOAP AND WARM WATER. IF SPLASHED INTO THE EYES, FLUSH EYES WITH CLEAR WATER FOR 15 MINUTES OR UNTIL IRRITATION SUBSIDES. CONSULT A PHYSICIAN AS MAY BE REQUIRED.

PRIMARY ROUTES OF ENTRY: DERMAL AND INHALATION.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
HAZARDOUS DECOMPOSITION PRODUCTS: SMOKE, ACRID FUMES, CARBON DIOXIDE. INCOMPLETE COMBUSTION MAY PRODUCE CARBON MONOXIDE.

CONDITIONS TO AVOID: HIGH TEMPERATURES OR ANY TYPE OF COMBUSTION SOURCE.

INCOMPATIBILITY (MATERIALS TO AVOID): OXYGEN AND STRONG OXIDANTS. WILL DISSOLVE OR SOFTEN SOME PLASTICS AND RUBBER.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: REMOVE ALL IGNITION SOURCES. KEEP PEOPLE AWAY. RECOVER FREE LIQUID. ADD ABSORBENT (SAND, SAWDUST, CAT LITTER ETC.) TO SPILL AREA. AVOID BREATHING VAPORS. VENTILATE CONFINED SPACES. OPEN ALL WINDOWS AND DOORS. KEEP OUT OF SEWERS AND WATERWAYS BY DIKING OR IMPOUNDING. ADVISE AUTHORITIES IF PRODUCT HAS OR MAY ENTER SEWERS, WATERWAYS OR EXTENSIVE LAND AREAS.

WASTE DISPOSAL METHOD: ASSURE CONFORMITY WITH APPLICABLE DISPOSAL REGULATIONS FOR BOTH SPILLED PRODUCT AND ABSORBED MATERIAL.

LOG MARK WHITE / BL

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: USE ORGANIC VAPOR RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN TLV IS EXCEEDED.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL VENTILATION WITH EXPLOSION PROOF EQUIPMENT TO MAINTAIN EXPOSURE LEVEL BELOW TLV.

PROTECTIVE GLOVES: SOLVENT RESISTANT IF NEEDED.

EYE PROTECTION: SPLASH GOGGLES OR FACE SHIELD WHEN EYE CONTACT MAY OCCUR.

OTHER PROTECTIVE EQUIPMENT: SOLVENT RESISTANT APRON OR OTHER CLOTHING IF NEEDED TO AVOID REPEATED OR PROLONGED SKIN CONTACT.

HYGIENIC PRACTICES: AFTER USING THIS PRODUCT, WASH HANDS THOROUGHLY PRIOR TO EATING OR SMOKING.

SECTION IX - SPECIAL PRECAUTIONS OR OTHER COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT HANDLE OR STORE NEAR HEAT, SPARKS, FLAME OR STRONG OXIDANTS. ADEQUATE VENTILATION REQUIRED. NO SMOKING OR OPEN LIGHTS. AVOID BREATHING VAPORS. AVOID CONTACT WITH SKIN. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH SKIN THOROUGHLY WITH SOAP AND WATER AFTER CONTACT. GROUND CONTAINERS WHEN POURING AND LIMIT FREEFALL TO MINIMIZE STATIC CHARGE BUILD UP. "EMPTY" CONTAINERS MAY BE HAZARDOUS FROM PRODUCT RESIDUE OR VAPOR AND ALL CAUTIONS ON THIS SHEET APPLY TO THEM.

HMIS DATA:		
	HEALTH HAZARD	2
	FLAMMABILITY HAZARD	2
	REACTIVITY HAZARD	0
	MAX. PERSONAL PROTECTION	H

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH BURKE'S PAINT CO., INC. OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE AND SUITABLE TO THEIR CIRCUMSTANCES. TO OUR KNOWLEDGE, THIS MSDS COMPLIES WITH 29 CFR 1910.1200.

DEC 03 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENCY
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-6, 83-4

PRODUCT NAME: LOG MARKING PAINT RED, ORANGE

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg
NORMAL LEAD CHROMATE (CAS.# 7758-97-6)	<5%	0.05MG/M3 AS LEAD		N/A

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

UNUSUAL FIRE & EXPLOSION HAZARDS: DO NOT APPLY TO HOT SURFACES. KEEP AWAY FROM HEAT, SPARKS OR OPEN FLAME. DO NOT STORE OR MIX WITH STRONG OXIDANTS. KEEP CONTAINERS TIGHTLY CLOSED. CLOSED CONTAINERS MAY EXPLO WHEN EXPOSED TO EXTREME HEAT.

SPECIAL FIREFIGHTING PROCEDURES: USE AIR SUPPLIED RESCUE EQUIPMENT FOR ENCLOSED AREAS. FULL STREAM WATER MAY BE UNSUITABLE AS EXTINGUISHING METHOD, BUT IS HELPFUL IN KEEPING NEARBY CONTAINERS COOL. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: INHALATION OF HIGH VAPOR CONCENTRATIONS MAY HAVE RESULTS RANGING FROM DIZZINESS AND HEADACHES TO UNCONSCIOUSNESS. PROLONGED OR REPEATED LIQUID CONTACT WITH THE SKIN WILL DRY AND DEFAT THE SKIN, LEADING TO IRRITATION AND DERMATITIS. EYE CONTACT CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING AND BLURRED VISION. INGESTION CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA OR COULD POTENTIALLY BE FATAL. EXCESSIVE EXPOSURE TO LEAD CHROMATE MAY HAVE HARMFUL CHRONIC EFFECTS.

FIRST AID: IF OVERCOME BY VAPOR, REMOVE FROM EXPOSURE IMMEDIATELY AND CALL A PHYSICIAN. IF BREATHING IS IRREGULAR OR STOPPED, START RESUSCITATION AND ADMINISTER OXYGEN. IF INGESTED, DO NOT INDUCE VOMITING, CALL A PHYSICIAN. IN CASE OF SKIN CONTACT, REMOVE ANY CONTAMINATED CLOTHING AND WASH SKIN WITH SOAP AND WARM WATER. IF SPLASHED INTO THE EYES, FLUSH EYES WITH CLEAR WATER FOR 15 MINUTES OR UNTIL IRRITATION SUBSIDES. CONSULT A PHYSICIAN AS MAY BE REQUIRED.

PRIMARY ROUTES OF ENTRY: DERMAL AND INHALATION.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
HAZARDOUS DECOMPOSITION PRODUCTS: SMOKE, ACRID FUMES, CARBON DIOXIDE. INCOMPLETE COMBUSTION MAY PRODUCE CARBON MONOXIDE.

CONDITIONS TO AVOID: HIGH TEMPERATURES OR ANY TYPE OF COMBUSTION SOURCE.

INCOMPATIBILITY (MATERIALS TO AVOID): OXYGEN AND STRONG OXIDANTS. WILL DISSOLVE OR SOFTEN SOME PLASTICS AND RUBBER.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: REMOVE ALL IGNITION SOURCES. KEEP PEOPLE AWAY. RECOVER FREE LIQUID. ADD ABSORBENT (SAND, SAWDUST, CAT LITTER ETC.) TO SPILL AREA. AVOID BREATHING VAPORS VENTILATE CONFINED SPACES. OPEN ALL WINDOWS AND DOORS. KEEP OUT OF SEWERS AND WATERWAYS BY DIKING OR IMPOUNDING. ADVISE AUTHORITIES IF

LOG MARKED/ORAL

PRODUCT HAS OR MAY ENTER SEWERS, WATERWAYS OR EXTENSIVE LAND AREAS.

WASTE DISPOSAL METHOD: ASSURE CONFORMITY WITH APPLICABLE DISPOSAL REGULATIONS FOR BOTH SPILLED PRODUCT AND ABSORBED MATERIAL.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: USE ORGANIC VAPOR RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN TLV IS EXCEEDED.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL VENTILATION WITH EXPLOSION PROOF EQUIPMENT TO MAINTAIN EXPOSURE LEVEL BELOW TLV.

PROTECTIVE GLOVES: SOLVENT RESISTANT IF NEEDED.

EYE PROTECTION: SPLASH GOGGLES OR FACE SHIELD WHEN EYE CONTACT MAY OCCUR.

OTHER PROTECTIVE EQUIPMENT: SOLVENT RESISTANT APRON OR OTHER CLOTHING IF NEEDED TO AVOID REPEATED OR PROLONGED SKIN CONTACT.

HYGIENIC PRACTICES: AFTER USING THIS PRODUCT, WASH HANDS THOROUGHLY PRIOR TO EATING OR SMOKING.

SECTION IX - SPECIAL PRECAUTIONS OR OTHER COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT HANDLE OR STORE NEAR HEAT, SPARKS, FLAME OR STRONG OXIDANTS. ADEQUATE VENTILATION REQUIRED. NO SMOKING OR OPEN LIGHTS. AVOID BREATHING VAPORS. AVOID CONTACT WITH SKIN. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH SKIN THOROUGHLY WITH SOAP AND WATER AFTER CONTACT. GROUND CONTAINERS WHEN POURING AND LIMIT FREEFALL TO MINIMIZE STATIC CHARGE BUILD UP. "EMPTY" CONTAINERS MAY BE HAZARDOUS FROM PRODUCT RESIDUE OR VAPOR AND ALL CAUTIONS ON THIS SHEET APPLY TO THEM.

HMIS DATA:	HEALTH HAZARD	2
	FLAMMABILITY HAZARD	2
	REACTIVITY HAZARD	0
	MAX. PERSONAL PROTECTION	H

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH BURKE'S PAINT CO., INC. OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE AND SUITABLE TO THEIR CIRCUMSTANCES. TO OUR KNOWLEDGE, THIS MSDS COMPLIES WITH 29 CFR 1910.1200.

DEC 03 1988

MATERIAL SAFETY DATA SHEET

BURKE'S PAINT CO., INC.
727 SOUTH 27th ST.
WASHOUGAL, WA. 98671

TELEPHONE NO. INFORMATION/EMERGENC
(206)835-8515, (206)835-5977

DATE OF PREPARATION: 11-5-85

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 83-3

PRODUCT NAME: LOG MARKING PAINT YELLOW

PRODUCT CLASS: LINSEED OIL BASED PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSUR
MINERAL SPIRITS	23%	100		2mm Hg @68'F
METHANOL	<0.5%	200	200	100mm Hg @68'F
ZIRCONIUM COMPOUND	<0.5%	5MG/M3 AS ZR		1mm Hg
HYDROQUINONE	<0.5%	2MG/M3		1mm Hg
2-ETHOXYETHANOL	<0.5%	5		1mm Hg
BUTANOL (CAS.# 71-36-3)	<0.5%	100		4mm Hg
NORMAL LEAD CHROMATE (CAS.# 7758-97-6)	<5%	0.05MG/M3 AS LEAD		N/A

SECTION III - PHYSICAL DATA

BOILING RANGE 300-400'F VAPOR DENSITY - HEAVIER THAN AIR
EVAPORATION RATE - SLOWER THAN ETHER WEIGHT/GALLON 11.5
% VOLATILE BY VOLUME 43%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA CLASS II FLASH POINT 100'F
DOT COMBUSTIBLE LIQUID LEL 1.0%

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER SPRAY

LOG MAKE YELLOW

PRODUCT HAS OR MAY ENTER SEWERS, WATERWAYS OR EXTENSIVE LAND AREAS.

WASTE DISPOSAL METHOD: ASSURE CONFORMITY WITH APPLICABLE DISPOSAL REGULATIONS FOR BOTH SPILLED PRODUCT AND ABSORBED MATERIAL.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: USE ORGANIC VAPOR RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN TLV IS EXCEEDED.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL VENTILATION WITH EXPLOSION PROOF EQUIPMENT TO MAINTAIN EXPOSURE LEVEL BELOW TLV.

PROTECTIVE GLOVES: SOLVENT RESISTANT IF NEEDED.

EYE PROTECTION: SPLASH GOGGLES OR FACE SHIELD WHEN EYE CONTACT MAY OCCUR.

OTHER PROTECTIVE EQUIPMENT: SOLVENT RESISTANT APRON OR OTHER CLOTHING IF NEEDED TO AVOID REPEATED OR PROLONGED SKIN CONTACT.

HYGIENIC PRACTICES: AFTER USING THIS PRODUCT, WASH HANDS THOROUGHLY PRIOR TO EATING OR SMOKING.

SECTION IX - SPECIAL PRECAUTIONS OR OTHER COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP CONTAINERS CLOSE WHEN NOT IN USE. DO NOT HANDLE OR STORE NEAR HEAT, SPARKS, FLAME OR STRONG OXIDANTS. ADEQUATE VENTILATION REQUIRED. NO SMOKING OR OPEN LIGHTS. AVOID BREATHING VAPORS. AVOID CONTACT WITH SKIN. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH SKIN THOROUGHLY WITH SOAP AND WATER AFTER CONTACT. GROUND CONTAINERS WHEN POURING AND LIMIT FREEFALL TO MINIMIZE STATIC CHARGE BUILD UP. "EMPTY" CONTAINERS MAY BE HAZARDOUS FROM PRODUCT RESIDUE OR VAPOR AND ALL CAUTIONS ON THIS SHEET APPLY TO THEM.

HMIS DATA:		
	HEALTH HAZARD	2
	FLAMMABILITY HAZARD	2
	REACTIVITY HAZARD	0
	MAX. PERSONAL PROTECTION	H

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH BURKE'S PAINT CO., INC. OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE AND SUITABLE TO THEIR CIRCUMSTANCES. TO OUR KNOWLEDGE, THIS MSDS COMPLIES WITH 29 CFR 1910.1200.

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-16-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 2021
PRODUCT NAME: 2021 M&E EN. JONES GREEN
PRODUCT CLASS: MEDIUM-SHORT OIL ALKYD

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
LEADED CHROMATE 56% LEAD 22% CHROMATE	1344-37-2	(5.0%	.05 MG / CUBIC METER	0.0	20C
ALIPHATIC SOLVENT	64742-88-7	(5.0%	100 PPM	2.0	20C
VM&P NAPTHA	64742-89-8	5	400 PPM	53.0	25C
XYLOL	1330-20-7	40	100 PPM	5.1	20C
BUTYL ACETATE	123-86-4	(0.5%	150 PPM	8.0	20C
ISOBUTYL ALCOHOL	78-83-1	(0.5%	100 PPM	8.8	20C
LEAD CHROMATE/LEAD SULFATE 60% LEAD 14% CHROMATE	UNKNOWN	(0.5%	.1 MG / CUBIC METER	0.0	20C
METHANOL	67-56-1	(0.5%	200 PPM	97.7	20C
N-BUTYL ALCOHOL	71-36-3	(5.0%	50 PPM	4.4	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 96-140 DEG. C VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 60.75 WT/GAL: 8.35

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: Flammable Liquid - Class IB

LASH POINT: 86 DEG. F. (TCC) LEL: 1.0

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG, OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS:
ISOLATE FROM HEAT, SPARKS ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. WATER FOG MAY BE USED TO COOL UNRUPTURED CONTAINERS.

SPECIAL FIREFIGHTING PROCEDURES:
USE SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE. DO NOT USE DIRECT WATER STREAM

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: DIZZINESS, NAUSEA, HEADACHE, IRRITATION, RESPIRATORY PARALYSIS.
EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING, AND BLURRED VISION.
SKIN CONTACT: CAN DRY AND DEFAT SKIN, CAUSING CRACKS, IRRITATION, AND DERMATITIS.
INGESTION: CAN CAUSE GASTROINTESTIONAL IRRITATION, VOMITING, NAUSEA, AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
ALLERGY, RESPIRATORY IRRITATION, DERMATITIS, AND SENSITIZATION.

PRIMARY ROUTE(S) OF ENTRY: DERMAL, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE TO FRESH AIR, IF NECESSARY GIVE ARTIFICAL RESPIRATION.
EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
SKIN CONTACT: WASH AFFECTED AREAS WITH SOAP AND WATER.
INGESTION: DO NOT INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATLY. KEEP PERSON WARM & QUIET. ASPIRATION INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS:
CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND POSSIBLY ACROLEIN GAS.

CONDITIONS TO AVOID:
EXCESS HEAT, POOR VENTILATION, CORROSIVE ATMOSPHERES, EXCESSIVE AGING.

INCOMPATIBILITY (MATERIALS TO AVOID):
STRONG OXIDIZING MATERIALS.

SECTION VII - SPILL OR LEAK PROCEDURES 2002 IND. ED. W

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE SOURCES OF IGNITION, USE RESPIRATORY PROTECTION, WEAR PROTECTIVE CLOTHI
PREVENT ESCAPE OF MATERIAL FROM IMMEDIATE AREA BY USING ABSORBENT OR DIKES.

WASTE DISPOSAL METHOD:
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:
IF TLV OF PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH APPROVED RESPIRATOR I ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. (SEE YOUR LOCAL SAFETY EQUIPMENT SUPPLIER).

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S)

PROTECTIVE GLOVES:
GLOVES WHICH ARE IMPERMABLE TO AROMATIC & ALIPHATIC SOLVENTS.

EYE PROTECTION:
USE CHEMICAL SAFETY GLASSES, GOGGLES, AND FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

HYGIENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING IS CONTAMINATED, DISCARD OR LAUNDE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR IGNITION SOURCES. FREE FALLING STREAMS OF LIQUID MAY CAUSE STATIC BUILDUP. GROUND AND ELECTRICALLY INTERCONNECT CONTAINERS WHEN TRANSFERRING. USE SPARKPROOF TOOLS.

OTHER PRECAUTIONS:
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID, OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED. DO NOT TAKE INTERNALLY. AVOID PROLONGED CONTACT WITH SKIN. STORE LARGE QUANTITES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: Combustible Liquid - Class II

FLASH POINT: 106 DEG.. F. (TCC) LEL: 1.0

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG, OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS:
ISOLATE FROM HEAT, SPARKS ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. WATER FOG MAY BE USED TO COOL UNRUPTURED CONTAINERS.

SPECIAL FIREFIGHTING PROCEDURES:
USE SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: DIZZINESS, NAUSEA, HEADACHE, IRRITATION, RESPIRATORY PARALYSIS.
EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING, AND BLURRED VISION.
SKIN CONTACT: CAN DRY AND DEFAT SKIN, CAUSING CRACKS, IRRITATION, AND DERMATITIS.
INGESTION: CAN CAUSE GASTROINTESTIONAL IRRITATION, VOMITING, NAUSEA, AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
ALLERGY, RESPIRATORY IRRITATION, DERMATITIS, AND SENSITIZATION.

PRIMARY ROUTE(S) OF ENTRY: DERMAL, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE TO FRESH AIR, IF NECESSARY GIVE ARTIFICAL RESPIRATION.
EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
SKIN CONTACT: WASH AFFECTED AREAS WITH SOAP AND WATER.
INGESTION: DO NOT INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATLY. KEEP PERSON WARM & QUIET. ASPIRATION INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS:
CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND POSSIBLY ACROLEIN GAS.

CONDITIONS TO AVOID:
EXCESS HEAT, POOR VENTILATION, CORROSIVE ATMOSPHERES, EXCESSIVE AGING.

INCOMPATIBILITY (MATERIALS TO AVOID):
OXYGEN AND STRONG OXIDANTS. WILL DISSOLVE OR SOFTEN SOME PLASTICS AND RUBBER

SECTION VII - SPILL OR LEAK PROCEDURES 2021 Jones Gr

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE SOURCES OF IGNITION, USE RESPIRATORY PROTECTION, WEAR PROTECTIVE CLOTH
PREVENT ESCAPE OF MATERIAL FROM IMMEDIATE AREA BY USING ABSORBENT OR DIKES.

WASTE DISPOSAL METHOD:
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:
IF TLV OF PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH APPROVED RESPIRATOR ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. (SEE YOUR LOCAL SAFETY EQUIPMENT SUPPLIER).

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S)

PROTECTIVE GLOVES:
GLOVES WHICH ARE IMPERMABLE TO AROMATIC & ALIPHATIC SOLVENTS.

EYE PROTECTION:
USE CHEMICAL SAFETY GLASSES, GOGGLES, AND FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

HYGIENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING IS CONTAMINATED, DISCARD OR LAUNDE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR IGNITION SOURCES. FREE FALLING STREAMS OF LIQUID MAY CAUSE STATIC BUILDUP. GROUND AND ELECTRICALLY INTERCONNECT CONTAINERS WHEN TRANSFERRING. USE SPARKPROOF TOOLS.

OTHER PRECAUTIONS:
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID, OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED. DO NOT TAKE INTERNALLY. AVOID PROLONGED CONTACT WITH SKIN. STORE LARGE QUANTITES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT.

CAUTION! CONTAINS LEAD!
HARMFUL IF SWALLOWED
Do not apply on window sills, toys, furniture or interior surfaces of rooms which may be used by children. Avoid breathing spray mist. Wash hands before smoking or eating.
KEEP OUT OF REACH OF CHILDREN

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
2526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-16-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 2002
PRODUCT NAME: 2002 INDUSTRIAL EN. WHITE
PRODUCT CLASS: MEDIUM OIL ALKYD

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
METHANOL	67-56-1	(0.5%	200 PPM	97.7	20C
ALIPHATIC SOLVENT	64742-88-7	40	100 PPM	2.0	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 157-204 DEG. C. VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 59.73 WT/GAL: 9.45

SECTION VII - SPILL OR LEAK PROCEDURES

1925 Syn. Re

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE SOURCES OF IGNITION, USE RESPIRATORY PROTECTION, WEAR PROTECTIVE CLOTHI
PREVENT ESCAPE OF MATERIAL FROM IMMEDIATE AREA BY USING ABSORBENT OR DIKES.

WASTE DISPOSAL METHOD:
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:
IF TLV OF PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH APPROVED RESPIRATOR ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. (SEE YOUR LOCAL SAFETY EQUIPMENT SUPPLIER).

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S)

PROTECTIVE GLOVES:
GLOVES WHICH ARE IMPERMABLE TO AROMATIC & ALIPHATIC SOLVENTS.

EYE PROTECTION:
USE CHEMICAL SAFETY GLASSES, GOGGLES, AND FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

HYGIENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING IS CONTAMINATED, DISCARD OR LAUNDE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR IGNITION SOURCES. FREE FALLING STREAMS OF LIQUID MAY CAUSE STATIC BUILDUP. GROUND AND ELECTRICALLY INTERCONNECT CONTAINERS WHEN TRANSFERRING. USE SPARKPROOF TOOLS.

OTHER PRECAUTIONS:
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID, OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED. DO NOT TAKE INTERNALLY. AVOID PROLONGED CONTACT WITH SKIN. STORE LARGE QUANTITES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT.

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
26 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-05-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 1902
PRODUCT NAME: 1902 LACQUER THINNER, MEDIUM
PRODUCT CLASS: SOLVENT BLEND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP	
KETONE BLEND	UNKNOWN	15	200 PPM	70.0	20C
ACETONE	67-64-1	(5.0%	750 PPM	186.0	20C
DIACETONE ALCOHOL	UNKNOWN	(5.0%	50 PPM	0.8	20C
METHANOL	67-56-1	(5.0%	200 PPM	97.7	20C
TOLUOL	108-88-3	10	100 PPM	22.0	20C
XYLOL	1330-20-7	10	100 PPM	5.1	20C
NAPTHA	UNKNOWN	30	400 PPM	53.0	25C
IPYL ALCOHOL	67-63-0	20	400 PPM	33.0	20C
BUTYL ALCOHOL	UNKNOWN	(5.0%	50 PPM	4.4	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 56-172 DEG. C. — VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 100.00 WT/GAL: 6.60

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: Flammable Liquid---Class IB

FLASH POINT: -4 DEG. F. (TCC) LEL: 1.0

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG, OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS:
ISOLATE FROM HEAT, SPARKS ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. WATER FOG MAY BE USED TO COOL UNRUPTURED CONTAINERS.

SPECIAL FIREFIGHTING PROCEDURES:
USE SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE. DO NOT USE DIRECT WATER STREA

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: DIZZINESS, NAUSEA, HEADACHE, IRRITATION, RESPIRATORY PARALYSIS.
EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING, AND BLURRED VISION.
SKIN CONTACT: CAN DRY AND DEFAT SKIN, CAUSING CRACKS, IRRITATION, AND DERMATITIS.
INGESTION: CAN CAUSE GASTROINTESTIONAL IRRITATION, VOMITING, NAUSEA, AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
ALLERGY, RESPIRATORY IRRITATION, DERMATITIS, AND SENSITIZATION.

PRIMARY ROUTE(S) OF ENTRY: DERMAL, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE TO FRESH AIR, IF NECESSARY GIVE ARTIFICAL RESPIRATION.
EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
SKIN CONTACT: WASH AFFECTED AREAS WITH SOAP AND WATER.
INGESTION: DO NOT INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATLY. KEEP PERSON WARM & QUIET. ASPIRATION INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS:
CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND POSSIBLY ACROLEIN GAS.

CONDITIONS TO AVOID:
EXCESS HEAT, POOR VENTILATION, CORROSIVE ATMOSPHERES, EXCESSIVE AGING.

INCOMPATIBILITY (MATERIALS TO AVOID):
STRONG OXIDIZING MATERIALS.

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
3526 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 11-16-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 1925
PRODUCT NAME: 1925 SYNTHETIC REDUCER
PRODUCT CLASS: SOLVENT BLEND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm hg @ TEMP	
TOLUOL	108-88-3	55	100 PPM	22.0	20C
XYLOL	1330-20-7	40	100 PPM	5.1	20C
BUTYL ALCOHOL	71-36-3	(5.0%	50 PPM	4.4	20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 110-140 DEG. C. VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 100.00 WT/GAL: 7.23

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: Flammable Liquid - Class IB

FLASH POINT: 41 DEG. F. (TCC) LEL: 1.0

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG, OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS:
ISOLATE FROM HEAT, SPARKS ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. WATER FOG MAY BE USED TO COOL UNRUPTURED CONTAINERS.

SPECIAL FIREFIGHTING PROCEDURES:
USE SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE. DO NOT USE DIRECT WATER STREAM

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: DIZZINESS, NAUSEA, HEADACHE, IRRITATION, RESPIRATORY PARALYSIS.
EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING, AND BLURRED VISION.
SKIN CONTACT: CAN DRY AND DEFAT SKIN, CAUSING CRACKS, IRRITATION, AND DERMATITIS.
INGESTION: CAN CAUSE GASTROINTESTIONAL IRRITATION, VOMITING, NAUSEA, AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
LLERGY, RESPIRATORY IRRITATION, DERMATITIS, AND SENSITIZATION.

PRIMARY ROUTE(S) OF ENTRY: DERMAL, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE TO FRESH AIR, IF NECESSARY GIVE ARTIFICAL RESPIRATION.
EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
SKIN CONTACT: WASH AFFECTED AREAS WITH SOAP AND WATER.
INGESTION: DO NOT INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATLY. KEEP PERSON WARM & QUIET. ASPIRATION INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS:
ARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND POSSIBLY ACROLEIN GAS.

ONDITIONS TO AVOID:
XCESS HEAT, POOR VENTILATION, CORROSIVE ATMOSPHERES, EXCESSIVE AGING.

NCOMPATIBILITY (MATERIALS TO AVOID):
TRONG OXIDIZING MATERIALS.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE SOURCES OF IGNITION, USE RESPIRATORY PROTECTION, WEAR PROTECTIVE CLOTHI
PREVENT ESCAPE OF MATERIAL FROM IMMEDIATE AREA BY USING ABSORBENT OR DIKES.

WASTE DISPOSAL METHOD:
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:
IF TLV OF PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH APPROVED RESPIRATOR ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. (SEE YOUR LOCAL SAFETY EQUIPMENT SUPPLIER).

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S)

PROTECTIVE GLOVES:
GLOVES WHICH ARE IMPERMABLE TO AROMATIC & ALIPHATIC SOLVENTS.

EYE PROTECTION:
USE CHEMICAL SAFETY GLASSES, GOGGLES, AND FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

HYGIENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING IS CONTAMINATED, DISCARD OR LAUNDE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR IGNITION SOURCES. FREE FALLING STREAMS OF LIQUID MAY CAUSE STATIC BUILDUP. GROUND AND ELECTRICALLY INTERCONNECT CONTAINERS WHEN TRANSFERRING. USE SPARKPROOF TOOLS.

OTHER PRECAUTIONS:
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID, OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED DO NOT TAKE INTERNALLY. AVOID PROLONGED CONTACT WITH SKIN. STORE LARGE QUANTITES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT.

MANUFACTURER'S NAME:

IMPERIAL PAINT COMPANY
26 N.W. YEON AVENUE
PORTLAND, OR. 97210

EMERGENCY TELEPHONE NO.:

503-228-0208

INFORMATION TELEPHONE NO.:

503-228-0208

DATE OF PREPARATION: 12-20-1985

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER: 7300
PRODUCT NAME: 7300 PAINT THINNER
PRODUCT CLASS: ALIPHATIC SOLVENTS

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS	VAPOR PRESSURE mm Hg @ TEMP
ALIPHATIC SOLVENT	64742-88-7	100	100 PPM	2.0 20C

SECTION III - PHYSICAL DATA

BOILING RANGE: 157-204 DEG. C. VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME: 100.00 WT/GAL: 6.57

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: Combustible Liquid - Class II

FLASH POINT: 106 DEG. F. (TCC) LEL: 1.0

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG, OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS:
ISOLATE FROM HEAT, SPARKS ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. WATER FOG MAY BE USED TO COOL UNRUPTURED CONTAINERS.

SPECIAL FIREFIGHTING PROCEDURES:
USE SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE. DO NOT USE DIRECT WATER STREAM

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
INHALATION: DIZZINESS, NAUSEA, HEADACHE, IRRITATION, RESPIRATORY PARALYSIS.
EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING, AND BLURRED VISION.
SKIN CONTACT: CAN DRY AND DEFAT SKIN, CAUSING CRACKS, IRRITATION, AND DERMATITIS.
INGESTION: CAN CAUSE GASTROINTESTIONAL IRRITATION, VOMITING, NAUSEA, AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
ALLERGY, RESPIRATORY IRRITATION, DERMATITIS, AND SENSITIZATION.

PRIMARY ROUTE(S) OF ENTRY: DERMAL, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE TO FRESH AIR, IF NECESSARY GIVE ARTIFICAL RESPIRATION.
EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
SKIN CONTACT: WASH AFFECTED AREAS WITH SOAP AND WATER.
INGESTION: DO NOT INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATLY. KEEP PERSON WARM & QUIET. ASPIRATION INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS:
ARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND POSSIBLY ACROLEIN GAS.

ONDITIONS TO AVOID:
XCESS HEAT, POOR VENTILATION, CORROSIVE ATMOSPHERES, EXCESSIVE AGING.

NCOMPATIBILITY (MATERIALS TO AVOID):
TRONG OXIDIZING MATERIALS.

SECTION VII - SPILL OR LEAK PROCEDURES 7300 Paint Thinner

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE SOURCES OF IGNITION, USE RESPIRATORY PROTECTION, WEAR PROTECTIVE CLOTHIN
PREVENT ESCAPE OF MATERIAL FROM IMMEDIATE AREA BY USING ABSORBENT OR DIKES.

WASTE DISPOSAL METHOD:
DISPOSE OF WASTE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:
IF TLV OF PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH APPROVED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. (SEE YOUR LOCAL SAFETY EQUIPMENT SUPPLIER).

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S)

PROTECTIVE GLOVES:
GLOVES WHICH ARE IMPERMABLE TO AROMATIC & ALIPHATIC SOLVENTS.

EYE PROTECTION:
USE CHEMICAL SAFETY GLASSES, GOGGLES, AND FACESHIELDS FOR PROTECTION.

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

HYGIENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING. IF CLOTHING IS CONTAMINATED, DISCARD OR LAUNDER

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR IGNITION SOURCES. FREE FALLING STREAMS OF LIQUID MAY CAUSE STATIC BUILDUP. GROUND AND ELECTRICALLY INTERCONNECT CONTAINERS WHEN TRANSFERRING. USE SPARKPROOF TOOLS.

OTHER PRECAUTIONS:
SINCE CONTAINERS OF THIS MATERIAL MAY CONTAIN RESIDUES (VAPOR, LIQUID, OR SOLID) WHEN "EMPTY", ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED. DO NOT TAKE INTERNALLY. AVOID PROLONGED CONTACT WITH SKIN. STORE LARGE QUANTITES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. READ AND UNDERSTAND SAFETY PRECAUTIONS BEFORE USING THIS PRODUCT.

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1B

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section X -- PERCENT HAZARDOUS INGREDIENTS

	3088	3094	3095	CA3099
Hexane	—	<5	5	—
Lt. Aliphatic Hydrocarbon Solvent.	5	10	20	10
V. M. & P. Naphtha.	—	—	—	10
Toluene.	20	10	20	20
Xylene.	—	10	—	—
Methanol	—	<4	<4	<4
Ethanol	10	15	—	10
2-Methyl-1-propanol	—	<5	—	—
Acetone.	65	20	30	10
Methyl Ethyl Ketone.	—	—	—	5
n-Butyl Acetate.	—	—	—	25
1-Methoxy-2-Propanol Acetate.	—	20	15	<5

This Material Safety Data Sheet conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

LAC-RH

MATERIAL SAFETY DATA SHEET

86

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5422 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
2-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Acrylic Lacquer Thinner (Non-Photochemical)

* - Trade Mark

PRODUCT NUMBERS AND COLORS

3088	Non-Penetrat. Spot	3095	Twin-Thin
3094	Acrylic/Lac. Thinner	CA3099	Acrylic/Lac. Thinner

PRODUCT CLASS
Reducer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	INGREDIENT	PERCENT	TLV-PPM	TLV-MG/M3	LEL	V.P.
110-54-3	Hexane	0-5	50.	180.	1.0	127.0
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent.	5-20	100.	364.	1.0	51.0
64742-48-9	V. M. & P. Naphtha.	0-10	300.	1350.	0.9	12.0
108-88-3	Toluene.	10-20	100.	375.	1.0	22.0
1330-20-7	Xylene.	0-10	100.	435.	1.0	5.9
67-56-1	Methanol	0-5	200.	260.	6.0	92.0
64-17-5	Ethanol	0-15	1000.	1900.	3.3	44.0
78-83-1	2-Methyl-1-propanol	0-5	50.	150.	1.2	8.7
67-64-1	Acetone.	10-65	750.	1780.	2.2	180.0
78-93-3	Methyl Ethyl Ketone.	0-5	200.	590.	1.8	70.0
123-86-4	n-Butyl Acetate.	0-25	150.	710.	1.3	10.0
108-65-6	1-Methoxy-2-Propanol Acetate	0-20	Not Estab.		1.3	1.8

For specific percent hazardous ingredients in each product, see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
132 - 419	100.0	6.8

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 2 F TCC LEL 0.9

RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

Continued on page 2

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.

CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES

IF INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

IF on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.

IF in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

IF SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Continued on page 3

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section X -- PERCENT HAZARDOUS INGREDIENTS

	3092	3099
Lt. Aliphatic Hydrocarbon Solvent.	15	5
Toluene.	50	55
Methanol	<4	<4
Ethanol	<5	<5
2-Methyl-1-propanol	—	<5
Acetone.	20	20
Methyl Isobutyl Ketone.	5	5
1-Methoxy-2-Propanol Acetate	<5	<5

This Material Safety Data Sheet conforms to the Hazard Communication Standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

LAC-RP

MATERIAL SAFETY DATA SHEET

86

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5421 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
2-Jun-85

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME * - Trade Mark
Acrylic Lacquer Thinner (Photochemical)

PRODUCT NUMBERS AND COLORS
3092 Acrylic Lacquer Thinner
3099 Acrylic/Lacquer Thinner

PRODUCT CLASS
Reducer

Section II -- HAZARDOUS INGREDIENTS

CAS no.	Ingredient	Percent	Vap-Pres	Vap-mm/Hg	LEL	V.P.
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent.	5-15	100.	364.	1.0	53.0
108-88-3	Toluene.	50-55	100.	375.	1.0	22.0
67-56-1	Methanol	<5	200.	260.	6.0	92.0
64-17-5	Ethanol	<5	1000.	1900.	3.3	44.0
78-83-1	2-Methyl-1-propanol	0-5	50.	150.	1.2	8.7
67-64-1	Acetone.	20	750.	1780.	2.2	180.0
108-10-1	Methyl Isobutyl Ketone.	5	50.	205.	1.4	16.0
108-65-6	1-Methoxy-2-Propanol Acetate	<5	Not Estab.		1.3	1.8

For specific percent hazardous ingredients in each product, see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
132 - 302	100.0	6.9

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 4 F TCC LEL 1.0
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Continued on page 3

Paint

2LL

SECTION I - MATERIAL SAFETY DATA SHEET
PLASTI-KOTE CO., INC.
1000 LAKE ROAD
MEDINA, OHIO 44250
1-216-725-4511

DATE PREPARED: 05-20-91
PRODUCT CLASS: AEROSOL SPRAY PAINT
SHIPPING NAME: CONSUMER COMMODITY
ORM-D UN #1950
NE = NONE ESTABLISHED
NA = NONE AVAILABLE

HAZARD RATING
4 = SEVERE
3 = SERIOUS
2 = MODERATE
1 = SLIGHT
0 = MINIMAL

	HMIS		NFPA	
HEALTH	1		4	FLAMMABILITY
FLAMMABILITY	4			
REACTIVITY	0	HEALTH 2	0	REACTIVITY
PERSONAL PROTECTION	E		—	OTHER

SECTION II - HAZARDOUS INGREDIENTS.

IMPERIAL SPRAY PAINT

INGREDIENT	CAS NUMBER	ACGIH TWA PPM	OSHA PEL PPM	OTHER TLV PPM	VAPOR PRESSURE mmHg at 20	PRODUCT # 1 8 16 2 9 17 4 11 24 5 13 49 7 15 PERCENT (W	PRODUCT # CLEAR PLASTIC 21 % (wt)	PRODUCT # PRIMERS 25 27 % (wt)	PRODUCT # CHROME ALUMINUM 30 % (wt)	PRODUCT # % (wt)	PRODUCT # % (wt)
ACETONE	67-64-1	750	1000	——	186	33-42	30-35	10-15	15-20		
ALIPHATIC HYDROCARBON	64742-89-8	NE	NE	300	38			5-10			
AROMATIC HYDROCARBON	64742-95-6	NE	NE	100	3						
N-BUTYL ALCOHOL	71-36-3	50	100	——	4.2						
2-BUTOXY ETHANOL	111-76-2	25	50	——	1.0						
CYCLOHEXANE	110-82-7	300	300	——	78						
ETHYL ACETATE	141-78-6	400	400	——	69	0-5					
ETHYL ALCOHOL	64-17-5	1000	1000	——	40	5-10					
DIACETONE ALCOHOL	123-42-2	50	50	——	0.8	5-10					
DI-ISOBUTYL KETONE	108-83-8	25	50	——	1.7						
ISOBUTYL ACETATE	110-19-0	150	150	——	12.8						
ISOPROPYL ALCOHOL	67-63-0	400	400	——	33						
METHYL ETHYL KETONE	78-93-3	200	200	——	70	0-5					
METHYL ISOBUTYL KETONE	108-10-1	50	100	——	16						
MINERAL SPIRITS	64742-88-7	NE	NE	100	2.0				0-5		
OXO ALCOHOL ESTER	80230-35-7	NE	NE	50	1.4						
TOLUENE	108-88-3	100	200	——	22						
1.1.1.-TRICHLOROETHANE	71-55-6	350	350	——	100						
XYLENE	1330-20-7	100	100	——	5.1	5-10	35-40	30-40	50-55		
PROPANE	74-98-6	NE	1000	——							
ISOBUTANE MIXTURE	75-28-5	NE	NE	——		23	23	25	23		
N-BUTANE	106-97-8	800	NE	——							

IN THIS MATERIAL IS [illegible]

Section III - PHYSICAL DATA

Boiling Range: 133 - 331 F

VAPOR DENSITY _X_ HEAVIER ___ LIGHTER THAN AIR
PERCENT VOLATILE BY VOLUME : 85-90
WEIGHT PER GALLON 7.0 - 8.0 (PAINT)
Specific Gravity (H2O- 1) < 1
Melting Point Estimated min. 1500 F
Evaporation Rate
(Butyl Acetate = 1) Section I products ( )
Propellants ( )

Evaporation Rate ___ Faster _X_ Slower than ether

Vapor Pressure (mm Hg) Unknown for products.
See Section II for volatile, hazardous components.
Solubility in water: Slight to moderate
Appearance and Odor: Typical solvent paint

Section IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA: IA FLASH POINT: 0 F (-18 C) LEL 1.0
(EXTREMELY FLAMMABLE) UNIFORM FIRE CODE LEVEL 3 AEROSOL (Propellant = -100 F)

Extinguishing Media ' ALCOHOL ' FOAM, CO2, DRY CHEMICAL

Unusual Fire and Explosion Hazards: CLOSED CONTAINERS MAY EXPLODE AND/OR AUTOIGNITE WHEN EXPOSED TO EXTREME HEAT. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS OR OTHER SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

Special Fire Fighting Procedures: WATER SPRAY MAY BE INEFFECTIVE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. USE SELF-CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE. OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

Section V - HEALTH HAZARD DATA

Route(s) of entry _X_ Inhalation _X_ Skin ___ Ingestion _X_ Eyes

Carcinogenicity ___ NTP ___ IARC ___ OSHA

INGREDIENTS FOR PRODUCT(S) LISTED IN SECTION I ARE NOT FOUND IN THESE AGENCIES' LISTS.

SYMPTOMS OF OVEREXPOSURE:

Acute: BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS AND EVEN ASPHYXIATION.
EYE CONTACT - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, DIARRHEA.
SKIN CONTACT - CAN CAUSE IRRITATION FOR SOME PERSONS.

Chronic: None known for product(s) in Section I.
REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. SEVERE OVEREXPOSURE IN LABORATORY ANIMALS HAS ALSO CAUSED LIVER ABNORMALITIES AND DAMAGE TO KIDNEYS, LUNGS, AND SPLEEN, HEART, AND ADRENALS.
INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Medical Conditions
Generally Aggravated By Exposure Can cause respiratory and/or skin reaction.

FIRST AID: EMERGENCY PROCEDURES
1. IF BREATHED - REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING IS STOPPED, GIVE ARTIFICAL RESPIRATION AND SEEK MEDICAL HELP.
2. IF IN EYES - FLUSH WITH WATER FOR 15 MINUTES WHILE OCCASIONALLY HOLDING EYELIDS OPEN; GET MEDICAL ATTENTION.
3. IF SWALLOWED - DO NOT INDUCE VOMITING (ASPIRATION OF MATERIAL INTO LUNGS CAN CAUSE PNEUMONITIS, WHICH CAN BE FATAL). KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION/POISON CONTROL CENTER.
4. IF ON SKIN - WASH WITH SOAP AND WATER OR VARIOUS HAND CLEANERS, AND WASH CLOTHING BEFORE RE-USE.

Section VI - REACTIVITY DATA

STABILITY: ___ UNSTABLE _X_ STABLE CONDITIONS TO AVOID: Heat, sparks, and open flame.
INCOMPATABILITY (Materials to avoid): Avoid contact with strong oxidizing agents and heat.
HAZARDOUS DECOMPOSITION PRODUCTS: May form toxic materials, carbon dioxide/carbon monoxide, various hydrocarbons, nitrogen compounds, etc., when burned.
HAZARDOUS POLYMERIZATION: ___ MAY OCCUR _X_ WILL NOT OCCUR
CONDITIONS TO AVOIDE: Not applicable.

Section VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED.
ELMINATE ALL IGNITION SOURCES, VENTILATE AREA, ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO A CLOSED CONTAINER.
WASTE DISPOSAL METHOD: MATERIAL COLLECTED ON ABSORBENT MATERIAL MAY BE DEPOSITED IN A POSTED TOXIC SUBSTANCE LANDFILL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: DO NOT STORE IN AREAS ABOVE 120 F, OR IN DIRECT SUNLIGHT, OR NEAR HEAT OR OPEN FLAMES. DO NOT PUNCTURE OR INCINERATE.
OTHER PRECAUTIONS: NONE.
STORAGE CATAGORY: STORE LARGE QUANTITIES IN BUILDING PROTECTED FOR STORAGE OF FLAMMABLE LIQUIDS.

Section VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION : FOR CASUAL/OCCASIONAL USE - TO AVOID BREATHING VAPORS OR SPRAY MIST, OPEN WINDOWS AND DOORS OR USE OTHER MEANS TO ENSURE FRESH AIR ENTRY DURING APPLICATION AND DRYING. IF YOU EXPERIENCE EYE WATERING, HEADACHES, OR DIZZINESS, INCREASE FRESH AIR, WEAR RESPIRATORY PROTECTION (NIOSH/MSHA TC23C OR EQUIVALENT), OR LEAVE THE AREA.
VENTILATION: FOR REGULAR/CONTINUOUS USE - PROVIDE SUFFICIENT MECHANICAL (GENERAL) AND/OR LOCAL EXHAUST VENTILATION TO MAINTAIN EXPOSURE BELOW TLV'S IN SECTION II.
PROTECTIVE GLOVES: WEAR CHEMICAL RESISTANT GLOVES, SUCH AS NEOPRENE. IF SKIN CONTACT IS TO BE AVOIDED.
EYE PROTECTION: CHEMICAL SPLASH GOGGLES, IN COMPLIANCE WITH OSHA REGULATIONS, ARE ADVISED.
OTHER PROTECTIVE EQUIPMENT: WHERE SPECIAL OR UNUSUAL CONDITIONS EXIST, THE EXPERT ASSISTANCE OF AN INDUSTRIAL HYGIENIST SHOULD BE SOUGHT.
WORK/HYGENIC PRACTICES: Wash hands before eating or using washroom. As with all chemicals, minimize personal contact and breathing of vapors.

THE INFORMATION CONTAINED ABOVE IS BELIEVED TO BE ACCURATE, BUT IS NOT WARRENTED. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO CIRCUMSTANCES.

3253

MATERIAL SAFETY DATA SHEET

22 FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5422 Danaher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
17-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NUMBER
3253

* - Trade Mark

PRODUCT NAME
Instant Primer/Surfacer, Medium Gray

PRODUCT CLASS
Acrylic-Cellulose Nitrate Lacquer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-TWA	TLV-STEL/PEL	LEL	V.P.
108-88-3	Toluene.	20	100.	375.	1.0	22.0
1330-20-7	Xylene.	<5	100.	435.	1.0	5.9
67-63-0	2-Propanol	5	400.	980.	2.0	33.0
78-93-3	Methyl Ethyl Ketone.	10	200.	590.	1.8	70.0
108-10-1	Methyl Isobutyl Ketone.	10	50.	205.	1.4	16.0
108-21-4	Isopropyl Acetate.	<5	250.	950.	1.7	47.5
84-74-2	Dibutyl Phthalate.	<5		5.		

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
122 - 292	72.0	9.46

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION -- FLASH POINT 24 F PMCC -- LEL 1.0
RED LABEL -- Flammable, Flash below 100 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.

CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES

If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.

If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Nitrogen, possibility of Hydrogen Cyanide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
Protect against dust which may be generated by sanding or abrading the dried film.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Continued on page 3

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1B

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labelling. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

This coating contains materials classified as nuisance particulates, for example titanium dioxide, calcium carbonate, etc. (see ACGIH TLV List, Preface and Appendix D), which may be present at hazardous levels only during sanding or abrading of the dried film.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

79-AL

MATERIAL SAFETY DATA SHEET

86

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME — EMERGENCY TELEPHONE NO.
MARTIN-SENOUR AUTOMOTIVE SALES — (216) 566-2917
5422 Dansher Road
Countryside, Illinois 60525

DATE OF PREPARATION — INFORMATION TELEPHONE NO.
24-Jan-86 — (216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME — * = Trade Mark
Vans & Trucks Acrylic Enamel Spray, Lead Colors

PRODUCT NUMBERS AND COLORS
79 -- Series, Lead Colors

PRODUCT CLASS
Aerosol Acrylic Enamel

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-TWA	TLV-STEL/CEIL	LEL	V.P.
74-98-6	Propane (Propellant)	10	1000.	1800.	2.4	760.0
75-28-5	2-Methylpropane (Propellant)	15	1000.	2400.	1.8	760.0
108-88-3	Toluene.	0-5	100.	375.	1.0	22.0
1330-20-7	Xylene.	15-20	100.	435.	1.0	5.9
64742-95-6	Light Aromatic Naphtha	0-5	100.	462.	0.7	3.8
67-64-1	Acetone.	30	750.	1780.	2.2	180.0
123-86-4	n-Butyl Acetate.	0-5	150.	710.	1.3	10.0
112-07-2	2-Butoxyethyl Acetate.	<5	50.	300.	0.5	1.0
1344-37-2	Lead Chromate.	<10		0.05		
12656-85-8	Molybdate Orange.			0.05		
	Lead (as Pb)	<4.0		0.05		
	Chromium VI (as Cr)	<1.0		0.05		

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Faster than Ether — VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
0 - 325	<75	N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION — FLASH POINT <0 F PMCC — LEL 0.5
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

Continued on page 2

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.

CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES

If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.

If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section II

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Before initial use, consult OSHA's Standard for Occupational Exposure to Lead (29 CFR 1910.1025).
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
Protect against hazardous dust or fumes which may be generated by sanding, wirebrushing, abrading, burning, brazing or welding of the dried film.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

Continued on page 3

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1A

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

This coating contains materials classified as nuisance particulates, for example titanium dioxide, calcium carbonate, etc. (see ACGIH TLV List, Preface and Appendix D), which may be present at hazardous levels only during sanding or abrading of the dried film.

CONTAINS LEAD. Do not apply on toys and other children's articles, furniture, or any interior surface of a dwelling or facility which may be occupied or used by children. Do not apply on any exterior surface of dwelling units, such as window sills, porches, stairs, or railings to which children may be commonly exposed.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

This Material Safety Data Sheet conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

79-AF

86

MATERIAL SAFETY DATA SHEET
FOR COATINGS, RESINS AND RELATED MATERIALS
(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5422 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
24-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Vans & Trucks Acrylic Enamel Spray, Non-Lead Colors

* - Trade Mark

PRODUCT NUMBERS AND COLORS
79 - Aerosol Series, Non-Lead Colors

PRODUCT CLASS
Aerosol Acrylic Enamel

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-TWA	TLV-STEL	LEL	V.P.
74-98-6	Propane (Propellant)	10	1000.	1800.	2.4	760.0
75-28-5	2-Methylpropane (Propellant)	15	1000.	2400.	1.8	760.0
108-88-3	Toluene.	0-5	100.	375.	1.0	22.0
1330-20-7	Xylene.	15-20	100.	435.	1.0	5.9
64742-95-6	Light Aromatic Naphtha	0-5	100.	462.	0.7	3.8
67-64-1	Acetone.	30	750.	1780.	2.2	180.0
123-86-4	n-Butyl Acetate.	0-5	150.	710.	1.3	10.0
112-07-2	2-Butoxyethyl Acetate.	<5	50.	330.	0.5	1.0

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Faster than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
0 - 325	>75	N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT <0 F PMCC LEL 1.0
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Continued on page 3

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1A

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

This Material Safety Data Sheet Conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(6), for Alcohol Chaplain Mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, expressed or implied, and assume no liability in connection with any use of this information.

Section I PRECAUTIONS

DOL STORAGE CATEGORY -- 1B

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

This coating contains materials classified as nuisance particulates, for example titanium dioxide, calcium carbonate, etc. (see ACGIH TLV List, Preface and Appendix D), which may be present at hazardous levels only during sanding or abrading of the dried film.

CONTAINS LEAD. Do not apply on toys and other children's articles, furniture, or any interior surface of a dwelling or facility which may be occupied or used by children. Do not apply on any exterior surface of dwelling units, such as window sills, porches, stairs, or railings to which children may be commonly exposed.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

This Material Safety Data Sheet conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

ACR-LL

MATERIAL SAFETY DATA SHEET

86 FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5422 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
1-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Acrylic Enamel, Lead Colors

PRODUCT NUMBERS AND COLORS
81 -, 99 - Series

PRODUCT CLASS
Acrylic Enamel

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-TWA	TLV-STEL/PEL	VOL	V.P.
64742-47-8	Mineral Spirits.	<5	100.	581.	1.0	2.0
108-88-3	Toluene.	1-10	100.	375.	1.0	22.0
100-41-4	Ethylbenzene	<5	100.	435.	1.0	7.1
1330-20-7	Xylene.	30-40	100.	435.	1.0	5.9
64742-95-6	Light Aromatic Naphtha	1-10	100.	462.	0.7	3.8
112-07-2	2-Butoxyethyl Acetate.	<5	50.	300.	0.5	1.0
123-86-4	n-Butyl Acetate.	0-5	150.	710.	1.3	10.0
1344-37-2	Lead Chromate.	<15		0.05		
12656-85-8	Molybdate Orange.			0.05		
	Lead (as Pb)	0.3-11.0		0.05		
	Chromium VI (as Cr)	0.0-2.5		0.05		

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
222 - 384	55-65	8.0-9.0

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 50 F PMCC LEL 0.5

RED LABEL -- Flammable, Flash below 100 F

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.

CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
Repeated and prolonged exposure to spray mist may cause perforation of nasal septum and ulcers of the skin.

EMERGENCY AND FIRST AID PROCEDURES

If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

INCOMPATIBILITY

Metallics contain Aluminum. Contamination with Water, Acids, or Alkalis can cause evolution of hydrogen, which may result in dangerously increased pressures in closed containers.

HAZARDOUS DECOMPOSITION PRODUCTS

By Fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section II

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE

Before initial use, consult OSHA's Standard for Occupational Exposure to Lead (29 CFR 1910.1025).

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

Protect against hazardous dust or fumes which may be generated by sanding, abrasive blasting, burning, brazing or welding of the dried film.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.1000, 1910.101, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Continued on page 3

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1B

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section X -- PERCENT HAZARDOUS INGREDIENTS

	8831	8832	8833	8834
Lt. Aliphatic Hydrocarbon Solvent.	25	25	--	35
Toluene.	40	35	75	45
Ethylbenzene	--	--	<5	--
Xylene.	5	5	<5	<5
Light Aromatic Naphtha	--	--	<5	--
Methanol	<4	<4	<4	<4
2-Butoxyethanol	5	5	--	--
Acetone.	15	15	<5	15
2-Butoxyethyl Acetate.	--	5	15	--

This Material Safety Data Sheet conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make NO WARRANTIES, Express or Implied, and assume no liability in connection with any use of this information.

ACR-RP

86

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5422 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
2-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Acrylic Enamel Reducer (Photochemical)

PRODUCT NUMBERS AND COLORS

8831	Regular	8833	Hot Weather
8832	Slow	8834	Fast

PRODUCT CLASS
Reducer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-PPM	TLV-MG/M3	LEL	V.P.
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent.	0-35	100.	364.	1.0	53.0
108-88-3	Toluene.	25-45	100.	375.	1.0	22.0
100-41-4	Ethylbenzene	0-5	100.	435.	1.0	7.1
1330-20-7	Xylene.	5-45	100.	435.	1.0	5.9
64742-95-6	Light Aromatic Naphtha	0-5	100.	462.	0.7	3.8
67-56-1	Methanol	<5	200.	260.	6.0	92.0
111-76-2	2-Butoxyethanol	0-5	25.	120.	1.1	0.6
67-64-1	Acetone.	5-15	750.	1780.	2.2	180.0
112-07-2	2-Butoxyethyl Acetate.	0-15	50.	330.	0.5	1.0

For specific percent hazardous ingredients in each product, see Section X

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Slower than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
132 - 384	100.0	6.5-7.2

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT 1-10 F TCC LEL 0.5
RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS
By first Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

continued on page 3

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- IA

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

This Material Safety Data Sheet conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar chemical mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

78-AF

86

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME
MARTIN-SENOUR AUTOMOTIVE SALES
5421 Dansher Road
Countryside, Illinois 60525

EMERGENCY TELEPHONE NO.
(216) 566-2917

DATE OF PREPARATION
24-Jan-86

INFORMATION TELEPHONE NO.
(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME
Automotive Acrylic/Lacquer Spray, Non-Lead Colors

* - Trade Mark

PRODUCT NUMBERS AND COLORS
78 - Series, Non-Lead Colors

PRODUCT CLASS
Aerosol Acrylic Lacquer

Section II -- HAZARDOUS INGREDIENTS

CAS No.	Ingredient	Percent	TLV-PPM	TLV-MG/M3	LEL	V.P.
74-98-6	Propane (Propellant)	10	1000.	1800.	2.4	760.0
75-28-5	2-Methylpropane (Propellant)	15	1000.	2400.	1.8	760.0
108-88-3	Toluene	15	100.	375.	1.0	22.0
64-17-5	Ethanol	0-5	1000.	1900.	3.3	44.0
67-63-0	2-Propanol	0-5	400.	980.	2.0	33.0
67-64-1	Acetone	30	750.	1780.	2.2	180.0
78-93-3	Methyl Ethyl Ketone	5-10	200.	590.	1.8	70.0
108-10-1	Methyl Isobutyl Ketone	0-10	50.	205.	1.4	16.0
123-86-4	n-Butyl Acetate	0-5	150.	710.	1.3	10.0
112-07-2	2-Butoxyethyl Acetate	<5	50.	330.	0.5	1.0

Section III -- PHYSICAL DATA

EVAPORATION RATE -- Faster than Ether
VAPOR DENSITY -- Heavier than Air

BOILING RANGE (F)	% VOLATILE VOLUME	WT/GAL
0 - 325	>75	N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION FLASH POINT <0 F TCC LEL 0.5

RED LABEL -- Extremely Flammable, Flash below 21 F

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Continued on page 2

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II

EFFECTS OF OVEREXPOSURE

ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.

CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

EMERGENCY AND FIRST AID PROCEDURES

IF INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

IF on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.

If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate and remove with inert absorbent.

WASTE DISPOSAL METHOD

Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Continued on page 3

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY -- 1A

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

This coating contains materials classified as nuisance particulates, for example titanium dioxide, calcium carbonate, etc. (see ACGIH TLV List, Preface and Appendix D), which may be present at hazardous levels only during sanding or abrading of the dried film.

CONTAINS LEAD. Do not apply on toys and other children's articles, furniture, or any interior surface of a dwelling or facility which may be occupied or used by children. Do not apply on any exterior surface of dwelling units, such as window sills, porches, stairs, or railings to which children may be commonly exposed.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

This Material Safety Data Sheet Conforms to the Hazard Communication standard, 29 CFR 1910.1200(g)(4), for similar complex mixtures.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

AL

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor 'Essentially Similar' to form OSHA-20)

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
ARTIN-HENDUR AUTOMOTIVE SALES	(216) 566-2917
422 Dansher Road	
ountryside, Illinois 60525	
E OF PREPARATION	INFORMATION TELEPHONE NO.
4-Jan-86	(216) 566-2902

Section I -- PRODUCT IDENTIFICATION

PRODUCT NAME ® - Trade Mark
utomotive Acrylic/Lacquer Spray, Lead Colors
PRODUCT NUMBERS AND COLORS
8 -- Series, Lead Colors
PRODUCT CLASS
erosol Acrylic Lacquer

Section II -- HAZARDOUS INGREDIENTS

# No.	Ingredient	Percent	TLV-TWA	TLV-STEL	LEL	V.P.
1-98-6	Propane (Propellant)	10	1000.	1800.	2.4	760.0
1-28-5	2-Methylpropane (Propellant)	15	1000.	2400.	1.8	760.0
1-88-3	Toluene.	15	100.	375.	1.0	22.0
1-17-5	Ethanol	0-5	1000.	1900.	3.3	44.0
1-63-0	2-Propanol	0-5	400.	980.	2.0	33.0
1-93-3	Methyl Ethyl Ketone.	5-10	200.	590.	1.8	70.0
1-10-1	Methyl Isobutyl Ketone.	0-10	50.	205.	1.4	16.0
1-07-2	2-Butoxyethyl Acetate.	0-5	50.	330.	0.5	1.0
1-37-2	Lead Chromate.	<10		0.05		
1-85-8	Molybdate Orange.			0.05		
	Lead (as Pb)	<4.0		0.05		
	Chromium VI (as Cr)	<1.0		0.05		

Section III -- PHYSICAL DATA

APORATION RATE -- Faster than Ether VAPOR DENSITY -- Heavier than Air
ING RANGE (F) % VOLATILE VOLUME WT/GAL
0 - 325 >75 N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

MMABILITY CLASSIFICATION FLASH POINT <0 F PMCC LEL 1.0
D LABEL -- Extremely Flammable, Flash below 21 F
NGUISHING MEDIA
rbon Dioxide, Dry Chemical, Foam
UAL FIRE AND EXPLOSION HAZARDS
ep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open
. Closed containers may explode when exposed to extreme heat. Application to hot
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mposition products may cause a health hazard. Symptoms may not be immediately apparent.
n medical attention.

Continued on page 2

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -- See Section II
EFFECTS OF OVEREXPOSURE
ACUTE: In a confined area vapors in high concentration are anesthetic. Overexposure may result in lightheadedness and staggering gait.
Irritant to skin and upper respiratory system.
CHRONIC: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.
If SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

Section VI -- REACTIVITY DATA

STABILITY -- Stable
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section II
HAZARDOUS POLYMERIZATION -- Will Not Occur

Section VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Before initial use, consult OSHA's Standard for Occupational Exposure to Lead (29 CFR 1910.1025).
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
Protect against hazardous dust or fumes which may be generated by sanding, wirebrushing, abrading, burning, brazing or welding of the dried film.
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear respiratory device approved by NIOSH/MSHA for protection against materials in Section II.

Continued on page 3

705 North Mountain Road
Newington, Connecticut 06111
Emergency Phone (203) 278-1280
Fax (203) 280-3558

LOCTITE®

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION		PRODUCT NO.: 754
PRODUCT NAME:	Extend® Rust Treatment	Issued: 1/1/93
ITEM NUMBERS:	75418, 75430, 75448, 75465	
PRODUCT TYPE:	Acid-Modified Emulsion	
FORMULA NO.:	L5-72	

II. COMPOSITION

Ingredients	CAS No.	%
Water	7732-18-5	45-50
Vinyl acrylic copolymer	81209-39-4	35-40
Barium sulfate*	7727-43-7	5-10
2-BUTOXYETHANOL	111-76-2	1-3
Organic acid	Proprietary	1-3
Propylene glycol	57-55-6	1-3
SILICA, AMORPHOUS TREATED	112945-52-5	1-3

* This component is listed as a SARA Section 313 Toxic Chemical.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Approximately 24 mm
Vapor Density:	1.2
Solubility in Water:	Water-based
Specific Gravity:	1.3
Boiling Point:	Approximately 212°F
Volatile Organic Compound (EPA Method 24)	4.38%; 56.94 grams per liter 8.19%; 367 grams per liter less water
Evaporation Rate (Ether = 1)	Not available
pH:	1.95
Appearance:	Milky liquid
Odor:	Mild

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	None - aqueous medium Method: TCC
Estimated NFPA Code:	
Health Hazard:	1
Fire Hazard:	1
Reactivity Hazard:	0
Specific Hazard:	Does not apply
Estimated HMIS Code:	
Health Hazard:	1
Flammability Hazard:	1
Reactivity Hazard:	0
Personal Protection:	See Section X.
Explosive Limits:	
(% by volume in air)Lower	Not available
(% by volume in air)Upper	Not available
Recommended Extinguishing Agents:	Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp	Irritating organic vapors
Unusual Fire or Explosion Hazards:	None
Compressed Gases:	None
Pressure at Room Temp.:	Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Clean up with detergent and water.
Recommended methods of disposal:	Incinerate following EPA and local regulations. Hazardous Waste number is D002; barium level should be checked: D005.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store between 40-105°F
Handling:	Avoid contact with eyes.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)	
Proper Shipping Name	Unrestricted
Hazard Class or Division	Unrestricted
Identification Number	None
IATA	

MATERIAL SAFETY DATA SHEET

77403 Page: 1

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LOG MARKING PAINT WHITE
PRODUCT IDENTIFIER: 77403
PRODUCT USE : GENERAL PURPOSE COATING
PRODUCT IDENTIFICATION NUMBER: UN1263
WHMIS INFO.: B2,D2B

HMIS CODES: H F R P
2 3 1 B

MANUFACTURER'S NAME: Cloverdale Paint Inc.
ADDRESS : 6950 King George Highway
Surrey, BC, Canada
V3W 4Z1
EMERGENCY PHONE : (613) 996-6666
INFORMATION PHONE : (604) 596-6261

DATE PRINTED: 11/20/95

ABBREVIATIONS: N/AP - NOT APPLICABLE N/AV - NOT AVAILABLE

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS
LIGHT DISTILLATE - HYDROTREATED	64742-47-8	30-60	ACGIH TLV: 100 ppm LD50: ORAL:>5g/kg(RAT), LC50:>1400 ppm/4H(RAT)

*** No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present. ***

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 160 deg C
VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE: SLOWER THAN n-BUTYL ACETATE
COATING V.O.C. : 517 g/l
SOLUBILITY IN WATER: INSOLUBLE
APPEARANCE AND ODOR: MODERATELY THICK LIQUID; AROMATIC ODOR.
FREEZING POINT: NOT AVAILABLE
COEFFICIENT OF WATER/OIL DIST: N/AV

SPECIFIC GRAVITY (H2O=1): 1.21
PHYSICAL STATE: LIQUID
VAPOR PRESSURE: mm Hg @ TEMP (F)
7 100
pH: N/AP
ODOR THRESHOLD: 1-30 ppm

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 42 deg C METHOD USED: TCC
FLAMMABLE LIMITS IN AIR BY VOLUME(%)- LOWER: 1 UPPER: 6

EXTINGUISHING MEDIA: FOAM,CO2,DRY CHEMICAL,WATER FOG.

SPECIAL FIREFIGHTING PROCEDURES
RESPIRATORY EQUIPMENT SHOULD BE WORN TO AVOID INHALATION OF CONCENTRATED VAPOURS. WATER SHOULD NOT BE USED EXCEPT AS A FOG TO KEEP NEARBY CONTAINERS COOL.

UNUSUAL FIRE AND EXPLOSION HAZARDS
HANDLE AS A COMBUSTIBLE LIQUID. VAPOURS FORM AN EXPLOSIVE MIXTURE IN AIR BETWEEN THE UPPER AND LOWER EXPLOSIVE LIMITS WHICH CAN BE IGNITED BY MANY SOURCES SUCH AS PILOT LIGHTS, OPEN FLAMES, ELECTRICAL BOXES AND SWITCHES. VAPOURS MAY TRAVEL ALONG THE GROUND AND FLASHBACK ALONG VAPOUR TRAIL MAY OCCUR.

MATERIAL SAFETY DATA SHEET

77407

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LOG MARKING PAINT VIOLET
PRODUCT IDENTIFIER: 77407
PRODUCT USE : GENERAL PURPOSE COATING
PRODUCT IDENTIFICATION NUMBER: UN1263
WHMIS INFO.: B2, D2B

HMIS CODES: H F R
2 3 1 B

MANUFACTURER'S NAME: Cloverdale Paint Inc.
ADDRESS : 6950 King George Highway
Surrey, BC, Canada
V3W 4Z1
EMERGENCY PHONE : (613) 996-6666
INFORMATION PHONE : (604) 596-6261

DATE PRINTED: 11/20/95

ABBREVIATIONS: N/AP - NOT APPLICABLE N/AV - NOT AVAILABLE

SECTION II - HAZARDOUS INGREDIENTS

REPORTABLE COMPONENTS	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS
LIGHT DISTILLATE - HYDROTREATED	64742-47-8	15-40	ACGIH TLV: 100 ppm LD50: ORAL:>5g/kg(RAT), LC50:>1400 ppm/4H(RAT)
DIATOMACEOUS SILICA	68855-54-9	5-10	OSHA PEL: 0.1 mg/m3

*** Toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present. ***

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 160 deg C
VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE: SLOWER THAN n-BUTYL ACETATE
SPECIFIC GRAVITY (H2O=1): 1.22
PHYSICAL STATE: LIQUID
VAPOR PRESSURE: mm Hg @ TEMP (F)
7 100
0 0
COATING V.O.C. : 480 g/l
SOLUBILITY IN WATER: INSOLUBLE
APPEARANCE AND ODOR: MODERATELY THICK LIQUID; AROMATIC ODOR.
FREEZING POINT: NOT AVAILABLE
pH: N/AP
COEFFICIENT OF WATER/OIL DIST: N/AV
ODOR THRESHOLD: 1-30 ppm

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 42 deg C
METHOD USED: TCC
FLAMMABLE LIMITS IN AIR BY VOLUME(%)- LOWER: 1 UPPER: 6

EXTINGUISHING MEDIA: FOAM,CO2,DRY CHEMICAL,WATER FOG.

SPECIAL FIREFIGHTING PROCEDURES
RESPIRATORY EQUIPMENT SHOULD BE WORN TO AVOID INHALATION OF CONCENTRATED VAPOURS. WATER SHOULD NOT BE USED EXCEPT AS A FOG TO KEEP NEARBY CONTAINERS COOL.

UNUSUAL FIRE AND EXPLOSION HAZARDS
HANDLE AS A COMBUSTIBLE LIQUID. VAPOURS FORM AN EXPLOSIVE MIXTURE IN AIR BETWEEN

MATERIAL SAFETY DATA SHEET

77404

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LOG MARKING PAINT RED
PRODUCT IDENTIFIER: 77404
PRODUCT USE : GENERAL PURPOSE COATING
PRODUCT IDENTIFICATION NUMBER: UN1263
WHMIS INFO.: B2,D2B

HMIS CODES: H F R
2 3 1 B

MANUFACTURER'S NAME: Cloverdale Paint Inc.
ADDRESS : 6950 King George Highway
Surrey, BC, Canada
V3W 4Z1
EMERGENCY PHONE : (613) 996-6666
INFORMATION PHONE : (604) 596-6261

DATE PRINTED: 11/20/95

ABREVIATIONS: N/AP - NOT APPLICABLE N/AV - NOT AVAILABLE

SECTION II - HAZARDOUS INGREDIENTS

REPORTABLE COMPONENTS	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS
LIGHT DISTILLATE - HYDROTREATED	64742-47-8	30-60	ACGIH TLV: 100 ppm LD50: ORAL:>5g/kg(RAT), LC50:>1400 ppm/4H(RAT)
DIATOMACEOUS SILICA	68855-54-9	5-10	OSHA PEL: 0.1 mg/m3

*** No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present. ***

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 160 deg C
VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE: SLOWER THAN n-BUTYL ACETATE
SPECIFIC GRAVITY (H2O=1): 1.18
PHYSICAL STATE: LIQUID
VAPOR PRESSURE: mm Hg @ TEMP (F)
7 100
0 0

COATING V.O.C. : 485 g/l
SOLUBILITY IN WATER: INSOLUBLE
APPEARANCE AND ODOR: MODERATELY THICK LIQUID; AROMATIC ODOR.
FREEZING POINT: NOT AVAILABLE
COEFFICIENT OF WATER/OIL DIST: N/AV
pH: N/AP
ODOR THRESHOLD: 1-30 ppm

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 42 deg C
METHOD USED: TCC
FLAMMABLE LIMITS IN AIR BY VOLUME(%)- LOWER: 1 UPPER: 6

EXTINGUISHING MEDIA: FOAM,CO2,DRY CHEMICAL,WATER FOG.

SPECIAL FIREFIGHTING PROCEDURES
RESPIRATORY EQUIPMENT SHOULD BE WORN TO AVOID INHALATION OF CONCENTRATED VAPOURS. WATER SHOULD NOT BE USED EXCEPT AS A FOG TO KEEP NEARBY CONTAINERS COOL.

UNUSUAL FIRE AND EXPLOSION HAZARDS
COMBUSTIBLE LIQUID. VAPOURS FORM AN EXPLOSIVE MIXTURE IN AIR BETWEE

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LOG MARKING PAINT GREEN
PRODUCT IDENTIFIER: 77405
PRODUCT USE : GENERAL PURPOSE COATING
PRODUCT IDENTIFICATION NUMBER: UN1263
WHMIS INFO.: B2,D2B

HMIS CODES: H F R P
2 3 1 B

MANUFACTURER'S NAME: Cloverdale Paint Inc.
ADDRESS : 6950 King George Highway
Surrey, BC, Canada
V3W 4Z1
EMERGENCY PHONE : (613) 996-6666
INFORMATION PHONE : (604) 596-6261
DATE PRINTED: 11/20/95
ABREVIATIONS: N/AP - NOT APPLICABLE N/AV - NOT AVAILABLE

SECTION II - HAZARDOUS INGREDIENTS

REPORTABLE COMPONENTS	CAS NUMBER	WEIGHT PERCENT	OCCUPATIONAL EXPOSURE LIMITS
LIGHT DISTILLATE - HYDROTREATED	64742-47-8	15-40	ACGIH TLV: 100 ppm LD50: ORAL: >5g/kg(RAT), LC50: >1400 ppm/4H(RAT)
DIATOMACEOUS SILICA	68855-54-9	5-10	OSHA PEL: 0.1 mg/m3
ENE	1330-20-7	0.5-1.5	ACGIH TLV: 100 PPM LD50: ORAL: kg/kg rat, LC50: 6500 ppm/4H(RAT)

* Indicates toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 140 deg C
VAPOR DENSITY: HEAVIER THAN AIR
SPECIFIC GRAVITY (H2O=1): 1.23
PHYSICAL STATE: LIQUID
EVAPORATION RATE: SLOWER THAN n-BUTYL ACETATE
VAPOR PRESSURE: mm Hg @ TEMP (F)
7 100
0 0
5 68
COATING V.O.C. : 480 g/l
SOLUBILITY IN WATER: INSOLUBLE
APPEARANCE AND ODOR: MODERATELY THICK LIQUID; AROMATIC ODOR.
FREEZING POINT: NOT AVAILABLE
pH: N/AP
COEFFICIENT OF WATER/OIL DIST: N/AV
ODOR THRESHOLD: 1-30 ppm

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

ASH POINT: 24 deg C
METHOD USED: TCC
AMMABLE LIMITS IN AIR BY VOLUME(%)- LOWER: 1 UPPER: 7

EXTINGUISHING MEDIA: FOAM,CO2,DRY CHEMICAL,WATER FOG.

SPECIAL FIREFIGHTING PROCEDURES
RESPIRATORY EQUIPMENT SHOULD BE WORN TO AVOID INHALATION OF CONCENTRATED

360 423 4730 P.01
CLOUVER1353604234730
DEC-08-1997 09:09

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29CFR 1910. 1200. Standard must be consulted for specific requirements.

INDUSTRIAL CLEANER #91 #1

QUICK IDENTIFIER
Common Name: (used on label and list)

DNA - Does Not Apply
NA - Not Available

RECEIVED
MAY 17 1988
JONES OREGON STEVEDORING CO.

SECTION 1 -

Manufacturer's Name	Jadco Chemical Ltd.		
Address	16055 SW 74th Avenue	Emergency Telephone No.	503-684-0044
City, State, and ZIP	Tigard, OR 97224	Other Information Calls	
Signature of Person Responsible for Preparation (Optional)	Tom Libby, Pat Clary	Date Prepared	7/8/87

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Sodium Hydroxide	2mg/m^3	2mg/m^3	2mg/m^3	<1	1310-72-2
Monoethanolamine	3ppm	3ppm	NA	<4	141-43-5

Seller makes no warranty, expressed or implied, as to the use of this material beyond label instructions. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point	100°C	Specific Gravity (H$_2$O=1)	1.1	Vapor Pressure (mm Hg)	Est. 18mm
	Vapor Density (Air = 1) NA	pH 13.0			
Solubility in Water	100%	Reactivity in Water	Non reactive		
Appearance and Odor	Dark blue	Melting Point	Est. 0°C		

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point	DNA F. C.	Method Used	DNA	Flammable Limits in Air % by Volume	LEL Lower DNA / UEL Upper DNA
Auto-Ignition Temperature	DNA	Extinguisher Media	DNA		
Special Fire Fighting Procedures	DNA				

Unusual Fire and Explosion Hazards: DNA - A water solution of inorganic material that has fire and explosion properties similar to water.

SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable ☐ Stable ☒ Conditions to Avoid: DNA

Incompatability (Materials to Avoid): Reactive metals, flammable liquids, acids, strong oxidizers

Hazardous Decomposition Products: None

Hazardous Polymerization: May Occur ☐ Will Not Occur ☒ Conditions to Avoid: DNA

SECTION 6 – HEALTH HAZARDS

1. Acute: Severe burns

2. Chronic: Constrictive scarring of the mouth, throat and respiratory system. Liver and kidney damage.

Signs and Symptoms of Exposure: Irritation, pain, coughing, redness of skin

Medical Conditions Generally Aggravated by Exposure: Irritation to mucous membranes

Chemical Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	I.A.R.C. Monographs	OSHA
	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒

Emergency and First Aid Procedures: See Section 9

Target Organs – Respiratory system, eyes, skin

ROUTES OF ENTRY

1. Inhalation: Attacks mucous membranes at point of contact
2. Eyes: Attacks eyes at point of contact
3. Skin: Attacks skin at point of contact
4. Ingestion: Attacks lining of mouth, throat and stomach at point of contact

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Keep in ventilated area. Protect from freezing. Do not store overhead. Keep away from all acids. Keep container closed when not in use. Sodium Hydroxide will make floors very slippery – clean up all spills immediately.

Other Precautions: KEEP OUT OF REACH OF CHILDREN.

Steps to be Taken in Case Material is Released or Spilled: Small spills – wash with water. Large spills – confine, dilute and neutralize with weak acid.

Waste Disposal Methods (Consult federal, state, and local regulations): After neutralization, wash to sewers

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): Not Necessary

Ventilation: Maintain adequate to stay below limit | Local Exhaust: DNA | Mechanical (General): DNA | Special: DNA | Other: DNA

Protective Gloves: Neoprene, rubber or polyvinyl chloride | Eye Protection: Approved face shield with chemical safety goggles

Other Protective Clothing or Equipment: niosh/msha approved boots, apron. Wear impervious clothing.

Work/Hygienic Practices: Wash thoroughly after handling.

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

INDUSTRIAL CLEANER #91

SECTION 9 – FIRST AID AND EMERGENCY PROCEDURES

Eyes	–	Wash with water for 15 minutes. Get medical attention.
Skin	–	Wash with water for 15 minutes.
Inhalation	–	Remove to fresh air.
Ingestion	–	**DO NOT INDUCE VOMITING.** Get immediate medical attention. Give milk or water to drink. Never attempt to give anything by mouth to an unconscious person.

Material Safety Data Sheet

January 1988

I. General Information

Chemical Name & Synonyms
ACETYLENE
ACETYLEN; ETHINE, NARCYLENE

Chemical Family
ALKYNE

Proper DOT Shipping Name
ACETYLENE

Manufacturer DISTRIBUTOR
QUIMBY WELDING SUPPLIES, INC.

Manufacturer's Address
1603 NW 14th, PORTLAND, OR 97209

Trade Name & Synonyms
ACETYLENE

Formula
C2 H2

DOT Hazard Classification
FLAMMABLE GAS - UN 1001

Manufacturer's Phone Number
(503) 221-1100

Chemtrec Phone Number
(800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
ACETYLENE	100	SIMPLE ASPHYXIANT

III. Physical Data

Boiling Point (°F)
NOT APPLICABLE

Vapor Pressure (mm Hg.)
@ 21° C 635 PSIG

Vapor Density (Air = 1)
0.91

Solubility in Water
SLIGHT

Specific Gravity (H_2O = 1)
NOT APPLICABLE

Percent Volatile By Volume (%)
100

Evaporation Rate (_____ = 1)
NOT APPLICABLE

pH
N/A

Appearance & Odor
COLORLESS GAS AT NORMAL TEMPERATURE AND PRESSURE; GARLIC LIKE ODOR.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method)
-17.8° C (0°F) T.C.C.

Auto Ignition Temperature
299° C (571° F)

Flammable Limits

LEL
2.3%

UEL
100%

Extinguishing Media

Special Fire Fighting Procedures
Cool containers with water spray from maximum distance. If flames are accidentally extinguished, explosive re-ignition may occur.

Stop flow of gas if without risk, while continuing cooling water spray.

Unusual Fire & Explosion Hazards
EXTREMELY FLAMMABLE GAS. FORMS EXPLOSIVE MIXTURES WITH AIR AND OXIDIZING AGENTS. CONTAINER MAY RUPTURE DUE TO HEAT OF FIRE.

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V. Health Hazard Data

Threshold Limit Value	OSHA Threshold Limit Value	ACGIH Threshold Limit Value
SIMPLE ASPHYXIANT		

Carcinogen - NTP Program | Carcinogen - IARC Program

Symptoms of Exposure
ACETYLENE IS AN ASPHYXIANT. MODERATE CONCENTRATIONS MAY CAUSE HEADACHES, DROWSINESS, DIZZINESS AND UNCONSCIOUSNESS.

Medical Conditions Aggravated By Exposure IF INHALED, MAY BE HARMFUL. VAPORS MAY CAUSE DIZZINESS OR SUFFOCATION. CONTACT MAY IRRITATE OR BURN SKIN AND EYES. CONTACT WITH LIQUID MAY CAUSE FROSTBITE.

Primary Route(s) of Entry

Emergency First Aid MOVE VICTIM TO FRESH AIR; CALL EMERGENCY MEDICAL CARE. IF NOT BREATHING GIVE ARTIFICAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF FROSTBITE, THAW FROSTED PARTS WITH WATER.

VI. Reactivity Data

Stability	X	Unstable
		Stable
Incompatability		
Hazardous Polymerization		May Occur
		Will Not Occur

Conditions To Avoid STABLE AS SHIPPED. AVOID USE AT PRESSURES ABOVE 15 PSIG.

Materials To Avoid COPPER, SILVER, MERCURY OR THEIR ALLOYS, OXIDIZING AGENTS, ACIDS, HALOGENS, MOISTURE.

Conditions To Avoid ELEVATED TEMPERATURE AND PRESSURE AND/OR THE RESENCE OF A CATALYST.

Hazardous Decomposition Products
THERMAL DECOMPOSITION OR BURNING MAY PRODUCE $CO/CO_2/H_2$

VII. Environmental Protection Procedures

Spill Response FORMS EXPLOSIVE MIXTURES WITH AIR. EVACUATE ARE. REMOVE ALL SOURCES OF IGNITION IF WITHOUT RISK. REDUCE VAPORS WITH FOG OR FINE WATER SPRAY. STOP LEAK IF YOU CAN DO IT WITHOUT RISK.

Waste Disposal Method PREVENT WASTE FROM CONTAMINATING SURROUNDING AREA. DISPOSE OF CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

VIII. Special Protection Information

Eye Protection
GOGGLES WITH FILTER LENS AS ANSI249.1

Skin Protection
WEAR PROTECTIVE CLOTHING

Respiratory Protection (Specific Type) RESPIRABLE FUME OR AIR SUPPLIED IN CONFINED SPACE.

Ventilation Recommended
USE ADEQUATE VENTILATION

Other Protection
AS NEEDED, WEAR HAND, HEAD, AND BODY PROTECTION.

IX. Special Precautions

Hygienic Practices In Handling & Storage
REFER TO NFPA #51

Precautions For Repair & Maintenance Of Contaminated Equipment
CONTACT MANUFACTURER AND/OR DISTRIBUTOR.

Other Precautions

BOWMAN DISTRIBUTION
MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME Welding Anti Spatter	BOWMAN PART NO. 21957
SUPPLIER BOWMAN DISTRIBUTION, BARNES GROUP INC.	EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103	DATE 7/10/86
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity, ORM-D, UN 1956	
ADDITIONAL HAZARD CLASSES (as applicable) None	
CHEMICAL FAMILY Pressurized Product	FORMULA TM-1246

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	%V	CHEMICAL NAME(S)	Listed as a Carcinogen in NTP, IARC or OSHA 1910(z) (specify)
71-55-6		93	1,1,1, Trichloroethane	None

SECTION III - PHYSICAL DATA

BOILING POINT ____°F ____°C N.A.		SPECIFIC GRAVITY (H_2O = 1)	N.A.		
VAPOR PRESSURE 100 @ 70 °F ____ °C ☐ mm Hg ☒ psi		PERCENT VOLATILE BY VOLUME (%)	97	PERCENT SOLID BY WEIGHT (%)	3
VAPOR DENSITY (AIR = 1)	4.0	EVAPORATION RATE (= 1)	N.A.		
SOLUBILITY IN WATER	<1%	pH =	None		
APPEARANCE AND ODOR Clear Solvent Odor				MATERIAL IS: LIQUID GAS	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT ____°F ____°C method used None	FLAMMABLE LIMITS None	LEL None	UEL None
EXTINGUISHING MEDIA Waterfog, Foam CO_2, or dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES Keep containers cool. Use equipment or shielding required to protect personnel against bursting or venting containers.			
UNUSUAL FIRE AND EXPLOSION HAZARDS At elevated temperatures (130° or over) containers may vent, rupture or burst.			

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE - Conditions to avoid May cause dizziness or in extreme case absence of oxygen could produce narcosis.	THRESHOLD LIMIT VALUE 350PPM PERMISSIBLE EXPOSURE LIMIT OTHER LIMIT
PRIMARY ROUTES OF ENTRY Inhalation [X] Skin Contact [X] Other (specify)	
EMERGENCY AND FIRST AID PROCEDURES If unconscious, remove person to fresh air and call a physician. If sprayed in eyes, flush immediately with large quantities of water.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Pressurized containers could rupture above 130° F.
INCOMPATIBILITY (materials to avoid) None			
HAZARDOUS DECOMPOSITION PRODUCTS: (from burning) Carbon dioxide, carbon monoxide and water.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Flush with large quantities of water. Ventilate area.	
WASTE DISPOSAL METHOD Do not puncture or incinerate containers. Give to a disposal service equipped to safely handle and dispose of pressurized containers.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs) None	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) F002	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water) Unknown	
☐ Theoretical _____ lb/gal	☐ Analytical _____ lb/gal

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) Avoid breathing concentrated vapors or particles from all products not specifically designed to be inhaled.		
VENTILATION	LOCAL EXHAUST (specify rate) normal use — normal ventilation	SPECIAL none
	MECHANICAL (general) (specify rate)	OTHER
PROTECTIVE GLOVES (specify type) N.A.	EYE PROTECTION (specify type) Wear safety glasses	
OTHER PROTECTIVE EQUIPMENT None		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Read and follow cautions on product label. Do not store in temperatures above 120° F.
OTHER PRECAUTIONS None

21957

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

UNIBRAZE
SUBSIDIARY OF J.W. HARRIS CO. INC.

MATERIAL SAFETY DATA SHEET

ALUMINUM WELDING WIRE AND ROD

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name J. W. Harris Co., Inc.

Distributor Name (If Applicable)

Address 10930 Deerfield Road

Address Cincinnati, Ohio 45242

Emergency Telephone (513) 891-2000

MSDS Date November 1985

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See Section 2 and especially Section 6 for important health hazard data.**

Trade Name	Chemical Composition (%)								
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
1100	a	a	0.05-0.20	0.05			0.10		99.0 Minimum
2319	0.20	0.30	5.8-6.8	0.20-0.40	0.02		0.10	0.10-0.20	Remainder
4043	4.5-6.0	0.8	0.30	0.05	0.05		0.10	0.20	Remainder
5183	0.40	0.40	0.10	0.05-1.0	4.3-5.2	0.05-0.25	0.25	0.15	Remainder
5356	0.25	0.40	0.10	0.50-0.20	4.5-5.5	0.5-0.20	0.10	0.06-0.20	Remainder
5554	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	0.25	0.05-0.20	Remainder
5556	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	0.25	0.05-0.20	Remainder
5654	c	c	0.10	0.10	3.1-3.9	0.15-0.35	0.20	0.05-0.15	Remainder
718 (4047)	11.0-13.0	0.8	0.30	0.15	0.10		0.20		Remainder

Single figures are maximum
a. - Si + Fe = 0.95 max.
b. - Vanadium 0.05-0.15, c. - Si + Fe = 0.45 max.

SECTION 2 - HAZARDOUS MATERIALS

Welding rod or wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding or brazing. Section 1 lists product designations and composition as manufactured. **IMPORTANT - See Section 6 for information on potential fume hazard resulting from use of the product.**

SECTION 3 - PHYSICAL DATA

Solid wire or rod.

SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Welding arc, open flame and sparks can ignite combustibles, See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA - ALUMINUM WELDING WIRE

Exposure - Section 1 lists normal composition of aluminum welding wire. Section 6 lists exposure limits for hazardous decomposition products which might be present in fume generated during welding or brazing. Actual exposure should be determined by monitoring fume in the operator's breathing zone.

Primary Route of Exposure - Inhalation of fume.

Pre-existing medical conditions - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

Possible Effects of Exposure - Short term exposure to welding fume may result in discomfort, dizziness, nausea, dryness or irritation of the throat. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. Some compounds of hexavalent chromium have been reported to be carcinogenic. No clear association however, has been established between chromium in welding fume and the development of cancer. Exposure limits should be maintained below the levels listed in Section 6. Copper fume may cause metal fume fever which may include fever, body ache, chills.

Emergency First Aid - Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

Other Health Considerations -
Arc Rays from electric arc welding operations can injure eyes and burn skin.

Electric Shock - From arc welding equipment can kill.

Heat Rays - (Infrared radiation from flame or hot metal) can injure eyes.

SECTION 6 - REACTIVITY DATA

Hazardous Decomposition Products

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the filler metal is consumed, the fume and gas decomposition products generated are different in percent and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products, and not the ingredients in the electrode or wire are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode or wire may form. Decomposition products of normal operation include those originating from the base metal and coating, etc., as noted above.

Section 1 lists composition of the aluminum wire or rod. The chart below lists those constituents, defined as hazardous, which are likely to be present in the welding fume.

Element	CAS#	PEL mg/m^3[1]	TLV mg/m^3[2]
Silicon (SiO_2, amorphous, respirable)	60676-86-0	Not Listed	5mg/m^3 Respirable dust 10mg/m^3 total dust
Iron (oxide fume)	1309-37-1	10.0	5.0
Copper (fume)	7440-50-8	0.1	0.2
Manganese	7439-96-5	5.0 (ceiling)	1.0 (fume)
Magnesium (oxide fume)	1309-48-4	15.0	10.0
Zinc (oxide)	1314-13-2	5.0 (fume)	5.0 (fume)
Titanium (dioxide)	13463-67-7	15.0	10mg/m^3 of total dust or 5mg/m^3 respirable dust
Aluminum (welding fume)	7429-90-5	Not Listed	5.0
Chromium (VI)	7440-47-3	0.1	0.05

(1) Permissable exposure limit OSHA 29CFR 1910.1000 Subpart Z
(2) Threshold limit value American Conference of Government Industrial Hygenists

Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by the radiation from the arc during electric arc welding.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, *Safety in Welding and Cutting* published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

Ventilation
Use enough ventilation, local exhaust at the arc (or flame), or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

Respiratory Protection
Use respirable fume respirator or air supplied respirator when welding, brazing, or soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection
Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 - Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

Protective Clothing
Wear head and body protection which help to prevent injury from radiation, sparks, flame, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate himself from work and ground.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by Unibraze Corp. or J.W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Unibraze Corp. and J.W. Harris Co., Inc. assume no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

Material Safety Data Sheet

January 1988

I. General Information

Chemical Name & Synonyms
ARGON - SHIELDING GAS

Chemical Family
(RARE GAS) NOBLE GAS

Proper DOT Shipping Name
ARGON OR ARGON COMPRESSED

Manufacturer DISTRIBUTOR
QUIMBY WELDING SUPPLIES, INC.

Manufacturer's Address
1603 NW 14th, PORTLAND, OR 97209

Trade Name & Synonyms
ARGON - SHIELDING GAS

Formula
Ar

DOT Hazard Classification
NONFLAMMABLE GAS - UN 1006

Manufacturer's Phone Number
(503) 221-1100

Chemtrec Phone Number
(800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
ARGON	100	SIMPLE ASPHYXIANT

III. Physical Data

Boiling Point (°F)
-302.6° F

Vapor Pressure (mm Hg.)
GAS

Vapor Density (Air = 1)
1.378 @ 70° F

Solubility in Water
NEGLIBLE

Specific Gravity (H_2O = 1)
GAS

Percent Volatile By Volume (%)
100

Evaporation Rate (_____ = 1)
HIGH

pH
N/A

Appearance & Odor
COLORLESS, ODORLESS GAS AT NORMAL TEMPERATURE AND PRESSURE.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method)
NOT APPLICABLE

Flammable Limits

Auto Ignition Temperature
NOT APPLICABLE

LEL
NOT APPLICABLE

UEL
NOT APPLICABLE

Extinguishing Media
ARGON CONNOT CATCH FIRE

Special Fire Fighting Procedures
COOL CONTAINERS WITH WATER SPRAY

Unusual Fire & Explosion Hazards
CONTAINERS ARE PROVDED WITH A PRESSURE RELIEF DEVICE DESIGNED TO VENT CONTENTS WHEN THEY ARE EXPOSED TO ELEVATED TERMPERATURES.

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V. Health Hazard Data

Threshold Limit Value	OSHA Threshold Limit Value	ACGIH Threshold Limit Value
SIMPLE ASPHYXIANT		

Carcinogen - NTP Program

Carcinogen - IARC Program

Symptoms of Exposure
SIMPLE ASPHYXIANT

Medical Conditions Aggravated By Exposure

Primary Route(s) of Entry

Emergency First Aid
SIMPLE ASPHYXIANT

VI. Reactivity Data

Stability		Unstable
	X	Stable

Conditions To Avoid
HIGH PRESSURE GAS

Incompatability

Materials To Avoid
NONE CURRENTLY KNOWN

Hazardous		May Occur
Polymerization	X	Will Not Occur

Conditions To Avoid
NONE CURRENTLY KNOWN

Hazardous Decomposition Products

VII. Environmental Protection Procedures

Spill Response
ARGON IS AN ASPHYXIANT

Waste Disposal Method
SLOWLY RELEASE INTO ATMOSPHERE

VIII. Special Protection Information

Eye Protection

Skin Protection

Respiratory Protection (Specific Type)USE RESPIRABLE FUME OR AIR SUPPLIED RESPIRATOR IN CONFINED SPACE.

Ventilation Recommended

Other Protection

IX. Special Precautions

Hygienic Practices In Handling & Storage

Precautions For Repair & Maintenance Of Contaminated Equipment
CONTACT MANUFACTURE AND/OR DISTRIBUTOR

Other Precautions
HIGH PRESSURE GAS.

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

9/9/85

Section I

Certanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 83F	
P.N.'s 14400, 14410	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	WT. % (~)	TLV (Units) MG/M3
Copper	7440-50-8	N	0.2*			
Boric Acid	10043-35-3	M	10**			
Zinc	7440-66-6	M	5*			
* WHEN PRESENT AS FUME				NOTE: *Ranges utilized to*		
**AS BORON OXIDE				*protect proprietary*		
N=10-30%				*formulas.*		
M=Greater than 30%						

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

Section V – HEALTH HAZARD DATA

Effects of Overexposure: *Short Term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, and eyes.*

Emergency and first aid procedures: *Remove to fresh air, obtain medical attention.*

Section VI – REACTIVITY DATA

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatability (Materials to Avoid) *None*

Hazardous Decomposition Products Zinc Oxide is produced during brazing.

Hazardous Polymerization *None*

Section VII – SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section VII – SPECIAL PROTECTION INFORMATION (See Note)

Respirator Protection (Specify Type) Weld fume respirator or airline respirator for confined space or where exposures are above TLV.

Ventilation	**Local Exhaust**	*Refer to ANSI Z49.1*
	Mechanical (General)	*Refer to ANSI Z49.1*

Eye Protection *Face shield and colored absorptive lens.*

Protective Gloves *Welder's protective gloves.*

Other Protective Equipment *Welder's leather protective aprons, leggings, and coats.*

Section IX – SPECIAL PRECAUTIONS (See Note)

Arc and spark could be source of ignition of combustible materials.

NOTE: *Reference is directed, without endorsement or recommendation, to the U. S. A. Standard Safety in Welding and Cutting Z49.1-1967 (American Welding Society Publication Z 49.1-1967)*

If additional information is needed please call Certanium Product Research Department direct – 216 / 391 - 8300.

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

DATE: 9/23/85

Section I

Certanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 701	
P.N.'s 12815, 12807, 12804, 12798	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION		WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	WT. % (~)	TLV (Units) MG/M3
Manganese	7439-96-5	L	1*	Iron 7439-89-6	M	5*
Rutile	1317-80-2	N	10	Carbon 7440-44-0	T	3.5
Kaolin	1332-58-7	L	10			
Calcium Carbonate	471-34-1	T	10			
Cellulose	9004-34-6	T	10			
Potassium Silicate	10006-28-7	L	10			
Phosphorus	7723-14-0	T	0.1			
* When present as fume						
T = 1% or less				NOTE: *Ranges utilized to*		
L = 1-10%				*protect proprietary*		
N = 10-30%				*formulas.*		
M = Greater than 30%						

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

Section V – HEALTH HAZARD DATA

Effects of Overexposure: *Short Term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, and eyes.*

Emergency and first aid procedures: *Remove to fresh air, obtain medical attention.*

Section VI – REACTIVITY DATA

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatability (Materials to Avoid) *None*

Hazardous Decomposition Products None

Hazardous Polymerization *None*

Section VII – SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section VII – SPECIAL PROTECTION INFORMATION (See Note)

Respirator Protection (Specify Type) Weld fume respirator or airline respirator for confined space or where exposures are above TLV.

Ventilation

Local Exhaust *Refer to ANSI Z49.1*

Mechanical (General) *Refer to ANSI Z49.1*

Eye Protection *Face shield and colored absorptive lens.*

Protective Gloves *Welder's protective gloves.*

Other Protective Equipment *Welder's leather protective aprons, leggings, and chaps.*

Section IX – SPECIAL PRECAUTIONS (See Note)

Arc and spark could be source of ignition of combustible materials.

NOTE: *Reference is directed, without endorsement or recommendation, to the U. S. A. Standard Safety in Welding and Cutting Z49.1-1967 (American Welding Society Publication Z 49.1-1967)*

If additional information is needed please call Certanium Product Research Department direct – 216 / 391 - 8300.

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

7/3/85

Section I

Certanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 702	
P.N.'s 12576, 12556, 12415, 12395, 12385, 12375	

Section II — HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3
Titanium Dioxide	13463-67-7	M	10	Rutile	1317-80-2	N	10
Calcium /Magnesium Carbonate/Carbonate	471-34-1	L	5	Kaolin	1332-58-7	T	10
Potassium Silicate	10006-28-7	L	10	Phosphorus	7723-14-0	T	0.1
Feldspar	68476-25-5	N	10	Iron	7439-89-6	M	5*
Zircon	14940-68-2	L	inert	Carbon	7440-44-0	L	3.5
Ferro-Manganese	12604-53-4	N	5				
Cellulose	9004-34-6	L	10				
Silica	7631-86-9	T	10				
* WHEN PRESENT AS FUME							
T=1% or less				— NOTE: *Ranges utilized to*			
L=1-10%				*protect proprietary*			
N=10-30%				*formulas.*			
M=30% or more							

Section III — PHYSICAL DATA

NOT APPLICABLE

Section IV — FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

Section V – HEALTH HAZARD DATA

Effects of Overexposure: *Short Term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, and eyes.* (Faintness)

Emergency and first aid procedures: *Remove to fresh air, obtain medical attention.*

Section VI – REACTIVITY DATA

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid) *None*

Hazardous Decomposition Products

Hazardous Polymerization *None*

Section VII – SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section VII – SPECIAL PROTECTION INFORMATION (See Note)

Respiratory Protection (Specify Type) Weld fume respirator or airline respirator for confined space or where exposures are above TLV.

Ventilation

Local Exhaust *Refer to ANSI Z49.1*	Yes, in confined space.
Mechanical (General) *Refer to ANSI Z49.1*	Yes, where exposure exceeds TLV.
SPECIAL:	Yes, inside confined vessels.

Eye Protection *Faceshield and colored absorptive lens.*

Protective Gloves *Welder's protective gloves.*

Other Protective Equipment *Welder's leather protective aprons, leggings, and coats.*

Section IX – SPECIAL PRECAUTIONS (See Note)

Arc and spark could be source of ignition of combustible materials.

Avoid humidity and shocks

NOTE: *Reference is directed, without endorsement or recommendation, to the U. S. A. Standard Safety in Welding and Cutting Z49.1-1967 (American Welding Society Publication Z49.1-1967)*

If additional information is needed please call Cartanium Product Research Department direct – 216 / 391 - 8300.

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

6/7/85

Section I

Cartanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 889	
P.N.'s 12570, 12560, 12550, 12770	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	WT. % (~)	TLV (Units) MG/M3
Calcium Carbonate 471-34-1	L	10	Silicon 7440-21-3	T	10
Calcium Fluoride 7789-75-5	L	2.5***	Copper 7440-50-8	T	0.2*
Carbon 7440-44-0	T	3.5	Graphite 7782-42-5	L	15 MPPCF
Aluminum 7429-90-5	T	5	Iron 7439-89-6	M	5*
Sodium Silicate 13472-30-5	T	**			
Nickel 7440-02-0	M	1			
Manganese 7439-96-5	T	1*			
*When present as fume					
**Unknown possibly 10 mg/m3			NOTE: *Ranges utilized to*		
***As fluoride			*protect proprietary*		
T=1% or less			*formulas.*		
L=1-10%					

M=Greater than 30%

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

Effects of Overexposure: *Short Term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, and eyes.*

Emergency and first aid procedures: *Remove to fresh air, obtain medical attention.*

Section VI – REACTIVITY DATA

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatability (Materials to Avoid)	*None*
Hazardous Decomposition Products	None
Hazardous Polymerization	*None*

Section VII – SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section VII – SPECIAL PROTECTION INFORMATION (See Note)

Respiratory Protection (Specify Type) Weld fume respirator or airline respirator for confined spaces or where exposures are above TLV.

Ventilation	Local Exhaust	*Refer to ANSI Z49.1*
	Mechanical (General)	*Refer to ANSI Z49.1*

Eye Protection *Face shield and colored absorptive lens.*

Protective Gloves *Welder's protective gloves.*

Other Protective Equipment *Welder's leather protective aprons, leggings, and coats.*

Section IX – SPECIAL PRECAUTIONS (See Note)

Arc and spark could be source of ignition of combustible materials.

NOTE: *Reference is directed, without endorsement or recommendation, to the U. S. A. Standard Safety in Welding and Cutting Z49.1-1967 (American Welding Society Publication Z49.1-1967)*

If additional information is needed please call Certanium Product Research Department direct – 216 / 391 - 8300.

MATERIAL SAFETY DATA SHEET

Filler Metals and Welding Rods

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-00S-4)

9/9/85

Section I

Certanium Alloys & Research Co.	Emergency Telephone No. 216 / 391 - 8300
Address (Number, Street, City, State and ZIP Code) 4415 Euclid Avenue, Cleveland, Ohio 44103	
Product Name: CERTANIUM 889SP	
P.N.'s 12009, 12006, 12003, 12001	

Section II – HAZARDOUS INGREDIENTS

DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3	DESCRIPTION	CAS #	WT. % (~)	TLV (Units) MG/M3
Calcium Carbonate	471-34-1	L	10	Silicon	7440-21-3	T	10
Calcium Fluoride	7789-75-5	L	2.5***	Copper	7440-50-8	T	0.2*
Carbon	7440-44-0	T	3.5	Graphite	7782-42-5	L	15 MPPCF
Aluminum	7429-90-5	T	5	Iron	7439-89-6	M	5*
Sodium Silicate	13472-30-5	T	**				
Nickel	7440-02-0	M	1				
Manganese	7439-96-5	T	1*				
* WHEN PRESENT AS FUME							
** UNKNOWN POSSIBLY 10 mg/m^3							
*** AS FLUORIDE				NOTE: *Ranges utilized to*			
T=1% or less				*protect proprietary*			
L=1-10%				*formulas.*			
M=Greater than 30%							

Section III – PHYSICAL DATA

NOT APPLICABLE

Section IV – FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

Section V – HEALTH HAZARD DATA

Effects of Overexposure: *Short Term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, and eyes.*

Emergency and first aid procedures: *Remove to fresh air, obtain medical attention.*

Section VI – REACTIVITY DATA

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatability (Materials to Avoid) *None*

Hazardous Decomposition Products *NONE*

Hazardous Polymerization *None*

Section VII – SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section VII – SPECIAL PROTECTION INFORMATION (See Note)

Respirator Protection (Specify Type) Weld fume respirator or airline respirator for confined space or where exposures are above TLV.

Ventilation		
	Local Exhaust	*Refer to ANSI Z49.1*
	Mechanical (General)	*Refer to ANSI Z49.1*

Eye Protection *Face shield and colored absorptive lens.*

Protective Gloves *Welder's protective gloves.*

Other Protective Equipment *Welder's leather protective aprons, leggings, and coats.*

Section IX – SPECIAL PRECAUTIONS (See Note)

Arc and spark could be source of ignition of combustible materials.

NOTE: *Reference is directed, without endorsement or recommendation, to the U. S. A. Standard Safety in Welding and Cutting Z49.1-1967 (American Welding Society Publication Z49.1-1967)*

If additional information is needed please call Certanium Product Research Department direct – 216 / 391 - 8300.

ALLOY ROOS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)
For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION

Identity: DUAL SHIELD T-1 AND T-2 FLUX CORED WELDING ELECTRODES

Manufacturer's Name: ALLOY ROOS CORPORATION	Emergency Telephone No. - 717/637-8911
Address: P. O. Box 517, Wilson Avenue, Hanover, PA 17331	Telephone No. for Information - 717/637-8911

Product Trade Name(s):	Product Classification(s):
DUAL SHIELD SP, T-63, and 110	AWS A5.20, E70T-2 (SP, T-63, and 110)
T-62; T-62 IMP; 78; 111A; 111A-C; 111HD; 111-10; 7000; II71; R-70; ACF-63; 7100; II 70; 111RB; II 70LC	AWS A5.20, E70T-1 - T62 THRU II 70LC
T-8; 78 Mo; 88-C3; 88CM; 88CH-HC; T-90C-1; 98; 98CH; 88-F3	THE FOLLOWING ARE ALL AWS A5.29; E110T1-G; E80T1-A1; E80T1-N11; E80T1-B2; E80T1-B2H; E90T1-N12; E90T1-K2; E90T1-B3; E80T1-G
98CH-HC; T-100; 150; 151; 7000-A1; 8000C-3	E90T1-B3H; E100T1-K3; E90T1-D3; E80T1-B2; E81T1-A1; E81T1-N11
8000N12; II-101TM; 9000M; 9000C1; 900083; 800082; II 110	E81T1-N12; E91T1-G; E91T1-K2; E91T1-N12; E91T1-B3; E81T1-B2; E110T1-K3
II 100; II 90-K2; II80N1-1; 8100W; 88W; 9100K2; II 100-D1; T-4130; AND DH-80	E101T1-K3; E91T1-K2; E81T1-N11; E80T1-W; E80T1-W; E91T1-K2; E101T1-G; E120T1-K5; NOT CLASSIFIED

SECTION II - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V.

THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source	Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source
Iron	(7439-89-6)	5	(2)	Manganese	(7439-96-5)	5 ci	(1)
Silicon	(7440-21-3)	10	(2)	Chromium (A) [Cr]	(7440-47-3)	0.5	(2)
Molybdenum (B)	(7439-98-7)	5	(2)	Nickel (C) [Ni]	(7440-02-0)	1	(2)
Copper (D)	(7440-50-8)	1 (Dust)	(1)	Titanium Dioxide (G)	(13463-67-7)	10	(2)
Quartz (E) (G)	(14808-60-7)	0.1	(2)	Sodium Titanate (F) (G)	(N/A)	(N/A)	(3)

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygenists (ACGIH) Threshold Limit Value (TLV[R]).
3. Not known; nuisance particulate concentration per ACGIH is 10 mg/M^3.

(A) In T-8, 88CM, 98CM, 98CH-HC, 151, 900083, 800082, 8100W, 88W, T-4130. (B) In T-8, 78HO, 88CM, 88CH-HC, 98, 98CH, 98CH-HC, T-100, 150, 151, 7000A1, 9000M, 900083, 800082, II-110, II 100, 9100K2, T-4130 and DH-80. (C) In T-8, 88C3, 88F3, T-90C-1, 98, T-100, 8000C3, 8000Ni-2, II 101-TM, 9000M, 9000C1, II 110, II 100, II 90-K2, 8100W, 88W, 9100K2, T4130, DH-80. (D) In 8100W, 88W. (E) In SP, T-63, 78, T-8, 88C3, 88CM, 98, 98CH, 98CH-HC, T-100. (F) In II 71, II 70, II 70LC, II 101-TM, 900083, 800082, II 110, II 100, II 80Ni-1, II 10001. (G) Not in DH-80.

SECTION III - PHYSICAL DATA

NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VII.

SECTION V - REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS:

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work area, quality and amount of ventilation, position of welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.

When the electrode is consumed, the fume and gas decomposition products are differerent in percent and form from the ingredients listed in Section II. Fume and gas decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from base metal, coating, etc. as noted above. These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume: American Welding Society).

Reasonably expected fume constituents would include complex oxides of iron, manganese, silicon, and, where present, chromium, nickel, molybdenum, and copper. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet, if worn, or in the worker's breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5 mg/M3. The ACGIH 1984-85 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents which may modify this TLV.

Effects of Overexposure: FUMES AND GASES can be dangerous to your health. SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. LONG TERM (CHRONIC) OVEREXPOSURE may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. ELECTRIC SHOCK can kill. See Section VII.

Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

Carcinogenicity	NTP?	I ARC Monographs?	OSHA Regulated?
When present -	Cr, Ni	Cr, Ni	Cr

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacturer's instructions and the precautionary label on this product. See American National Standard Z-49.1, Safety in Welding and Cutting, published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U. S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplies respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

Protective Clothing: Wear head, hand and body protection which help to prevent injury from radiaton, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protecive face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Procedure for Cleanup of Spills or Leaks: NOT APPLICABLE

Waste Disposal Method: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

ALLOY ROOS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)
For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION

Identity: MILD STEEL COVERED ELECTRODES

Manufacturer's Name: ALLOY ROOS CORPORATION	Emergency Telephone No. - 717/637-8911
Address: P. O. Box 517, Wilson Avenue, Hanover, PA 17331	Telephone No. for Information - 717/637-8911

Product Trade Name(s):	Product Classification(s):
SW14, SW15, SW15IP, 7024, SW610, AP100, SW612, 70LA-2, XP-60, AND 6013	AWS A5.1, E6011, E6013, E7014, E7024, E6010, E6010, E6012, E7016, E6010, AND E6013
XP-70, XP-80, AND XP-90	AWS A5.5, E7010-G, E8010-G, AND E9010-G

SECTION II - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V.

THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source	Ingredient	(CAS No.)	Exposure Limit mg/M3)	Source
(A) Iron	(7439-89-6)	5	(2)	(B) Cellulose	(9004-34-6)	10	(2)
(C) Potassium Titanate	(N/A)	(N/A)	(3)	(D) Calcium Carbonate	(1317-65-3)	10	(2)
(E) Magnesium Carbonate	(546-93-0)	10	(2)	(A) Titanium Dioxide	(13463-67-7)	10	(2)
(A) Managanese	(7439-96-5)	5 cl	(1)	(F) Sodium Silicate	(6834-92-0)	(N/A)	(3)
(G) Potassium Silicate	(1312-76-1)	(N/A)	(3)	Potassium (H) Aluminum Silicate	(N/A)	(N/A)	(3)
(I) Aluminum Oxide	(1344-28-1)	10	(2)	(J) Aluminum Silicate	(1332-58-7)	10	(2)
(I) Magnesium Oxide	(1309-48-4)	10	(2)	(L) Calcium Fluoride	(7789-75-5)	2.5	(2)
(L) Silicon	(7440-21-3)	10	(2)	(L) Zirconium Dioxide	(1314-23-4)	5	(2)
(H) Nickel [Ni]	(7440-02-0)	1	(2)	(N) Molybdenum	(7439-98-7)	5	(2)
(N) Chromium [Cr]	(7440-47-3)	0.5	(2)	(O) Mica	(12001-21-2)	3	(2)
(O) Zirconium Silicate	(1314-23-4)	5	(2)				

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygenists (ACGIH) Threshold Limit Value (TLV[R]).
3. Not known; nuisance particulate concentration per ACGIH is 10 mg/M³.

(A) In all electrodes. (B) IN SW14, SW15, SW15IP, 7024, SW75, SW610, AP100, XP-60, XP-70, XP-80, XP-90 and 6013. (C) In SW14 only. (D) In SW14, 7024, SW612 and 70LA-2. (E) In SW14, SW75 and SW612. (F) In all electrodes except 70LA-2 and 6013. (G) In SW15, SW612, 70LA-2 and 6013. (H) In SW15 and 7024. (I) In SW15IP and 7024. (J) In SW15IP, SW612, and 70LA-2. (K) In SW15IP and AP100. (L) In 70LA-2. (M) In XP-60, XP-70, XP-80 and XP-90. (N) In XP-80 and XP-90. (O) In 6013 only.

SECTION III - PHYSICAL DATA

NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VII.

Date Revised: 11/19/85

SECTION V - REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS:

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work area, quality and amount of ventilation, position of welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.

When the electrode is consumed, the fume and gas decomposition products are differerent in percent and form from the ingredients listed in Section II. Fume and gas decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from base metal, coating, etc. as noted above. These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume: American Welding Society).

Reasonably expected fume constituents from these products would include: fluorides (70LA-2 only) and complex oxides containing iron manganese, silicon, nickel (XP-70, XP-80 and XP-90), chromium (XP-80 and XP-90) and molybdenum (XP-80 and XP-90). Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet, if worn, or in the worker's breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5 mg/M3. The ACGIH 1984-85 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents which may modify this TLV.

Effects of Overexposure: FUMES AND GASES can be dangerous to your health. SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. LONG TERM (CHRONIC) OVEREXPOSURE may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. ELECTRIC SHOCK can kill. See Section VII.

Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

Carcinogenicity	NTP?	I ARC Monographs?	OSHA Regulated?
When present	Cr, NI	Cr, NI	Cr

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacturer's instructions and the precautionary label on this product. See American National Standard Z-49.1, Safety in Welding and Cutting, published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U. S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplies respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

Protective Clothing: Wear head, hand and body protection which help to prevent injury from radiaton, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protecive face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Procedure for Cleanup of Spills or Leaks: NOT APPLICABLE

Waste Disposal Method: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

Material Safety Data Sheet

I. General Information

Chemical Name & Synonyms: NITROGEN	Trade Name & Synonyms: NITROGEN
Chemical Family: NOT APPLICABLE	Formula: N_2
Proper DOT Shipping Name: NITROGEN	DOT Hazard Classification: NON FLAMMABLE GAS - UN 1066
Manufacturer: DISTRIBUTOR QUIMBY WELDING SUPPLIES, INC.	Manufacturer's Phone Number: (503) 221-1100
Manufacturer's Address: 1603 NW 14th, PORTLAND, OR 97209	Chemtrec Phone Number: (800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
NITROGEN	100	SIMPLE ASPHYXIANT

III. Physical Data

Boiling Point (°F): -320.46° F	Specific Gravity (H_2O = 1): GAS
Vapor Pressure (mm Hg.): GAS	Percent Volatile By Volume (%): 100
Vapor Density (Air = 1): 0.967	Evaporation Rate (_____ = 1): NOT APPLICABLE
Solubility in Water: NEGLIGIBLE	pH:

Appearance & Odor: COLORLESS, ODORLESS GAS AT NORMAL TEMPERATURE AND PRESSURE.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method): NOT APPLICABLE	Auto Ignition Temperature: NOT APPLICABLE	
Flammable Limits	LEL: NOT APPLICABLE	UEL: NOT APPLICABLE

Extinguishing Media: NITROGEN CAN NOT CATCH FIRE.

Special Fire Fighting Procedures:

Unusual Fire & Explosion Hazards: GAS IN CYLINDERS UNDER PRESSURE MAY RUPTURE DUE TO HEAT OF FIRE.

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V. Health Hazard Data

Threshold Limit Value	OSHA Threshold Limit Value	ACGIH Threshold Limit Value
SIMPLE ASPHYXIANT		

Carcinogen - NTP Program	Carcinogen - IARC Program

Symptoms of Exposure

Medical Conditions Aggravated By Exposure

Primary Route(s) of Entry

Emergency First Aid

VI. Reactivity Data

Stability		Unstable	Conditions To Avoid
	X	Stable	
Incompatability			Materials To Avoid: NONE
Hazardous Polymerization		May Occur	Conditions To Avoid
	X	Will Not Occur	

Hazardous Decomposition Products: NONE

VII. Environmental Protection Procedures

Spill Response

Waste Disposal Method: RELEASE TO ATMOSPHERE

VIII. Special Protection Information

Eye Protection	Skin Protection
Respiratory Protection (Specific Type): SIMPLE ASPHYXIANT	Ventilation Recommended

Other Protection

IX. Special Precautions

Hygienic Practices In Handling & Storage

Precautions For Repair & Maintenance Of Contaminated Equipment: CONTACT MAUFACTURER AND/OR DISTRIBUTOR.

Other Precautions

Material Safety Data Sheet

I. General Information

Chemical Name & Synonyms: OXYGEN	Trade Name & Synonyms: OXYGEN
Chemical Family: NOT APPLICABLE	Formula: O2
Proper DOT Shipping Name: OXYGEN	DOT Hazard Classification: NON FLAMMABLE GAS - UN 1072
Manufacturer: DISTRIBUTOR QUIMBY WELDING SUPPLIES, INC.	Manufacturer's Phone Number: (503) 221-1100
Manufacturer's Address: 1603 NW 14th, PORTLAND, OR 97209	Chemtrec Phone Number: (800) 424-9300

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (units)
OXYGEN	100	NONE CURRENTLY ESTABLISHED

III. Physical Data

Boiling Point (°F): -297.4° F	Specific Gravity (H_2O = 1): GAS
Vapor Pressure (mm Hg.): GAS	Percent Volatile By Volume (%): 100
Vapor Density (Air = 1): 1.105 @ 25° C	Evaporation Rate (_____ = 1): NOT APPLICABLE
Solubility in Water: NEGLIGIBLE	pH:

Appearance & Odor: COLORLESS, ODORLESS GAS AT AN NORMAL TEMPERATURE AND PRESSURE.

IV. Fire & Explosion Hazard Data

Flash Point (Test Method): NOT APPLICABLE	Auto Ignition Temperature: NOT APPLICABLE	
Flammable Limits	LEL: NOT APPLICABLE	UEL: NOT APPPLICABLE.

Extinguishing Media: VIGOROUSLY ACCELERATES COMBUSTION.

Special Fire Fighting Procedures: COOL CONTAINERS WITH WATER SPRAY.

Unusual Fire & Explosion Hazards: OXIDIZING AGENT, CONTACT WITH FLAMMABLE MATERIALS MAY CAUSE FIRE OR EXPLOSION.

ENRICHED OXYGEN ATMOSPHERES ARE POTENTIAL EXPLOSION HAZARDS.

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V. Health Hazard Data

Threshold Limit Value	OSHA Threshold Limit Value	ACGIH Threshold Limit Value
NONE CURRENTLY ESTABLISHED		

Carcinogen - NTP Program	Carcinogen - IARC Program

Symptoms of Exposure

Medical Conditions Aggravated By Exposure BREATHING 80% OR MORE OXYGEN AT ATMOSPHERIC PRESSURE FOR MORE THAN A FEW HOURS MAY CAUSE NASAL STUFFINESS, COUGH, SORE THROAT, CHES PAIN AND BREATHING DIFFICULTY.

Primary Route(s) of Entry

Emergency First Aid
INHALATION - REMOVE TO FRESH AIR.

VI. Reactivity Data

Stability		Unstable	Conditions To Avoid
	X	Stable	
Incompatability			Materials To Avoid COMBUSTIBLE MATERIALS, ASPHALT, FLAMMABLE MATERIALS, ESPECIALLY OILS AND GREASES!
Hazardous Polymerization		May Occur	Conditions To Avoid
	X	Will Not Occur	NONE

Hazardous Decomposition Products
NONE

VII. Environmental Protection Procedures

Spill Response

Waste Disposal Method
RELEASE TO ATMOSPHERE.

VIII. Special Protection Information

Eye Protection	Skin Protection
Respiratory Protection (Specific Type)	Ventilation Recommended MECHANICAL - ACCEPTABLE
Other Protection	

IX. Special Precautions

Hygienic Practices In Handling & Storage
VIGOROUSLY ACCELERATES COMBUSTION. AVOID CONTACT WITH OILS, GREASES AND OTHER FLAMMABLE MATERIALS.

Precautions For Repair & Maintenance Of Contaminated Equipment
CONTACT MANUFACTURE AND/OR DISTRIBUTOR.

Other Precautions
NEVER LUBRICATE OXYGEN VALVES, REGULATORS, ETC. WITH ANY COMBUSTIBLE SUBSTANCE.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1368

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
THERMACOTE-WELCO COMPANY	704-739-6421
ADDRESS (Number, Street, City, State, and ZIP Code)	
HWY. 161, YORK ROAD P.O. BOX 112 KINGS MOUNTAIN, NORTH CAROLINA 28086	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	WELCO W1060 & W1200
CHEMICAL FAMILY	FORMULA

SECTION II. HAZARDOUS INGREDIENTS*

IMPORTANT! This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are covered in Section V.

Material (CAS No.)	Weight %	Exposure Limit 1984-85 TLV-TWA (OSHA PEL)
	Less Than	
Carbon (1333-86-4)	.50	3.5 mg/m^3 Carbon Black
Manganese (7439-96-5)	2.50	C 5 mg/m^3 Mn and Mn Compounds
Silicon (7440-21-3)	.50	10 mg/m^3 total dust
Copper (7440-50-8)	.50	.2 mg/m^3 (.10 mg/m^3)
Molybdenum (7439-98-7)	.75	5 mg/m^3
Iron (7439-89-6)	Bal.	5 mg/m^3 Fe_2O_3 as Fe (10 mg/m^3)

*The term "hazardous" should be interpreted as a term required and defined in the OSHA Hazard Communications Standard (29CFR 1910.1200) and does not necessarily imply the existence of any hazard. Some of the products listed may not contain all of the ingredients shown in Section II. Typical analyses can be found in the appropriate AWS Specification or from your supplier.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Copper coated or bare solid steel wire or rods.

SECTION IV. FIRE & EXPLOSION HAZARD DATA

Non-flammable. Welding arc and sparks can ignite combustible and flammable products. See ANSI Z49.1 "Safety in Welding and Cutting" referenced in Section VI for fire prevention and protection information.

SECTION V. REACTIVITY DATA

...mposition Products

...and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures used, Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed ...ngs on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and ...entilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as ...hydrocarbon vapors from cleaning and degreasing activities).

...hen the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section ... Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II, plus ...ose from the base metal and coating, etc., as noted above.

Reasonably expected fume constituents of this product would include:

Primarily oxides of iron. Secondarily complex oxides of Silicon, Manganese, Copper, and Molybdenum.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's ...elmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes" ...vailable from the American Welding Society, P. O. Box 351040, Miami, FL 33135.

SECTION VI. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: The ACGIH 1984-85 recommended limit for welding fume, not otherwise classified (NOC) is 5 mg/m³. TLV-TWA's should be ...sed as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations. See Section V for specific fume constituents ...hich may modify this TLV-TWA.

EFFECTS OF OVEREXPOSURE: Electric arc welding or oxy-fuel gas processes may create one or more of the following hazards:

- **FUMES & GASES** can be dangerous to your health. Primary route of entry is by inhalation.

  Short-term (acute) overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of the nose, throat, or eyes.

  Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung) and affect pulmonary function.

- **ARC RAYS** can injure eyes and burn skin. **HEAT RAYS** (infrared radiation from flame or hot metal) can injure eyes.

- **ELECTRIC SHOCK** can kill.

- **NOISE** can damage hearing.

- **CARCINOGENIC ASSESSMENT:** N/A

- **EMERGENCY FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by the American Red Cross. IF BREATHING IS DIFFICULT, give oxygen. Call a physician. IN CASE OF ELECTRICAL SHOCK disconnect and turn off power. IF NOT BREATHING, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin external heart massage. Immediately call a physician. IN CASE OF ARC BURN call a physician.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

...ead and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding ...d Cutting, published by the American Welding Society, P. O. Box 351040, Miami, FL 33135; OSHA Publication 2206 (29CFR1910), U. S. Government Printing ...ffice, Washington, D.C. 20402

- VENTILATION: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone ...nd the general area. Train the welder to keep his head out of the fumes. Use respirable fume respirator or air supplied respirator when welding in confined ...aces or where local exhaust or ventilation does not keep exposure below TLV. Select as per OSHA 29 CFR 1910.134.

- EYE PROTECTION: Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade that is too dark to see the weld zone and ...hange to the next lighter shade (See ANSI Z49.1). Provide protective screens and flash goggles, if necessary, to shield others.

- PROTECTION CLOTHING: Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI ...9.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as ...ell as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

- WASTE DISPOSAL: Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, ...tate, and local regulations.

Marine & Environmental Testing, Inc.

August 24, 1993

Mr. John Fling
Certified Safety Professional
Jones Oregon Stevedoring Company
2323 NW Suffolk Street
Portland, Oregon 97210

Dear Mr. Fling:

This correspondence details the findings of the Industrial Hygiene survey which Marine & Environmental Testing, Inc. conducted on behalf of Jones Oregon Stevedoring Company. The sampling was requested after CTPV's had been deposited on the dock as fugitive emissions of "Pencil Pitch" from a separate loading operation on an adjacent dock. The survey was conducted on August 6, 1993.

The intent of the survey was to conduct employee exposure monitoring to Coal Tar Pitch Volatiles (CTPV) on a forklift driver during a loading operation at the Port of Portland Berth #414. In addition, area, surface, and bulk sampling was conducted to evaluate the presence of CTPV's. Further analysis of the elevated personal and bulk samples was conducted to evaluate the presence of poly-nuclear aromatic (PNA) content of these samples.

In summary, the results of the survey indicated that while the forklift operator was not exposed to any detectable concentration of the individual PNA's associated with CTPV's, his exposure to total Coal Tar Pitch Volatiles was in excess of the established OSHA Permissible Exposure Limit.

In addition, the analysis of the contents of the vacuum truck indicated that the material was greater than 0.1% of the suspect carcinogen PNA's. This would, therefore, classify the material as a carcinogen per 29 CFR 1910.1200 (d)(5)(ii).

The attached report details the testing procedures, results and recommendations. If you have any questions concerning this report or we can be of any further service, please feel free to call me.

MARINE AND ENVIRONMENTAL TESTING, INC.

David M. Taylor
Industrial Hygienist

D16: JONES-OR. CTP
(IH-93-385)

P.O. BOX 5693 PORTLAND, OR 97228-5693 24 HOUR ANSWERING 503-282-6920 FAX: 503-282-6929

INDUSTRIAL HYGIENE SURVEY
JONES OREGON STEVEDORING COMPANY
Berth #414

August 6, 1993

Prepared by:

David M. Taylor
Industrial Hygienist

Reviewed by:

Troy D. Corbin
Certified Industrial Hygienist

INDUSTRIAL HYGIENE SURVEY
JONES OREGON STEVEDORING COMPANY
Berth #414

August 6, 1993

INTRODUCTION:

Employee health concerns during a lumber loading operation at the Port of Portland Berth 414 prompted John Fling of Jones Oregon Stevedoring to contact Marine & Environmental Testing, Inc. to conduct an Industrial Hygiene survey at the site. The intent of the survey was to evaluate employee exposure for Coal Tar Pitch Volatiles (CTPV). The survey was requested after "Pencil Pitch", a CTPV containing material, had been deposited on the dock by fugitive emissions from a separate loading operation at an adjacent dock (Berth 411). The survey was conducted on August 6, 1993.

The evaluation of employee exposure to CTPV's involved personal breathing zone sampling of the forklift operator. He was loading lumber, which was staged on the dock, into rail cars. The employee monitored was for 7½ hours of an 8-hour shift.

In addition to the personal monitoring, CTPV's levels were evaluated by area air monitoring and surface sampling. A bulk sample of the contents of a vacuum truck used to clean the affected area was also collected and analyzed for CTPV.

The surface sampling portion of the survey involved collecting four surface wipe samples on Whatman and Teflon filter papers. These were then analyzed for the presence of CTPV. Surface samples were collected from four locations around the work area of Berth 414. The samples collected included: a sample from the bundles of lumber being loaded

on the east side of Berth 414 (area nearest source of fugitive emissions); scrap lumber outside of the supercargo office/breakroom (located in middle area of Berth 414); scrap steel located between warehouses #5 and #7 (middle area of Berth 414) and vehicles located outside the maintenance shop (west side and furthest sample from source of fugitive emissions).

The bulk sampling portion of the survey involved collecting one sample from the contents of a vacuum truck. This vacuum truck had recently been used to clean the work areas of Berth 414.

Prior to the survey, the lumber loading area and surrounding area of Berth 414 had been cleaned with a vacuum truck. There was no visible accumulation of CTPV dust on the dock area around the loading operation, scrap material in the surrounding areas of Berth 414, or on the wood products being loaded. The only visible surface dust in the areas sampled for surface contamination was on the vehicles located near the maintenance shop (the area furthest from the source of the fugitive emissions).

A similar survey was conducted on March 2 and 3, 1993 on behalf of Jones Oregon Stevadoring (report dated March 25, 1992). This survey involved personal monitoring of two employees as they loaded aluminum ingots on a ship at the Port of Portland Berth 411. One of the employees was operating a forklift and the other performed "Slingman" duties. During this survey there was visible surface contamination on the dock and on the materials being loaded. That survey indicated that neither employee had an exposure to CTPV in excess of half of the OSHA Permissible Exposure Limit (PEL) of 0.20 milligrams per cubic meter (mg/m^3).

SAMPLING AND ANALYTICAL METHODOLOGY:

The personal and area air monitoring was conducted according to OSHA protocols using

SKC personal sample pumps connected via tygon tubing to closed-face 37mm, 2 micron Teflon Filters with opaque cowls. Pumps were pre- and post calibrated to the recommended flow rated to ensure accurate sample volumes. The personal air sample was conducted in the breathing zone of the employee for approximately 7½ hours of an 8 hour shift.

The surface samples were collected using Whatman 541 Ultrapure, hardened, ashless, fibrous filter papers and the Teflon filter membranes from the 37mm cassettes used in the air monitoring portion of the survey. Deionized water used as a wetting agent during the sampling process. One square foot samples were taken of representative areas as indicated by Mr. Fling.

The bulk sample was taken of the contents of the vacuum truck on the premises. The sample was collected in an 8-ounce Qorpak™ sample jar with a Teflon lid (API 2113) with an opaque covering to shield it from exposure to light.

The analysis of the samples was conducted by National Loss Control Services (NATLSCO). NATLSCO is an American Industrial Hygiene Association (AIHA) accredited laboratory located in Long Grove, Illinois.

The initial analysis of the all of the samples (personal, area, surface and bulk samples) was for Coal Tar Pitch Volatiles as a Benzene Soluble Fraction (OSHA method 58 equivalent). Further analysis was conducted on the personal air sample and bulk sample (contents vacuum truck) to determine whether the samples had significant concentrations of the five OSHA regulated poly-nuclear aromatics (PNA's). This additional analysis of the samples for the individual poly-nuclear aromatic compounds was conducted by High Pressure Liquid Chromatography (HPLC) using the OSHA 58 method equivalent.

RESULTS AND DISCUSSION:

Attachment #1 presents the results of the personal and area samples. These results should be compared to the OSHA Permissible Exposure Limit (PEL) of 0.2 mg/m^3 for Coal Tar Pitch Volatiles. The results indicate that while both of the area samples recovered (at the end of the sampling period two samples were inaccessible, and, therefore invalid) were below the PEL, the personal sample, at 0.28 mg/m^3 indicates an overexposure to CTPV's.

Attachment #2 presents the results of the surface contamination survey (wipe samples). While there are no applicable standards which relate to surface contamination, the results of the survey do indicate the presence of CTPV's surface contamination.

Attachment #3 presents the results of addition analysis of the personal air sample and bulk sample taken from the vacuum truck for the presence of the five OSHA regulated poly-nuclear aromatics (PNA) associated with CTPV's. This involved analysis for Anthracene, Benzo(a)pyrene, Pyrene, Chrysene and Phenanthrene. The results are as follows:

(1.) The analysis of the personal air sample of the forklift driver indicates that the concentrations of all five PNA's were less than the limit of detection for the laboratory (i.e. <0.00011 mg/m^3). This indicates that while the survey documented that the forklift operator had an exposure CTPV's in excess of the OSHA Permissible Exposure Limit, none of the individual PNA's (the carcinogenic material in some CTPV's) were present in significant quantity.

(2.) The analysis of the bulk sample revealed that several of the PNA's which are OSHA targeted suspect carcinogens were present. A weight by

weight analysis indicated that the presence of the these PNA's in the material collected from the dock exceeded 0.1% of the total sample weight.

The OSHA regulations in 29 CFR 1910.1200 (d)(5)(ii) indicate that if a material contains more than 0.1% of a cancer causing agent, the material must be considered a carcinogen.

CONCLUSIONS AND RECOMMENDATIONS:

The results of the personal monitoring indicate that while the forklift operator was not exposed to any detectable concentration of the individual PNA's associated with CTPV's (carcinogenic portion), his exposure to Coal Tar Pitch Volatiles was in excess of the established OSHA Permissible Exposure Limit. Therefore, the following measures should be taken:

(1.) Engineering controls should be used to lower or eliminate the overexposures. Engineering controls may include items such as controlling the fugitive emissions from the adjacent facility, additional cleaning of the dock area, and possible wetting of the dock area to suppress dust generation.

(2.) Employees who perform this and similar operations should wear personal protective equipment during potential exposure times. The personal protective equipment should include respirators, protective clothing (tyvek, gloves) and barrier cream on uncovered skin.

(3.) Additional monitoring should be conducted on future jobs to adequately characterize exposures for various duties, weather and wind conditions, levels of contamination present, etc.

The contents of the vacuum truck should be disposed of appropriately. Personal protective equipment should be worn by the employees conducting the operation. In addition, personal exposure monitoring should be conducted to document the exposure levels during this operation.

INDUSTRIAL HYGIENE SURVEY

JONES OREGON STEVEDORING COMPANY
Berth #414

March 2, 1992

ATTACHMENT #1
COAL TAR PITCH VOLATILE AIR QUALITY SURVEY

SAMPLE #	TIME START: STOP: (TOTAL)	FLOW RATE BEG: END: (AVG)	SAMPLE DESCRIPTION	ANALYTE	RESULTS (mg/m3)
86-1	08:55 16:40 (465)	1.99 1.94 (1.96)	Personal sample of Steve Gill (Employee # 81467) loading wood products in rail area of Berth 414. Off site at 1630. Two hours loading in open dock area. Balance of time in Warehouse #6.	CTPV's (as BSF)	0.28
86-2	09:02 ----- (----)	1.97 ----- (----)	Area sample of east side of Warehouse #5 (SW corner).	CTPV's (as BSF)	Sample missing.
86-3	09:06 17:00 (474)	1.99 1.98 (1.98)	Area sample between Warehouses #5 and #7 (west side).	CTPV's (as BSF)	0.053
86-4	09:10 ----- (----)	1.99 ----- (----)	Area sample of west side of Maintenance Shop.	CTPV's (as BSF)	Sample inaccessible.
86-5	09:14 16:46 (452)	2.00 2.00 (2.00)	Area sample of buoy #11 (light stanchion).	CTPV's (as BSF)	0.033
86-6			Blank.	CTPV's (as BSF)	Subtracted.

mg/m^3: Milligrams per cubic meter.
BSF: Benzene Soluble Fraction.
OSHA Permissible Exposure Limit (PEL) for Coal Tar Pitch Volatiles: 0.2 mg/m^3

INDUSTRIAL HYGIENE SURVEY
JONES OREGON STEVEDORING COMPANY
Berth #414

March 2, 1992

ATTACHMENT #2
COAL TAR PITCH VOLATILE SURFACE SAMPLE RESULTS

SAMPLE #	SAMPLE DESCRIPTION	ANALYTE	RESULTS (micrograms)
BS-1	Wipe sample taken from covering on lumber located in Lane #5, Section #18.	CTPV's (as BSF)	1260
BS-2	Wipe sample taken from scrap wood near Supercargo Office/Breakroom.	CTPV's (as BSF)	820
BS-3	Wipe sample taken from vehicle windshield in fenced area of Maintenance Shop yard.	CTPV's (as BSF)	9730
BS-5	Blank.	CTPV's (as BSF)	Subtracted.

mg/m^3: Milligrams per cubic meter.
BSF: Benzene Soluble Fraction.
OSHA Permissible Exposure Limit (PEL) for Coal Tar Pitch Volatiles: 0.2 mg/m^3

INDUSTRIAL HYGIENE SURVEY

JONES OREGON STEVEDORING COMPANY
Berth #414

March 2, 1992

ATTACHMENT #3
POLY-NUCLEAR AROMATIC (PNA) ANALYSIS RESULTS

SAMPLE #	TIME START: STOP: (TOTAL)	FLOW RATE BEG: END: (AVG)	SAMPLE DESCRIPTION	ANALYTE	RESULTS (mg/m3)
86-1	08:55 16:40 (465)	1.99 1.94 (1.96)	Personal sample of Steve Gill (Employee # 81467) loading wood products in rail area of Berth 414. Off site at 1630. Two hours loading in open dock area. Balance of time in Warehouse #6.	CTPV (as BSF) Anthracene Benzo(a)pyrene Pyrene Chrysene Phenanthrene	0.28 <0.00011 <0.00011 <0.00011 <0.00011 <0.00011
86-6	09:02 ----- (----)	1.97 ----- (----)	Blank.	CTPV (as BSF) Anthracene Benzo(a)pyrene Pyrene Chrysene Phenanthrene	Subtracted Subtracted Subtracted Subtracted Subtracted Subtracted
BS-4	----- ----- -----	----- ----- -----	Bulk sample of contents of vacuum truck.	CTPV (as BSF) Anthracene Benzo(a)pyrene Pyrene Chrysene Phenanthrene	35% <0.0098% 0.23% 0.24% 0.19% 0.079%

CTPV: Coal Tar Pitch Volatiles.
%: Percent.
mg/m^3: Milligrams per cubic meter.
BSF: Benzene Soluble Fraction.
OSHA Permissible Exposure Limit (PEL) for Coal Tar Pitch Volatiles: 0.2 mg/m^3

MAUL FOSTER ALONGI INC.

0 500 1,000
Feet

N

Figure 1
Tax Lot Boundaries
Port of Portland
Terminal 4
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2006) obtained from Environmental Systems Research Institute; tax lot data (2008) obtained from Metro Data Resource Center

Legend

Tax Lot Boundaries

File: X:\0428.01\Projects\Fig1_Tax Lot Boundaries.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

MAUL FOSTER ALONGI INC.

0 250 500
Feet

N

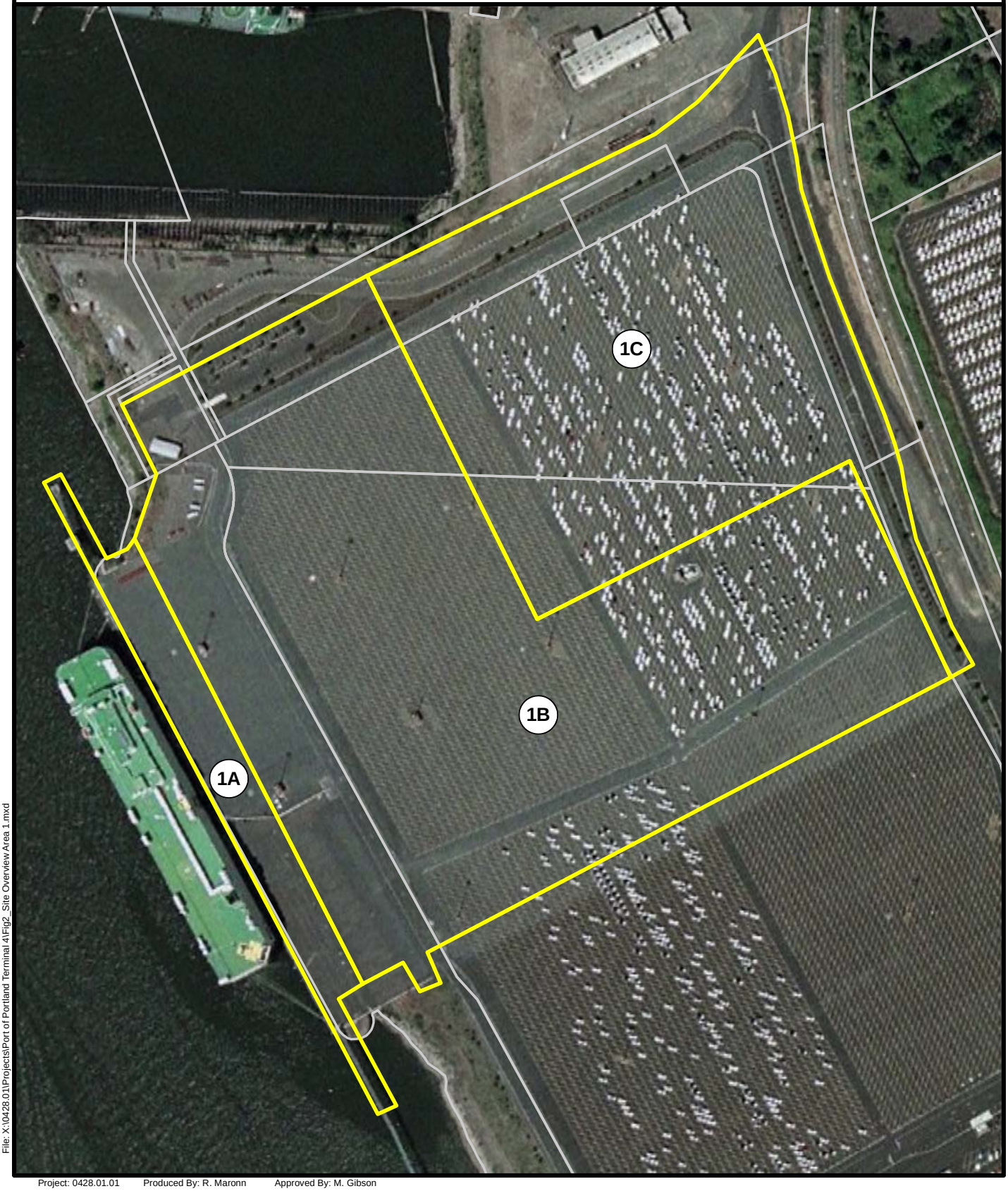
Figure 2
Site Overview
Port of Portland
Terminal 4 - Area 1
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2006) obtained from Environmental Systems Research Institute; tax lot data (2008) obtained from Metro Data Resource Center

Legend

Historical Site Boundaries

Current Tax Lot Boundaries



File: X:\0428.01\Projects\Port of Portland Terminal 4\Fig2_Site Overview Area 1.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

May 9, 1991

RECEIVED
MAY 15 1991
JONES OREGON STEVEDORING CO

Mr. David K. Bowman
Jones Oregon Stevedoring Company
P.O. Box 10167
Portland, OR 97210

Re: NPDES Permit for Transportation Industry

Dear Mr. Bowman:

As far as I can determine, your interpretation of the federal rules is correct. However, EPA is the final say on their rule interpretation. If there are any areas about which you are unsure, you may want to contact them. According to the way I interpret the federal rules, all of the categories of SIC codes specifically listed in the transportation facilities categories require a storm water permit only if there are areas associated with vehicle maintenance, equipment cleaning, repairs, painting, lubrication, and fueling. For example, is there is automobile dead storage, it would not be covered unless there is vehicle maintenance or cleaning at the site. If those activities did take place, it would be covered by the rules.

In the explanation in the rules as to what is covered at each industrial SIC code designated, it discusses "industrial plant yards; immediate access roads and rail lines; **material handling sites**; refuse sites; sites used for the application or disposal of process waste waters; **sites used for the storage and maintenance of material handling equipment**, sites used for residual treatment, storage, or disposal; **shipping and receiving areas**; manufacturing buildings; **storage areas (including tank farms)** and areas where industrial activity has taken place in the past". I assume that these areas listed would be covered if directly a part of or associated with a manufacturing facility, whether on site or remote. However, if the facilities were not owned or operated by the manufacturing facility covered by the rules, I do not believe that they would require a storm water permit.

Sincerely Yours,

Charles K. Ashbaker, Manager
Industrial & On-Site Waste Section
Water Quality Division

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696

MAUL FOSTER ALONGI INC.

0 200 400
Feet

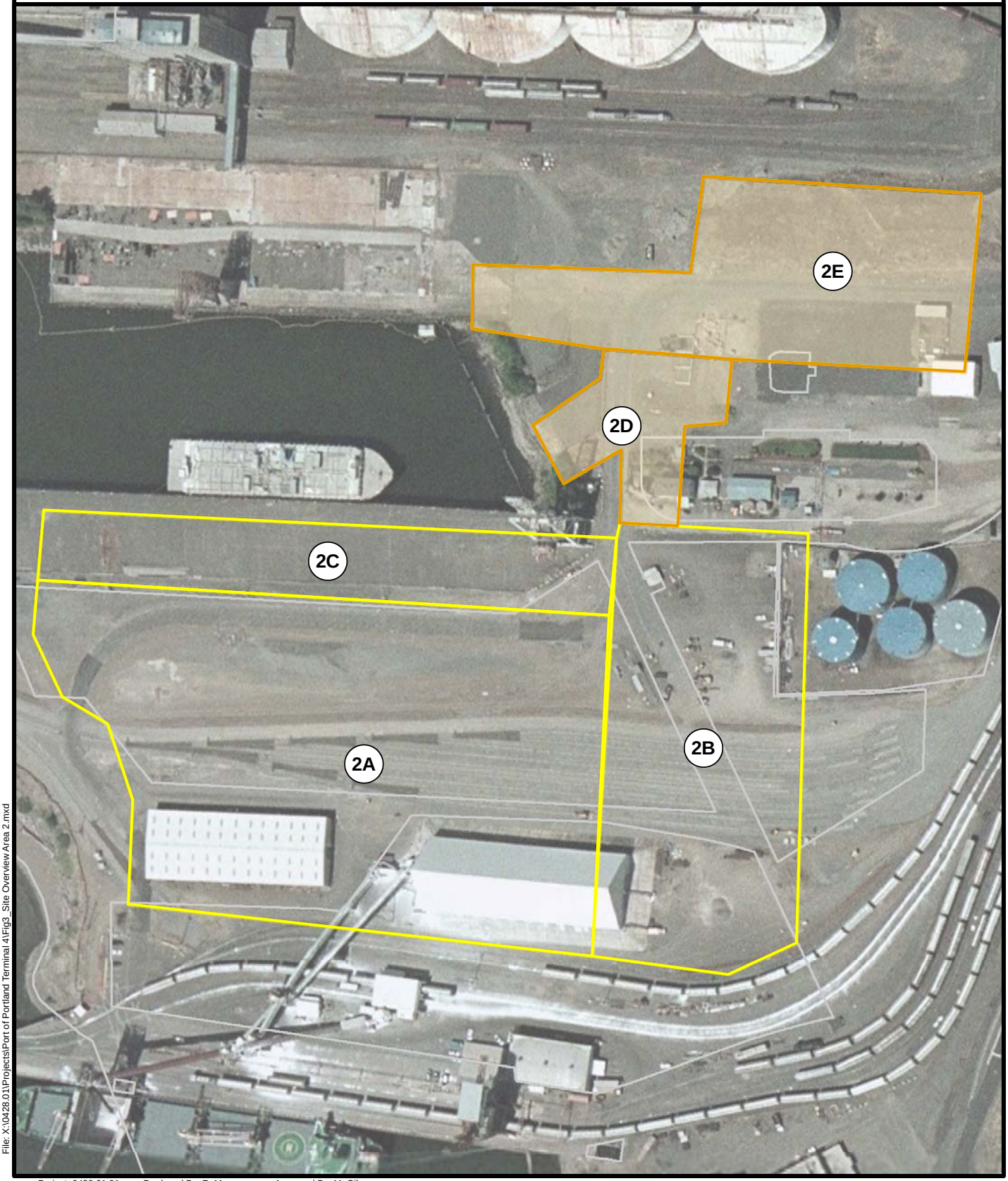
N

Figure 3
Site Overview
Port of Portland
Terminal 4 - Area 2
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2006) obtained from Environmental Systems Research Institute; tax lot data (2008) obtained from Metro Data Resource Center

Legend

- Historical Site Boundaries
- Non-utilized Areas
- Current Tax Lot Boundaries



File: X:\0428.01\Projects\Port of Portland Terminal 4\Fig3_Site Overview Area 2.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

MAUL FOSTER ALONGI INC.

0 80 160
Feet

N

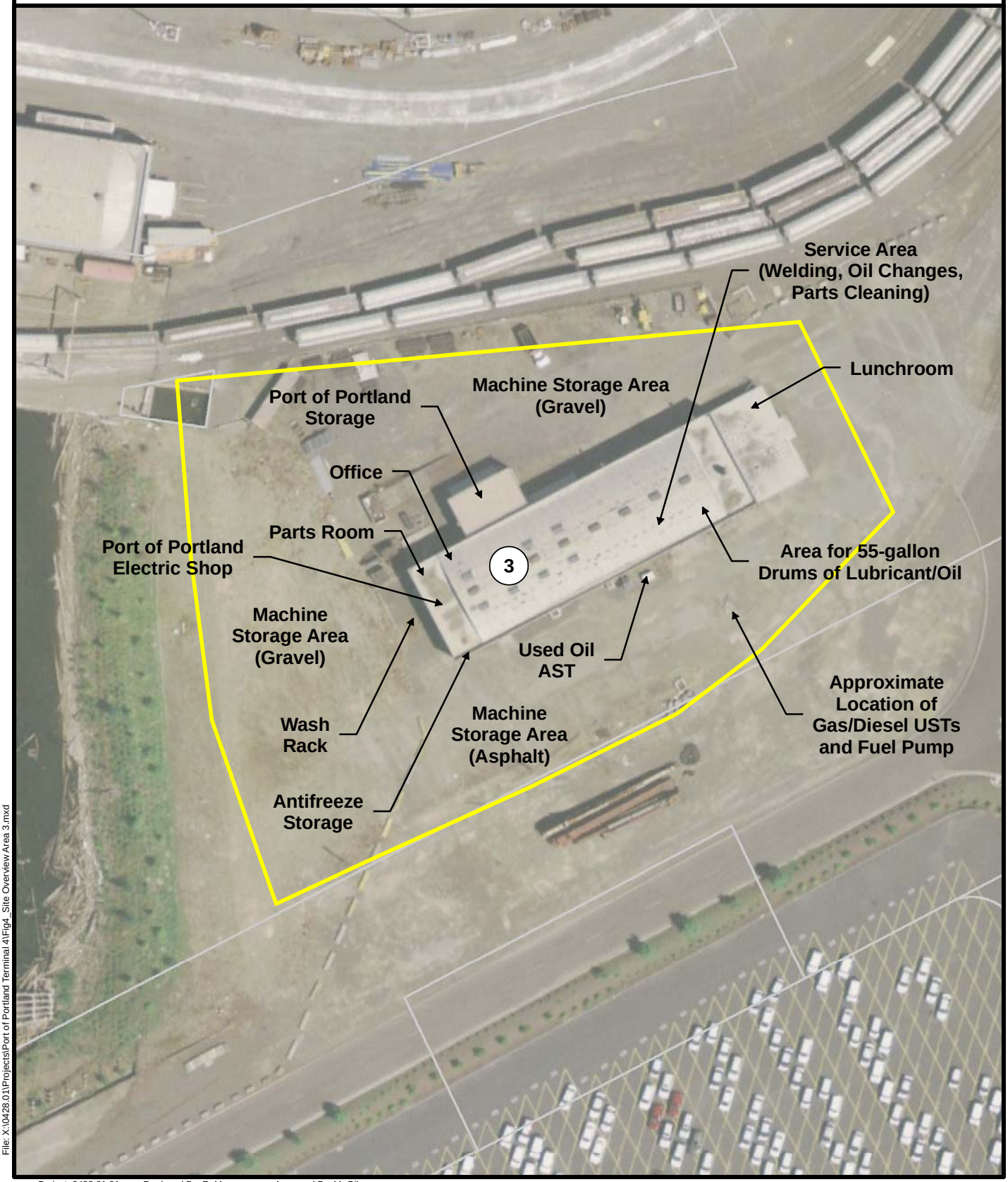
Figure 4
Site Overview
Port of Portland
Terminal 4 - Area 3
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2006) obtained from Environmental Systems Research Institute; tax lot data (2008) obtained from Metro Data Resource Center

Legend

Historical Site Boundaries

Current Tax Lot Boundaries



File: X:\0428.01\Projects\Port of Portland Terminal 4\Fig4_Site Overview Area 3.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

MAUL FOSTER ALONGI INC.

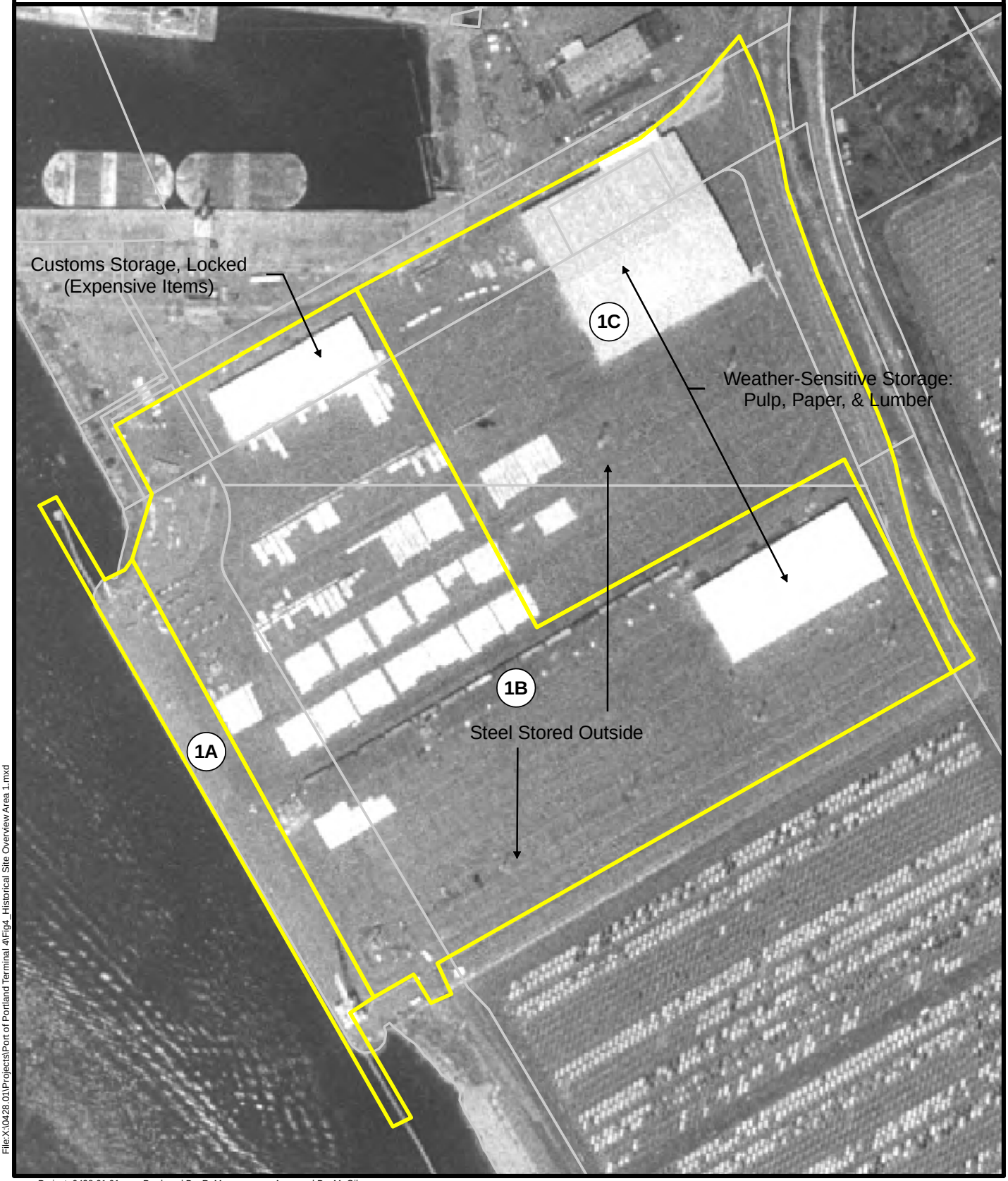
0 250 500
Feet

N

Figure 5
Historical Site Overview
Port of Portland
Terminal 4 - Area 1
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2000) obtained from U.S. Department of Agriculture; tax lot data (2008) obtained from Metro Data Resource Center

Legend
Historical Site Boundaries
Current Tax Lot Boundaries



File:X:\0428.01\Projects\Port of Portland Terminal 4\Fig4_Historical Site Overview Area 1.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

MAUL FOSTER ALONGI INC.

0 200 400
Feet

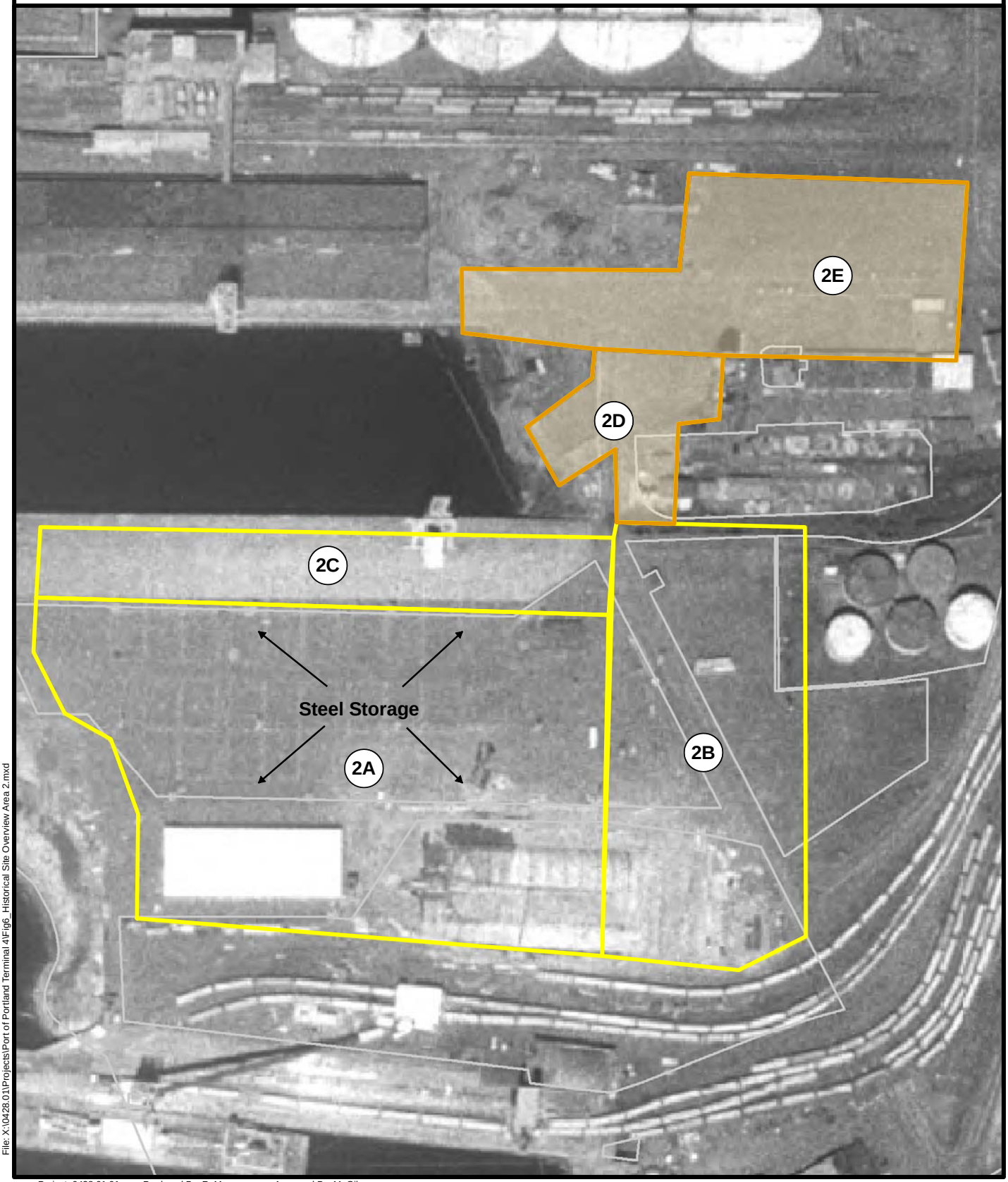
N

Figure 6
Historic Site Overview
Port of Portland
Terminal 4 - Area 2
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2000) obtained from U.S. Department of Agriculture; tax lot data (2008) obtained from Metro Data Resource Center

Legend

- Historic Site Boundaries
- Non-utilized Areas
- Current Tax Lot Boundaries



File: X:\0428.01\Projects\Port of Portland Terminal 4\Fig6_Historical Site Overview Area 2.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

MAUL FOSTER ALONGI INC.

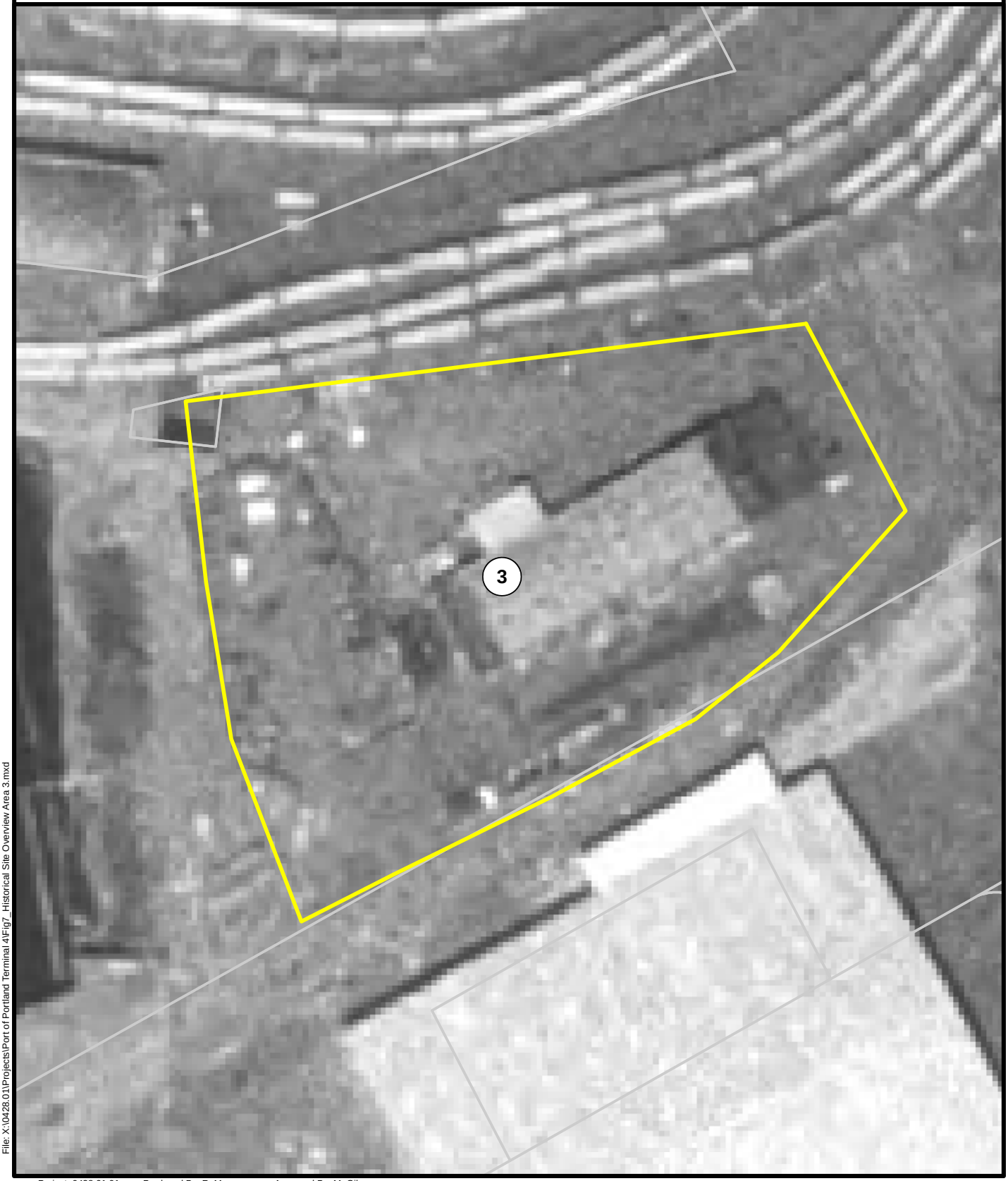
0 80 160
Feet

N

Figure 7
Historical Site Overview
Port of Portland
Terminal 4 - Area 3
Portland, Oregon

Site is located within Linnton Quadrangle:
Section 2, Township 1N, Range 1W
Source: Aerial photograph (2000) obtained from U.S. Department of Agriculture; tax lot data (2008) obtained from Metro Data Resource Center

Legend
Historical Site Boundaries
Current Tax Lot Boundaries



File: X:\0428.01\Projects\Port of Portland Terminal 4\Fig7_Historical Site Overview Area 3.mxd

Project: 0428.01.01 Produced By: R. Maronn Approved By: M. Gibson

Table 1
Question 21: Waste and Materials
Oregon Terminal Company
Portland, Oregon

Name	How/Where Managed	Type of Storage Container	Dates Used	Physical State	Type of Material/Chemical Composition	Hazards	Average Amount on Site	Purpose
Propane	along fence west of gearlocker	AST	1989-1996	gas	propane	flammable gas	10,000-49,000 cubic feet	propane lift-trucks
#2 diesel fuel	east of gearlocker (UST) and back of gearlocker to power steam cleaner	UST	1989-1996	liquid	contains trimethyl benzene	flammable liquid	1,000 - 4,999 gallons	refueling for Port and used to fuel steam cleaner in wash rack area
Unleaded regular gasoline	east of gearlocker (UST)	UST	1989-1996	liquid	contains toluene	flammable liquid	1,000 - 4,999 gallons	refueling for Port
Antifreeze	outside at SW corner of gearlocker	steel drums	1989-1996	liquid	contains ethylene glycol		200-499 gallons	coolant
Motor oil	NE side of gearlocker in oil shed	steel drums	1989-1996	liquid	petroleum distillate	combustible material	200-499 gallons	lubricant
Hydraulic / transmission oil	NE side of gearlocker in oil shed	steel drums	1989-1996	liquid	petroleum distillate	combustible material	200-499 gallons	lubricant
Gear oil	NE side of gearlocker in oil shed	steel drums	1989-1996	liquid	petroleum distillate	combustible material	200-499 gallons	lubricant
Solvent	inside gearlocker along S side of NW wall	steel drums	1989-1996	liquid	C9-C13 saturated hydrocarbon	combustible material	20-49 gallons	parts cleaner
Acetylene	welding shop in NW side of gearlocker, small amount in gearlocker	cylinders	1989-1996	gas	acetylene	flammable gas	500-999 cubic feet	power welding equipment
Oxygen	welding shop in NW side of gearlocker, small amount in gearlocker	cylinders	1989-1996	gas	oxygen	nonflammable gas	500-999 cubic feet	power welding equipment
Waste oil	outside (AST) on SE side of gearlocker	AST	1989-1996	liquid	petroleum distillate	combustible material	200-499 gallons	generated from changing out oil in equipment on site

Table 1
Question 21: Waste and Materials
Oregon Terminal Company
Portland, Oregon

Name	How/Where Managed	Type of Storage Container	Dates Used	Physical State	Type of Material/Chemical Composition	Hazards	Average Amount on Site	Purpose
853 cleaner / degreaser	inside gearlocker next to central NW wall	plastic or non-metallic drum	1989-1996	liquid	contains 2-butoxyethanol	corrosive	20-49 gallons	parts cleaner
Empty paint / aerosol containers	gearlocker	dumpster at Suffolk address	1989-1996	solid	none	none	unknown	--
Paints / thinners	gearlocker	metal cans	1989-1996	liquid	acetone, xylene, toluene, methylene chloride, ketones, mineral spirits	extremely flammable	unknown	maintenance
Water conditioner	gearlocker	plastic or nonmetallic drum	1989-1996	liquid	sodium hydroxide, monoethanolamine	pH 13.0, non-flammable	unknown	maintenance
Aerosol brake fluid	gearlocker	aerosol cans	1989-1996	liquid	non-chloride		unknown	maintenance
Anti-seize lubricants	gearlocker	aerosol cans	1989-1996	liquid	methylene chloride	extremely flammable	unknown	maintenance
Paper pulp	warehouses	none—in bundles	1989-1996	solid	paper	none	unknown	stored, awaiting shipment
Lumber	warehouses	none	1989-1996	solid	wood	none	unknown	stored, awaiting shipment
Steel	outside on Parcel 2A	none	1989-1993	solid	metal	none	unknown	stored, awaiting shipment
Steel	outside on Parcels 1B and 1C	none	1989-1993	solid	metal	none	unknown	stored, awaiting shipment

Table 2
Question 36: Disposed-of Waste
Oregon Terminal Company
Portland, Oregon

Name	Physical State	Type of Material/Chemical Composition	Color	Odor	Average Volumes per month/year	Dates Produced
Solvent	liquid	C9-C13 saturated hydrocarbon	unknown	unknown	unknown	1989-1996
Waste oil	liquid	petroleum distillate	black	hydrocarbon	unknown	1989-1996
853 cleaner/degreaser	liquid	contains 2-butoxyethanol	unknown	unknown	unknown	1989-1996
Aerosol containers	solid	aluminum	none	none	unknown	1989-1996
Empty paint cans	solid	aluminum	none	none	unknown	1989-1996
Oil filters	solid	petroleum distillate	black	hydrocarbon	unknown	1989-1996
Hydraulic oil sediment	solid	sediment, petroleum distillate	unknown	hydrocarbon	unknown	1989-1996
Petroleum-contaminated soil	solid	petroleum distillate	black	petroleum	one-time cleanup, volume unknown	1991 (UST cleanup) 1992 (oil shed cleanup)

Business Registry Business Name Search

New Search

Business Entity Data

07-20-2008
07:50

Registry Nbr	Entity Type	Entity Status	Jurisdiction	Registry Date	Duration Date	Renewal Date
126642-15	DBC	ACT	OREGON	02-15-1978		
Entity Name	OREGON TERMINAL COMPANY					
Foreign Name						

New Search

Associated Names

Type	PPB	PRINCIPAL PLACE OF BUSINESS				
Addr 1	2323 NW SUFFOLK ST					
Addr 2	PO BOX 10167					
CSZ	PORTLAND	OR	97210		**Country**	UNITED STATES OF AMERICA

Please click here for general information about registered agents and service of process.

Type	AGT	REGISTERED AGENT			**Start Date**	01-11-1994	**Resign Date**		
Name	CLAYTON		R	JONES	III				
Addr 1	2323 NW SUFFOLK ST								
Addr 2									
CSZ	PORTLAND	OR	97210		**Country**	UNITED STATES OF AMERICA			

Type	MAL	MAILING ADDRESS				
Addr 1	PO BOX 10167					
Addr 2						
CSZ	PORTLAND	OR	97210		**Country**	UNITED STATES OF AMERICA

Type	PRE	PRESIDENT					**Resign Date**		
Name	CLAYTON		R	JONES	III				
Addr 1	2323 NW SUFFOLK ST								
Addr 2									
CSZ	PORTLAND	OR	97210		**Country**	UNITED STATES OF AMERICA			

Type	SEC	SECRETARY					**Resign Date**		
Name	JAY		D	MARSHALL					
Addr 1	2323 NW SUFFOLK ST								
Addr 2									
CSZ	PORTLAND	OR	97210		**Country**	UNITED STATES OF AMERICA			

New Search

Name History

Business Entity Name	Name Type	Name Status	Start Date	End Date
OREGON TERMINAL COMPANY	EN	CUR	06-14-1982	
OREGON IMPORT AUTOMOBILE TERMINAL, INC.	EN	PRE	02-15-1978	06-14-1982

Please read before ordering Copies.

New Search

Summary History

Image Date	Action	Transaction Date	Effective Date	Status	Name/Agent Change	Dissolved By
02-12-2008	ANNUAL REPORT PAYMENT	02-12-2008		SYS		
02-13-2007	ANNUAL REPORT PAYMENT	02-13-2007		SYS		
02-16-2006	ANNUAL REPORT PAYMENT	02-16-2006		SYS		
01-27-2005	ANNUAL REPORT PAYMENT	01-27-2005		SYS		
02-11-2004	ANNUAL REPORT PAYMENT	02-11-2004		SYS		
02-11-2003	ANNUAL REPORT PAYMENT	02-11-2003		SYS		
02-12-2002	ANNUAL REPORT PAYMENT	02-12-2002		SYS		
02-08-2001	ANNUAL REPORT PAYMENT	02-08-2001		SYS		
02-15-2000	STRAIGHT RENEWAL	02-15-2000		FI		
02-11-1999	STRAIGHT RENEWAL	02-01-1999		FI		
02-20-1998	NOTICE	02-23-1998		SYS		
02-24-1998	STRAIGHT RENEWAL	02-19-1998		FI		
02-21-1997	NOTICE	02-24-1997		SYS		
03-03-1997	STRAIGHT RENEWAL	02-14-1997		FI		
02-23-1996	NOTICE	02-26-1996		SYS		
02-27-1996	STRAIGHT RENEWAL	02-12-1996		FI		
02-08-1995	AMENDED RENEWAL	02-08-1995		FI		
01-26-1994	AMENDED RENEWAL	01-11-1994		FI		
01-26-1994	AGENT/AUTH REP CHNG	01-11-1994		FI		
02-24-1993	STRAIGHT RENEWAL	02-18-1993		FI		
02-14-1992	STRAIGHT RENEWAL	02-14-1992		FI		
01-23-1991	STRAIGHT RENEWAL	01-16-1991		FI		
01-19-1990	STRAIGHT RENEWAL	01-11-1990		FI		
02-21-1989	STRAIGHT RENEWAL	02-15-1989		FI		
01-07-1988	STRAIGHT RENEWAL	01-07-1988		FI		
01-22-1987	AMENDED RENEWAL	01-14-1987		FI		
01-28-1986	STRAIGHT RENEWAL	01-21-1986		FI		
01-18-1985	STRAIGHT RENEWAL	12-27-1984		FI		
06-14-1982	ENTITY NAME CHANGE	06-14-1982		FI		

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Service Requests | Accessibility | **Business** | Charter, Code & Policy | Community | Construction
POL → Services → Business → **Business License Lookup** Search for business licenses online

Revenue Bureau: Business Lookup

This site was developed to assist citizens in confirming that businesses operating in the City of Portland are properly licensed and to provide an easy way to report an unlicensed business.

Search for Businesses

Business Name Oregon Terminal Company Search (use % for wildcard)

OR

Address Search

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Links Help
Who is Required to Obtain a Business License?
Report an unlicensed business

Business Detail

Status **In Compliance**

Doing Business As
OREGON TERMINAL COMPANY

Address(es)

PO Box 3736	SEATTLE WA 98124
2323 NW SUFFOLK ST	PORTLAND OR 97210

NAICS Description

DISCLAIMER: It is important to note that the Bureau's database is only as good as the information given to the Bureau by the business. There are many reasons why you may not be able to locate a business. If you want further assistance, please contact the Bureau directly at 503-865-2475. Alternatively, you may wish to also search the Oregon Secretary of State Business Registry for similar information.

Searches in Last 7 Days: **626** / Searches Since 3/8/2006: **108,424**

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CERCLA Section 104(e) Nomination Summary: Oregon Terminal Co.

Portland Harbor Superfund Site

I. Nominee and Corporate Status

Nominee	Contact Address
Oregon Terminal Co.	Clayton R. Jones III President Oregon Terminal Co. 2323 NW Suffolk St Portland, Oregon 97210

See Attachment 1 for corporate history.

II. Associated Parcel(s)

Parcel Number	Tax ID Number
231	R323818

See Attachment 2 (Base Map excerpt).

III. Period and Nature of Operations within Study Area[1]

Identified Date(s) of Operation: ~~1985~~-1996
1/3/89

Operations: Operation of break-bulk berths & gearlocker

IV. Hazardous Substances Released and Discharge Pathway

Oregon Terminal Co. (OTC) occupied the former blending and packaging building constructed at Terminal 4 at the head of Slip 3 by Quaker State in 1985. The facility was converted to use as a gearlocker and electrical shop. In 1988 OTC took over all break-bulk berths at Pier 2 (including Berth 408, the ro-ro dock and associated warehouses). At the time OTC took over Pier 2 operations, a rail-covered work pit was built adjacent to the gearlocker building. Further, two 4,000-gallon USTs were installed for dispensing of gasoline and diesel at a fueling station on the south side of the gearlocker building. Based upon corporate research this entity is likely linked with Jones Stevedoring Co. (See standalone Jones Stevedoring narrative report.) Both have the same president, operated at the former Quaker State building and left the property in 1996.

note: installation pre-dated OTC lease, OTC never used this area.

[1] Information reported in Sections III and IV is based on currently available documents.

V. Information Sources[2]

Blasland, Bouck & Lee, Inc. EE/CA Report, Public Review Draft. 2005.

[2] Supporting documents to be provided upon request.

Corporate History for Oregon Terminal Company

Oregon Terminal Company is an active Oregon business corporation the originally registered to do business in February 1978.

History of OREGON TERMINAL COMPANY

2/15/1978	Started as Oregon Import Automobile Terminal, Inc. – No work every done by OIAT, Inc.
6/14/1978	NAME CHANGE Oregon Terminal Company
1/3/1989	Contract commenced for operations at Terminal 4 – Portland, Oregon
2/3/1989	First OCT Amendment
10/11/1990	Second OTC Amendment
9/14/1993	Third OTC Amendment – Hall Buck took over part of Terminal 4
1993 to 1996	Little or no work at OTC

Exhibit #1 -- BBL May 31, 2005 Report to POP
Exhibit #2 -- Letter to Mr. Jones from David Batson with CERCLA Attached.

BBL report to Port of Portland – page 2-20

"Railroad covered work pit was constructed west of the gearlocker at time"
Clarification needs to be entered into record. Prior to 1/3/1989, POP used the "Gearlocker" for their use. The POP had railroad engines that were serviced by the POP employees on this Work Pit area. JSC nor OTC did not use this railroad pit area.

"In addition, one 4000 gallon UST for diesel and one 4000 gallon UST for gasoline were installed with fueling station on the south side of the gearlocker building."
OTC started operation on 1/3/1989 at Terminal 4. **Memo to Mr. Myron Salo, POP on 4/27/1989 & 5/2/1989** asked POP for information regarding their previously installed (2) 4000 gallon tanks. **Memo suggest that our gearlocker operation started on 5/1/1989.** We needed the POP to provide EPA certification of these tanks, plus pump out the tanks prior to our starting date of operations.

Memo dated 6/28/1989 to Mr. Salo regarding Pencil Pitch Spill

Memo dated 7/12/1989 to Mr. Salo regarding Electrical Transformers.

"An equipment wash station was installed on the slip side of the building, the was station drained to the sanitary sewer".
Memo dated 7/27/1989."We are currently using our steam cleaning at the previously existing POP steam cleaning site".**1/2/1990 Memo** stated that we were going to add our oil separation operation.

Memo 1/2/1990 OTC was adding a Oil Separation operation .
Memo 4/16/1990 Information about waste oil tank and oil removal

Oregon Terminal Company

Started as:

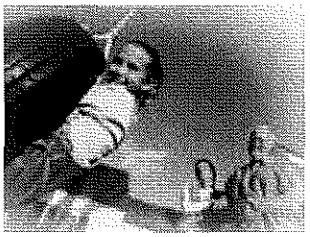
Oregon Import Automobile Terminal, Inc
2-15-1978

Name changed 6-14-1982 to:

Oregon Terminal Company

No biz ever done by OIAT, Inc.

Oregon Terminal continues in existence today, though no biz done since guest dormy "T-4" biz.



Land Quality

Environmental Cleanup

Environmental Cleanup Site Information (ECSI) Database
Site Summary Report - Details for Site ID 272, Port of Portland - Terminal 4

This report shows data entered as of August 22, 2008 at 11:44:55 AM

This report contains site details, organized into the following sections: 1) Site Photos (appears only if the site has photos); 2) General Site Information; 3) Site Characteristics; 4) Substance Contamination Information; 5) Investigative, Remedial and Administrative Actions; and 6) Site Environmental Controls (i.e., institutional or engineering controls; appears only if DEQ has applied one or more such controls to the site). A key to certain acronyms and terms used in the report appears at the bottom of the page.

Go to DEQ's Facility Profiler to see a site map as well is information on what other DEQ programs may be active at this site.

General Site Information

Site ID: 272	Site Name: Port of Portland - Terminal 4		CERCLIS No: 987172509	
Address:	11040 N Lombard St. Portland 97203			
	County: Multnomah		Region: Northwest	
Other location information:	Former street address: 9504 N Bradford St.			
Investigation Status:	Listed on CRL or Inventory			
	Brownfield Site: No	NPL Site: No	Orphan Site: No	Study Area: No
Property:	Twnshp/Range/Sect: 1N , 1W , 2		Tax Lots: 110,42,102,93,119,124	
	Latitude: 45.6033 deg.	Longitude: -122.773 deg.	Site Size: 145.7 acres	

Other Site Names:
Hall-Buck Marine Inc.
Oregon Terminal Company (OTC)
OTC Gearlock Maintenance Facility (Former)
Quaker State Oil Co.
UPRR - Product Transfer Pipeline (Former)
Portland Harbor Sediment Study

Site Characteristics

General Site Description:

Site History:

Contamination Information:	(1/31/91 MJZ/SAS) Pencil pitch (coal tar pitch) has repeatedly, over the years, been spilled into the water at Terminal 4's Slip 3, and has contaminated sediments. Pencil pitch is a suspected carcinogen that can harm humans through skin contact, inhalation, or ingestion. Pollution control experts say they know little about its effects on fish. Specific pencil pitch spills occurred 10/16/87, 3/28/86, and 6/18/97. (3/24/97 SMF/SAS) 35,000 cubic yards of pencil-pitch contaminated sediments were removed from Slip 3 (Removal Action - EPA lead agency; December 1994 through January 1995) under federal Consent Decree (May 1993). Confirmation sediment sampling after the 1994/95 removal indicated that significant PAH and metals contamination remained. Subsurface investigations on the upland portion of Terminal 4 also indicate extensive LNAPL contamination (as diesel fuel, with oil also detected in places), which has been discharging through active seeps to Slip 3 since 1971. The most recent pencil pitch spill (6/18/97) is estimated at 500 - 1,000 pounds and required additional cleanup.
Manner and Time of Release:	Coal tar pitch repeatedly spilled from shore-based crane and shoveled into river. Time of release: 3/28/86, 10/16/87, 6/18/97 (others possible). Apparent diesel fuel release from underground Union Pacific Railroad fuel-transfer pipeline. (Time of known releases Nov./Dec. 1970; others possible.) Various other apparent diesel fuel and oil releases (especially eastern portion of site) of unclear origin, but former UPRR fuel storage facility (ECSI #2017) is one likely source of petroleum actively seeping to river at Slip 3.
Hazardous Substances/Waste Types:	Pencil pitch (coal tar pitch) - polynuclear aromatic hydrocarbons (Slip 3). #1 and #2 diesel fuel (soils, groundwater, possibly in Slip 3 sediments). Oil (subsurface soils, groundwater, possibly in Slip 3 sediments). Metals (antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc) (Slip 3 sediments). DDE and DDD (Slip 3 sediments). Possibly solvents (subsurface soils). Tributyl tin (Slip 3 sediments and along waterfront).
Pathways:	Surface waters of Willamette River, sediments in river (aquatic organisms; consumers of fish). Potential trench-worker exposure to petroleum-contaminated subsurface soils and groundwater. The Port of Portland maintains a "Municipal" Water Right within the river at Terminal 4, although it has not been exercised for drinking-water purposes. The most significant threat appears to be to aquatic life in the river. There are residential properties within 100 meters of the NE corner of the project area.
Environmental/Health Threats:	Surface water and food chain. Potential "trench-worker" exposure to petroleum contaminated subsurface soils and groundwater. A "Municipal Drinking Water Supply" water right within the river at Terminal 4, held by Port of Portland COULD be exercised, although the Port has no long-range plans to do so (water is currently used for irrigation and washdown, so there is the potential to expose on-site workers to contaminated surface water). Primary threat is believed to be to the river's aquatic life, and to consumers of fish caught from the river.
Status of Investigative or Remedial Action:	(1/31/91 MJZ/SAS) During one spill incident the cleanup crew was able to recover only 1 gallon of material (pencil pitch) from surface water. The material readily sinks and it is assumed that it sunk to the bottom of the river. (3/24/97 SMF/SAS) 35,000 cubic yards of pencil pitch contaminated sediments were removed and transported to Ross Island

Lagoon for burial during December 1994 - January 1995 (court-ordered removal action; lead agency: EPA). The Slip 3 cleanup criterium was 0.5 percent pencil pitch (maximum) remaining in Slip 3 sediments. An "interim" groundwater remediation system was activated along the eastern edge of Slip 3 during February 1993 to capture free product and contaminated groundwater before it discharged to the river. This groundwater remediation has not been capable of intercepting all free product and contaminated groundwater discharging to Slip 3. (11/4/98 TER/VCP) The Port drained and removed one of UPRR's abandoned pipelines in 1998. Workplans for completing remedial investigation of the upland area and sediments were submitted to DEQ in August 1998. Site work was completed in October 1998. An interim action to address ongoing petroleum seepage to Slip 3 has been proposed. (4/19/00 TER/VCP) Bioslurping interim action in place. Upland RI submitted. (9/26/00 TER/VCP) Upland risk assessment submitted, sediment RI submitted, upland FS in preparation. (5/7/03 TER/VCS) FS completed in July 2002. Staff Report prepared and submitted for comments by EPA, trustees, the Port, and the public. The Record of Decision was signed in April 2003. The proposed remedial action includes removal of NAPL and contaminated groundwater through extraction wells and removal of contaminated soil at the Slip 3 riverbank. The Port is conducting pilot testing for the remedial design. (7/5/05 TER/VCS) The excavation of contaminated riverbank soil and backfill with absorptive fill was completed in fall 2004. Compliance monitoring wells have been installed in the Slip 3 riverback. The Port continues LNAPL recovery and monitoring as part of the remedy. Additional work is required in the former Quaker State area, areas identified with pencil pitch contamination, and to assess stormwater.

Data Sources: NWR DEQ WQ Source files; correspondence from owner and/or operator; complaint form; spill reports; Final Report for Slip 3 Sediment Dredging (April 1995); Terminal 4 Remedial Investigation Report, January 1994; other reports and contaminant data documented in 1998 Strategy Recommendation for site; Remedial Investigation Report, Terminal 4, Slip 3 Upland, January 21, 2000; Remedial Investigation Report, Terminal 4, Slip 3 Sediments, April 18, 2000. Quaker State Tank Farm Soil Characterization, February 2005. Construction Completion Report Bank Excavation and Backfill Remedial Action, March 2005. LNAPL Removal, Groundwater Monitoring, and Contingency Plan, June 2005. Quarterly Report - First Quarter 2005, June 2005.

Substance Contamination Information

Substance	Media Contaminated	Concentration Level	Date Recorded
ACENAPHTHENE	Groundwater	MW-2	7/28/1993
ACENAPHTHENE	Sediment	Post-dredging sample	12/27/1994
ACENAPHTHYLENE	Groundwater	MW-1	7/28/1993
ACENAPHTHYLENE	Sediment	Post-dredging sample	12/27/1994
ANTHRACENE	Groundwater	MW-2	
ANTHRACENE	Sediment	Post-dredging sample	12/27/1994
ANTIMONY	Sediment	Post-dredging sample	12/27/1995
ARSENIC	Sediment	Post-dredging sample	12/27/1994
BENZO(a)ANTHRACENE	Groundwater	MW-2	
BENZO(a)ANTHRACENE	Sediment	Post-dredging sample	12/27/1994

BENZO(a)PYRENE	Groundwater	MW-1	
BENZO(a)PYRENE	Sediment	Post-dredging sample	12/27/1994
BENZO(b) FLUORANTHENE	Groundwater	MW-1	
BENZO(b) FLUORANTHENE	Sediment	Post-dredging sample	12/27/1994
BENZO(ghi)PERYLENE	Groundwater	MW-1	
BENZO(ghi)PERYLENE	Sediment	Post-dredging sample	12/27/1994
BENZO(k) FLUORANTHENE	Groundwater	MW-1	
BENZO(k) FLUORANTHENE	Sediment	Post-dredging sample	12/27/1994
CADMIUM	Sediment	Pre-dredging sample. Highest post-dredging concentration was 11 mg/kg.	
CHROMIUM	Sediment	Pre-dredging sample. Highest post-dredging concentration was 33 mg/kg.	
CHRYSENE	Groundwater	MW-2	
CHRYSENE	Sediment	Post-dredging sample.	1/5/1995
COPPER	Sediment	Post-dredging sample.	1/5/1995
DDD,p,p'-	Sediment	Pre-dredging sample.	
DDE,p,p'-	Sediment	59J ug/Kg Pre-dredging sample.	
DIBENZO(a,h) ANTHRACENE	Groundwater	MW-1	
DIBENZO(a,h) ANTHRACENE	Sediment	Post-dredging sample.	12/27/1994
DIESEL - FUEL OIL	Groundwater	MW-2	
DIESEL - FUEL OIL	Soil	soil boring	7/20/1993
FLUORANTHENE	Groundwater	MW-1	
FLUORANTHENE	Sediment	Post-dredging sample.	12/27/1994
FLUORENE	Groundwater	MW-2	
FLUORENE	Sediment	Post-dredging sample.	12/27/1994
INDENO(1,2,3-cd) PYRENE	Groundwater	MW-1	
INDENO(1,2,3-cd) PYRENE	Sediment	Post-dredging sample.	12/27/1994
LEAD	Sediment	Pre-dredging sample. Highest post-dredging concentration was 790 mg/kg.	
MERCURY	Sediment	Pre-dredging sample. Highest post-dredging concentration was 0.25 mg/kg.	
NAPHTHALENE	Groundwater	MW-2	
NAPHTHALENE	Sediment	Post-dredging sample.	1/5/1995
NICKEL	Sediment	From single post-dredging sample. Next highest concentration encountered was 28 mg.kg.	1/5/1995
OIL - LUBRICATING	Soil	soil boring	6/17/1993

PHENANTHRENE	Groundwater	MW-2	
PHENANTHRENE	Sediment	Post-dredging sample.	1/5/1995
POLYAROMATIC HYDROCARBONS (PAH)	Sediment	Post-dredging sample.	12/29/1994
PYRENE	Groundwater	MW-2	
PYRENE	Sediment	Post-dredging sample.	12/27/1994
SILVER	Sediment	Post-dredging sample.	12/27/1994
TOTAL PETROLEUM HYDROCARBONS (TPH)	Groundwater	MW-2	
TOTAL PETROLEUM HYDROCARBONS (TPH)	Soil	Combined diesel fuel and oil in soil boring IB-27.	7/19/1993
XYLENEs	Groundwater	MW-2	
XYLENEs	Soil	Soil boring	1/20/1993
ZINC	Sediment	Pre-dredging sample. Highest post-dredging concentration was 960 mg/kg.	

Investigative, Remedial and Administrative Actions

Action	Start Date	Compl. Date	Resp. Staff	Lead Pgm
REMEDIAL ACTION (Primary Action)	04/16/2003		Thomas Roick	VCS

View Full Report Showing Action History

Key to Certain Acronyms and Terms in this Report:

CERCLIS No.: The U.S. EPA's Hazardous Waste Site identification number, shown only if EPA has been involved at the site.
Region: DEQ divides the state into three regions, Eastern, Northwest, and Western; the regional office shown is responsible for site investigation/cleanup.
NPL Site: Is this site on EPA's National Priority List (i.e., a federal Superfund site)? (Y/N).
Orphan Site: Has DEQ's Orphan Program been active at this site? (Y/N). The Orphan Program uses state funds to clean up high-priority sites where owners and operators responsible for the contamination are absent, or are unable or unwilling to use their own resources for cleanup.
Study Area: Is this site a Study Area? (Y/N). Study Areas are groupings of individual ECSI sites that may be contributing to a larger, area-wide problem. ECSI assigns unique Site ID numbers to both individual sites and to Study Areas.
Pathways: A description of human or environmental resources that site contamination could affect.
Lead Pgm: This column refers to the Cleanup Program affiliation of the DEQ employee responsible for the action shown. SAS or SAP = Site Assessment; VCS or VCP = Voluntary Cleanup; ICP = Independent Cleanup; SRS or SRP = Site Response (enforcement cleanup); ORP = Orphan Program.

You may be able to obtain more information about this site by contacting Thomas Roick at the Northwest regional office or via email at roick.tom@deq.state.or.us. If this does not work, you may contact Gil Wistar at (503) 229-5512, or via email at wistar.gil@deq.state.or.us or contact the Northwest regional office.

[print version]

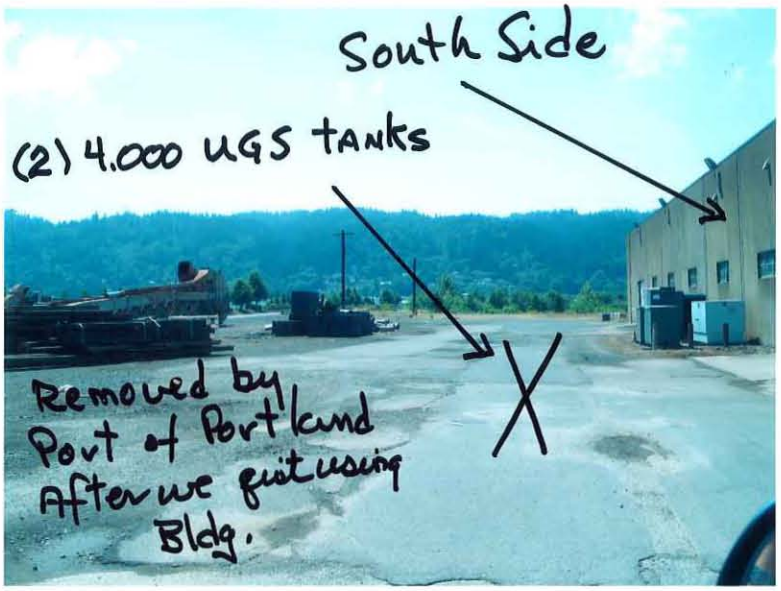
For more information about **DEQ's Land Quality Division and its programs**, see the contact page.

Oregon Department of Environmental Quality
Headquarters: 811 Sixth Ave., Portland, OR 97204-1390
Phone: 503-229-5696 or toll free in Oregon 1-800-452-4011
Oregon Telecommunications Relay Service: 1-800-735-2900 FAX: 503-229-6124

The Oregon Department of Environmental Quality is a regulatory agency authorized to protect Oregon's environment by the State of Oregon and the Environmental Protection Agency.

Gearlocker
Dravo Crane.

Lunck Room
South Side
Propane tank


South Side
(2) 4.000 UGS tanks
Removed by Port of Portland After we quit using Bldg.

West Side
wash Area

North Side
Port of Portland Storedge

Port of Portland

P.O. Box 3529 Portland, Oregon 97208

AUG 0 8 1994

ROUTE NOTED

- ☐ CE
- ☑ BT ✓
- ☐ JW
- ☑ DB
- ☐ GM
- ☐ JM
- ☐ JP
- ☑ GM
- ☐ JWB
- ☐ HAM
- ☐ PA
- ☐ PV
- ☐ RKM
- ☐ OTE
- ☑ SAFETY
- ☐ CLAIMS
- ☐ cc LV
- ☐ cc CB
- ☐ cc BRA

August 4, 1994

Mr. Greg McKenzie
Jones Oregon Stevedoring Company
2323 NW Suffolk St.
Portland, OR 97210

Dear Greg:

Attached is a copy of the report from HAZCON Inc. on pencil pitch dust in and around Terminal 4. As you know, since we began this analysis back in January, significant changes have occurred to minimize the impact of pencil pitch dust at the terminal and through the neighborhood. Modifications have been made to the crane so that spillage is minimized; the trucks are washed at Koppers and driven over speed bumps to dislodge any additional material; and all vehicles are now tarped and the trucking company is considering and may have already substituted hard covers for the tarps.

In April, the only areas where concentrations of three or more target analytes were detected was at the entrance to Koppers facility and the entrance to Terminal 4. In both areas, concentrations were below 0.0015 mg/m^3.

Also attached is a copy of the HAZCON Inc. report on the original sampling performed in January. At that time, samples taken at the gearlocker, the end of the pier at Berth 411, and the river side of Warehouse 5 indicated there were concentrations exceeding the 0.2 mg/m^3 allowable limits established by OSHA. Since subsequent samples have had concentrations well below the OSHA limits, we can conclude that the changes Hall-Buck have instituted has made a significant difference in the exposure of the product to personnel working at the terminal. Nevertheless, the Port is prepared to continue sampling should conditions warrant it, and will continue to monitor the situation. We have been working with Hall-Buck and Koppers to assure the safety of the operation, and they have indicated they both want to continue to act as good neighbors.

Thank you for bringing this issue to our attention and for your diligence and patience awaiting the release of the attached reports. Please feel free to call me if you want to discuss the matters covered in the reports or the issues they raise.

Very truly yours,

Fay Malloy

Fay Malloy
Tenant Relations/
Contracts Administrator

enclosures

EXECUTIVE SUMMARY

Monitoring for ambient airborne concentrations of pencil pitch dust was performed by HAZCON, Inc. at Terminal 4 on three occasions while pencil pitch was being off-loaded from a ship to railcars. The survey was conducted at the request of the Port of Portland. This request was prompted by expressed concern regarding health effects associated with exposure to pencil pitch dust.

The purpose of this air monitoring was to determine ambient concentrations of pencil pitch dust which may be present at Port of Portland personnel work stations at Terminal 4. The results of this air monitoring will provide information to establish policies and procedures which may be necessary to provide for protection of personnel, and minimize ambient exposure to pencil pitch dust during off-loading activities. The handling of this product potentially affects personnel and operations at this Berth and surrounding areas.

The scope of work included an on-site evaluation, area air monitoring, and collection of surface dust wipe samples in representative locations.

Results demonstrated that at two of the sampling locations, no detectable concentrations of airborne coal tar pitch were measured on any of the sampling dates. These are locations #2 and #5. At location #3, concentrations of airborne coal tar pitch were detected on two of the sampling dates. At location #1 and #4, detectable concentrations of airborne coal tar pitch were measured only on January 19. At three locations on January 19, detectable concentrations of coal tar pitch exceeded the OSHA permissible exposure limit of 0.2 mg/m3 as an 8 hour time weighted average (TWA). However, since all samples were area samples, and not personal exposure samples, actual employee exposure cannot be verified.

Sample 5992-1 was further analyzed for the presence of five target PAH compounds which can be indicative of greater health risk, if present. These compounds are anthracene, pyrene, phenanthrene, chrysene and benzo(a)pyrene. This sample was selected for this additional analysis because it demonstrated the highest concentration of coal tar pitch material upon initial analysis. None of these five PAH compounds was detected in this sample. These results are listed on the laboratory report along with other reported results for sample 5992-1.

As an enforcement policy, the OSHA permissible exposure limit (PEL) for personal exposure to coal tar pitch is based on the presence of the benzene (or cyclohexane) soluble fraction of the mixture, and the presence of one or more of the listed five target polynuclear aromatic hydrocarbon (PAH) compounds. OSHA is unlikely to enforce the coal tar pitch volatile permissible exposure limit of 0.2 mg/m3 in the absence of one or more of theses five target PAH compounds. However, if employee exposure to coal tar pitch volatiles and dust is maintained below the PEL of 0.2 mg/m3, health effects due to occupational exposure should be minimal.

It is recommended that additional monitoring be considered, particularly personnel exposure monitoring. It is recommended that Hall-Buck Marine, Inc. be asked to implement all feasible steps to minimize or eliminate spillage of pencil pitch dust during off loading procedures. This includes work practices and procedures, as well as maintenance of equipment, hoppers, chutes and buckets.

minute (lpm).

Monitoring conducted on February 9 and 10 was performed utilizing the same procedures with a glass fiber filter as the collection medium, but without the use of the opaque cassette and amber vial, as analysis for PAHs was not planned. Monitoring on February 9 was conducted between the approximate hours of 12:00 pm and 7:00 pm. Monitoring on February 10 was performed between the approximate hours of 8:30 am and 6:00 pm.

On all three occasions, pencil pitch was being off-loaded from the ship to railcars.

Sampling and analysis was performed in accordance with OSHA Method 58. All sample analysis was performed by Sentry Services of Stevens Point, Wisconsin. This laboratory is accredited through the American Industrial Hygiene Association (AIHA). All on-site monitoring and report preparation was performed by a Certified Industrial Hygienist.

FINDINGS

Monitoring results are displayed in Tables 1 through 3, included in this report. Laboratory reports are also included.

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The Laboratory Supervisor at Sentry Services was contacted and asked for an opinion as to the significance of the apparent differences among the three sets of air sample results. Several factors can influence monitoring results such as these, especially when sampling is

RECOMMENDATIONS

1. Continue to monitor the ambient air for the presence of coal tar pitch dust during off loading procedures. Results from additional monitoring episodes will contribute to the goal of assessing any impact on adjacent personnel and operations.

2. Consider performing personnel exposure monitoring to determine actual employee exposures to pencil pitch dust which may occur during pencil pitch handling and off-loading procedures.

3. Consider performing air monitoring for pencil pitch dust while off-loading to trucks. All three dates evaluated during this survey involved off-loading to railcars.

4. Ask Hall-Buck Marine, Inc. to implement all feasible steps to minimize or eliminate spillage of pencil pitch dust during off loading procedures. This includes work practices and procedures, as well as maintenance of equipment, hoppers, chutes and buckets.

5. Implement the procedures which have been developed for Port of Portland operations during times when pencil pitch is being handled at Terminal 4.

We have prepared this report for the Port of Portland to use in evaluating pencil pitch off loading procedures and employee exposure to pencil pitch dust while working at Terminal 4 during off-loading activities. This assessment is for the use of the client and applies only to the specific situation detailed above. This report shall not be used by any other party without the consent of the client.

Report Prepared by:

Barbara J. Woodhull, CIH, CSP
Certified Industrial Hygienist
Field Services Director
HAZCON, Inc.

Report Reviewed by:

Richard H. Krause, CIH, CSP
Certified Industrial Hygienist
President
HAZCON, Inc.

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

Pencil Pitch Offloading
Terminal 4
Port of Portland

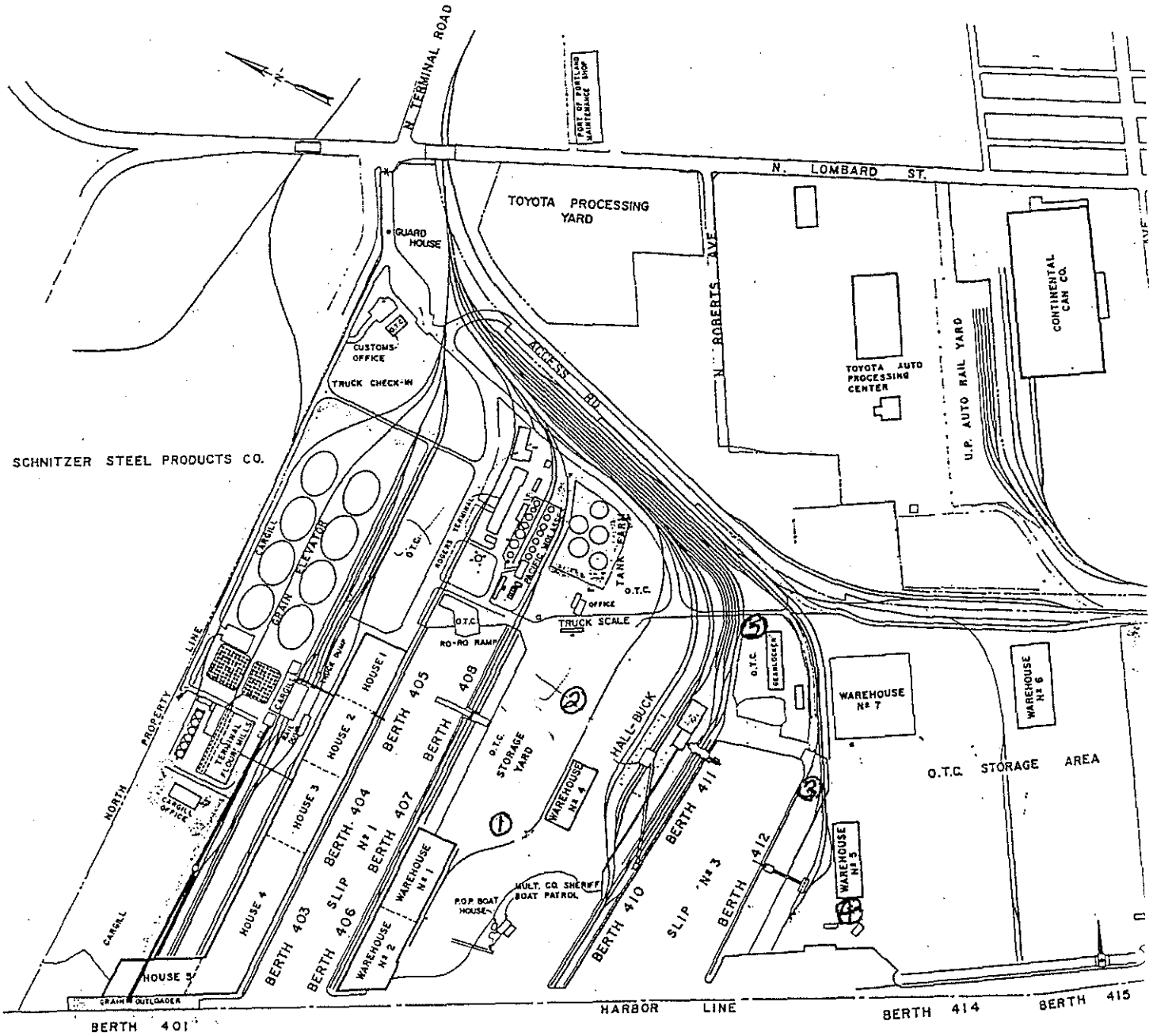
Survey date: February 9, 1994
Survey by: Barbara J. Woodhull, CIH, HAZCON, Inc. Project 6088

Sample Number	Sample Location	Date	Time of Day (minutes)	Coal Tar Pitch	
				mg/m3*	Wipe Sample
1 - 2	OTC Storage Yard first light pole near warehouse 4	2/9/94	12:45-7:15 390 min	< 0.10	n/a
2 - 2	OTC Storage Yard third light pole	2/9/94	12:50-7:15 385 min	< 0.10	n/a
3 - 2	End of Berth 412, near railing on dock	2/9/94	12:55-7:20 385 min	< 0.10	n/a
4 - 2	between OTC building and Whse 5	2/9/94	1:00-7:25 385 min	< 0.10	n/a
5 - 2	inside OTC Gearlocker yard	2/9/94	1:15-7:25 370 min	< 0.10	n/a

* Does not represent personnel exposure, all were area samples

LABORATORY ANALYSIS: Sentry Services, Stevens Point, WI

LABORATORY REPORTS: SEE APPENDIX



OTHER TENANTS

Oregon Terminal Company (OTC)

Hall-Buck Marine (HBM)

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND,OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-141
DATE RECEIVED: 02/15/94
DATE ANALYZED: 02/25/94

CUSTOMER PURCHASE ORDER NUMBER: Proj. #6088,

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
1-2	Coal Tar Pitch Volatiles *	1238	<0.10 mg/m³	GRAV OSHA 58
2-2	Coal Tar Pitch Volatiles	1239	<0.10 mg/m³	
3-2	Coal Tar Pitch Volatiles	1240	<0.10 mg/m³	
4-2	Coal Tar Pitch Volatiles	1241	<0.10 mg/m³	
5-2	Coal Tar Pitch Volatiles	1242	<0.11 mg/m³	
1-3	Coal Tar Pitch Volatiles	1243	<0.07 mg/m³	
2-3	Coal Tar Pitch Volatiles	1244	<0.07 mg/m³	
3-3	Coal Tar Pitch Volatiles	1245	0.03 mg/m³	
4-3	Coal Tar Pitch Volatiles	1246	<0.07 mg/m³	
5-3	Coal Tar Pitch Volatiles	1247	<0.07 mg/m³	
6-23	Coal Tar Pitch Volatiles (blank)		<80 µg	

* Methylene Chloride extraction

* See Reverse Side

WK Tate

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

RECEIVED MAR 0 4 1994

DATE OF PHOTO - JUNE 18, 1987

NO.	DATE	BY	REVISIONS	CK'D	APP'V'D	NO.	DATE	BY	REVISIONS	CK'D	APP'V'D

PORT OF PORTLAND
PORTLAND, OREGON

MANAGER, TRAFFIC/REGULATORY AFFAIRS

DESIGNED BY	J. HACHEY
DRAWN BY	C. BAKER
CHECKED BY	J. HACHEY
DATE	AUG. 1988
SCALE	1" = 200'

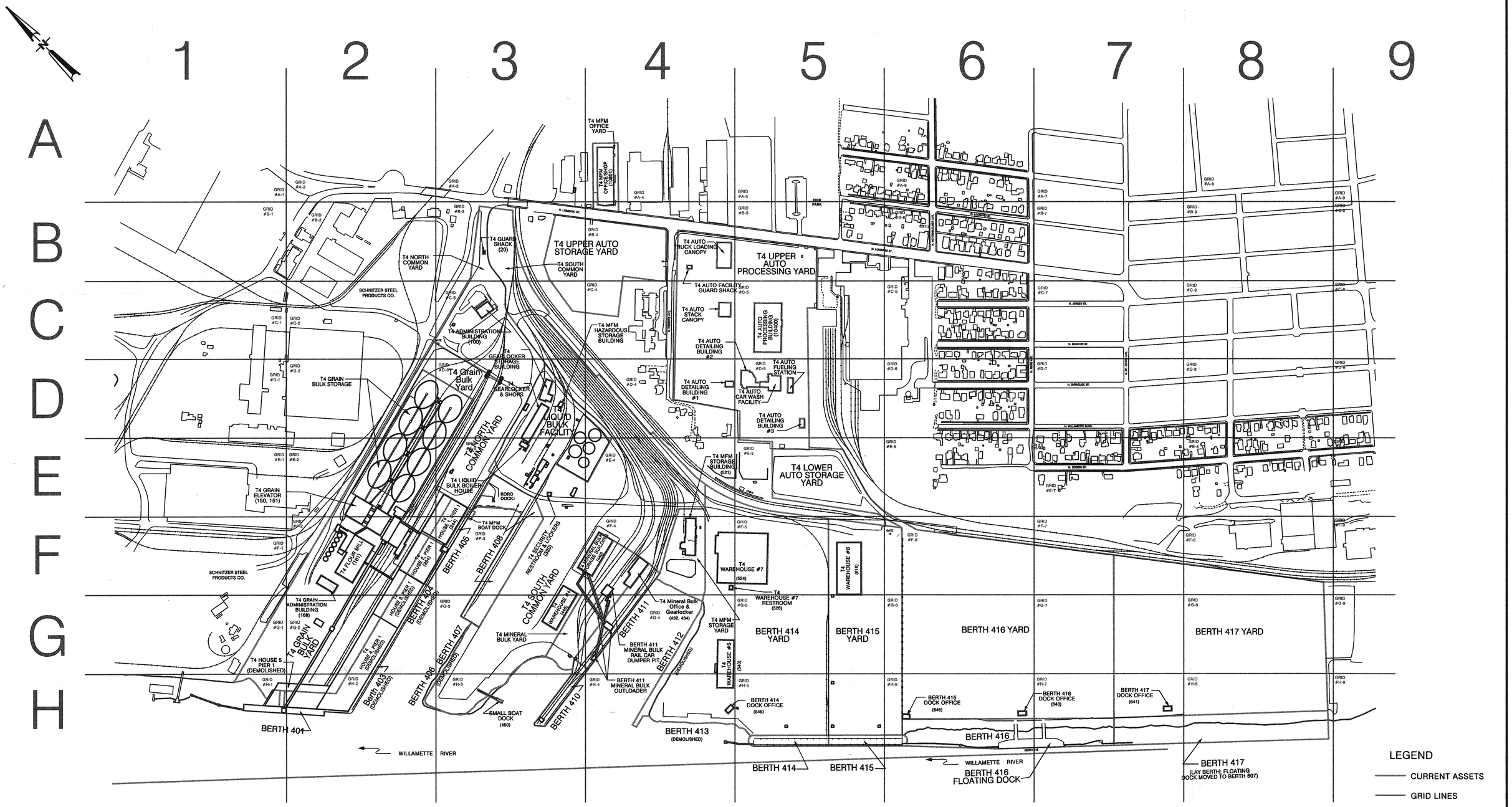
TERMINAL NO. 4

LEASE MANAGEMENT AGREEMENT
OREGON TERMINAL COMPANY

SUBMITTED BY

SUPERVISOR, DRAFTING SERVICES

DRAWING NO. T4 88-3 1/1 (LP)



INDEX 1

SCALE: 1" = 300' G-1

LEGEND

- CURRENT ASSETS
- GRID LINES
- OVERLAPPING ASSETS

NO.	DATE	BY	REVISIONS	CK'D	APP'V'D

NO.	DATE	BY	REVISIONS	CK'D	APP'V'D

PORT OF PORTLAND
PORTLAND, OREGON

1994D065 DESIGN NUMBER

31283 PROJECT NUMBER

DESIGNED BY	B. SIGGELKOW
DRAWN BY	C. BOYD
CHECKED BY	D. DITTMER
DATE	JAN 1999
SCALE	1" = 300'

TERMINAL 4

PRIMARY ASSET IDENTIFICATION

T4 PRIMARY ASSET MAP

SUBMITTED BY

PROJECT ENGINEER

DRAWING NO. T4 1999-3005 1/9 (G-1)

12-JUL-1999 14:45
By:vdp
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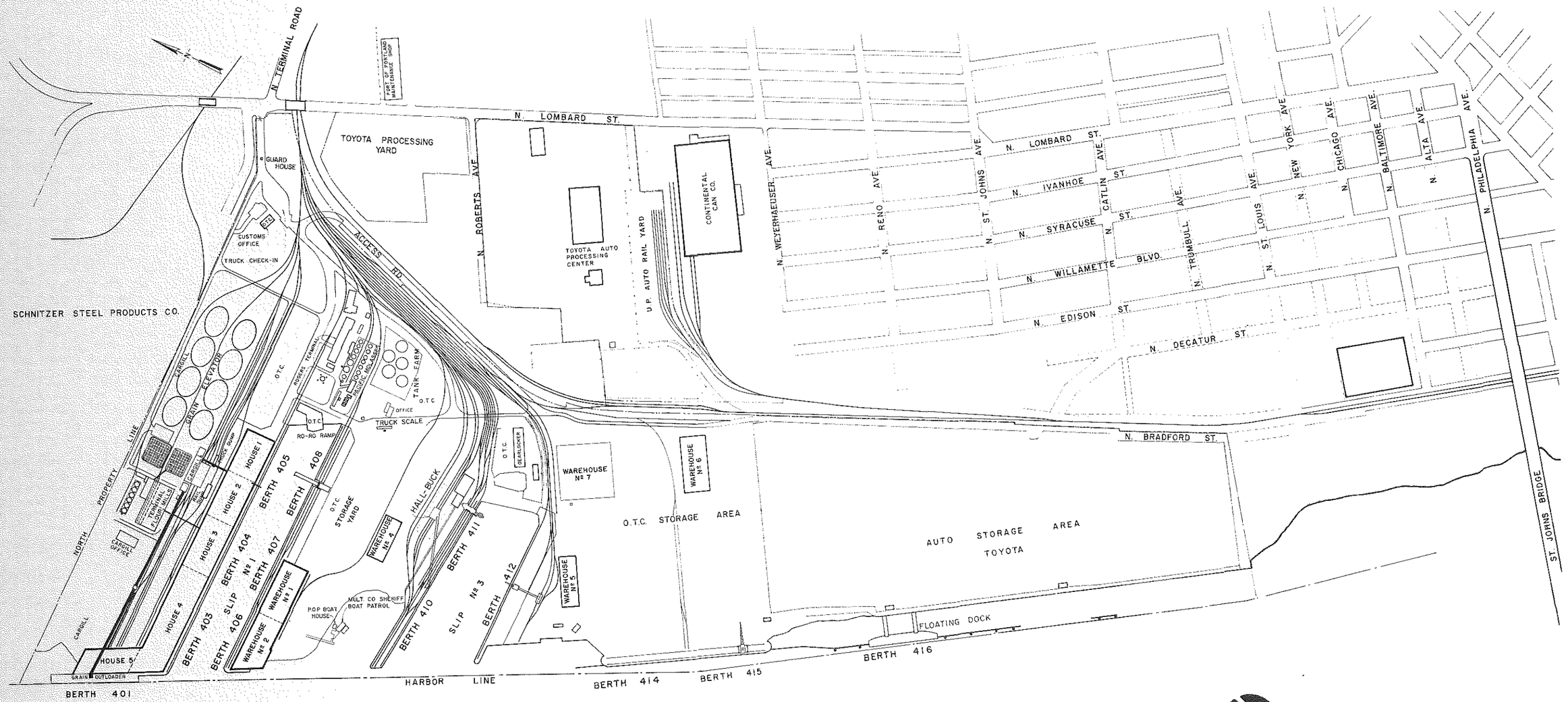
XXXX-BK XXXX-SG



Port of Portland

TERMINAL NO. 4

600 0 600 1200

SCALE IN FEET

T4 90-1

TERMINAL 4

ADDRESS	11040 N. Lombard
TELEPHONE	MANAGER, GENERAL CARGO, Oregon Terminal Co., telephone 503/289-9380 MANAGER, GRAIN, Cargill, Inc., telephone 503/221-7900 MANAGER, FLOUR, Terminal Flour Mills, telephone 503/286-1656 MANAGER, DRY BULK, Hall-Buck Marine, telephone 503/285-2990 MANAGER, LIQUID BULK, Pacific Molasses, telephone 503/286-1601 MANAGER, AUTOMOBILES, Toyota Motor Company, telephone 503/286-5881
SUMMARY	13 NUMBERED BERTHS — 6,910′
GENERAL CARGO	TOTAL COVERED STORAGE (NET) (excludes imported vehicle facility) — 206,160 sq. ft., 4.73 acres TOTAL OPEN STORAGE (NET) (excludes imported vehicle facility and grain facility) — 2,134,440 sq. ft., 49 acres
HICLE OPERATIONS	TOTAL OPEN STORAGE — 60.7 acres TOTAL PROCESSING AREA — 23.26 acres
TRUCK RECEIPT	50-ton capacity scale
FIRE PROTECTION	City of Portland Fire Bureau. All sheds and piling-supported open areas have sprinkler systems with alarms monitored by Honeywell. All timbered piers have sprinkler systems with alarms monitored by Honeywell.
ELECTRIC OUTLETS	120 through 440-volt available. 12 reefer plugs, 440 volt.

TERMINAL 4

CRANES	One 35.5-ton straight line container handling crane, located at Berth 408, Port #4370 One Dravo straight line dry bulk cargo unloader, travel distance 600', located at Berth 411 One bulk shiploader, rated at 1,500 tons per hour, belt travels at 625 feet per minute and transfers to 22-inch shiploading spout One 36-ton revolver crane located at Berths 414-415, Port #4353
SEWER AND WATER	No sewer hook-up for vessels. Water hook-ups at every berth; City of Portland.
TELEPHONE	Phone hookups available at each berth.

TERMINAL 4 | BERTH 401

DOCK

BERTH 401 (Pier 1) (dock length, 512′; elevation, 35′; water depth alongside, -40′ CRD)

BUILDING

HOUSE 5—154′ x 317′ (48,818 sq. ft.)

HOUSE 5 NET COVERED AREA 44,886 sq. ft.

Offices

(Lunchroom, restrooms, railpit, electrical station)—3,932 sq. ft.

TOTAL COVERED AREA 48,818 sq. ft.

DOORS

LOADING/UNLOADING: Vessel, truck tailgate & railcar doors

Vessel doors

6 doors, 15′6″ wide x 15′6″ high (south door is a fire door)
Vessel apron working width—37′

Other doors

Eastside—2 railcar doors—12′ wide x 20′ high (double tracks 68′ each, depressed track, workable on one side)
Eastside—ramp entry door—16′ wide x 16′ high
Connecting doors to House 4—1 door—15′6″ wide x 15′10″ high self-closing fire door

LOAD LIMITS

Dock structure—350 lbs./sq. ft.—48,818 sq. ft.

NOTE

Berth 401 preferentially assigned to Cargill, Inc., telephone 503/221-7900

TERMINAL 4 | BERTH 401

ELEVATOR

Terminal elevator, leased to and operated by Cargill, Inc. (Berth 401)

STORAGE

8,000,000 bushel capacity

Upright concrete work space	1,760,000 bushels
Workhouse	240,000 bushels
8 steel tanks (750,000 bushels each)	6,000,000 bushels

GALLERY ELEVATION—feet above Mean Low Water

78′ maximum, 55′ minimum, height for optimum vessel loading

RAIL RECEIPT

900 tons per hour, with two 2-hopper car dumps

TRUCK RECEIPT

140 tons per hour, via hydraulic truck dump—61′ long; 35 degree tilt)

BARGE RECEIPT

900 tons per hour, via marine leg at Berth 405

VESSEL LOADING

2,500 tons per hour, via single belt and two straight vertical spouts

NOTE

Leased to Cargill, Inc., telephone 503/221-7900

TERMINAL 4

BERTHS 403, 404 & 405

DOCK

BERTHS 403, 404 & 405 (Pier 1) (Dock length, 1,500′; elevation, 35′; water depth alongside, Berth 405 -30′ CRD; Berth 403 & 404, −35′

Berth 405 leased to Cargill, Inc. 503/221-7900

Berth 403 leased to Pacific Molasses 503/286-16017

LOAD LIMITS

Fill—1,000 lbs./sq. ft.—17,253 sq. ft.
Dock structure—Not available

NOTE

Portion of House 1 (not mentioned here) leased to Cargill, Inc., telephone 503/221-7900

TERMINAL 4

LIQUID BULK

BERTH 403

Approximately 30,000-ton tank storage.

1 - 12″ molasses dock line
1 - 8″ tallow, fertilizer piggable dock line
1 - 8″ caustic piggable dock line

Capable of receiving and loading ocean-going ships, barges, tank cars, and trucks.

Other than molasses and molasses blends, there are capabilities of third party storage such as tallow, fertilizers, caustic soda, and feed fish oil.

Pacific Molasses is interested in third party storage inquiries (telephone 503/286-1601).

NOTE

Leased to Pacific Molasses, telephone 503/286-1601

TERMINAL 4

BERTHS 406 & 407

DOCK

BERTHS 406, 407 & 408 (Pier 2) (Dock length—1,500′; elevation, 30′; water depth alongside, -35′ CRD).

BERTH 408 (Ro-Ro berth, total dock length for ship mooring); elevation of ro-ro ramp, 20′; ro-ro ramp is located at east end of slip.)

Ramp 97′6″ clear width at face, 50′ clear width shoreside; 210′ long (centerline distance); ramp angle, 58°; ramp slope varies, 7.5% to 9%

OPEN STORAGE (NET)—360,000 sq. ft., 8.26 acres (includes dock)

Direct transfer rail tracks (2)

Slipside track, No. 717—900′
Inside track, No. 718—900′

CRANE

One 35.5-ton straight line container handling crane, 38′ guage, located at Berth 408, Port #4370

BUILDING

WAREHOUSE 4—100′ x 260′ (26,000 sq. ft.)

WAREHOUSE'S NET COVERED AREA	26,000 sq. ft.

DOOR

East end entry door—24′ wide x 20′ high
West end entry door—24′ wide x 20′ high

LOAD LIMITS

Fill—1,000 lbs./sq. ft.
Dock structure—650 lbs./sq. ft.
Ramp
Wheel loading—13,500 lbs./sq. ft.
Live load—1,000 lbs./sq. ft.

NOTE

Managed by Oregon Terminal Company, telephone 503/289-9380

TERMINAL 4 | BERTHS 410 & 411

DOCK

BERTHS 410 & 411 (Pier 4) (Dock length—1,140′; elevation, 33′; water depth alongside, -40′ CRD)

Vessel apron (Pier 4)—60′ wide

Direct transfer rail tracks (3)
Inside track, No. 424—1,200′
Apron track, No. 406—1,070′
Slipside track, No. 433—1,140′

CRANES

One Dravo straight line dry bulk cargo unloader, travel distance 600′, located at Berth 411

One bulk shiploader, rated at 1,500 tons per hour, traveling at 625 feet per minute and transfer to 22-inch shiploading spout

BUILDING

HALL-BUCK BUILDING—120′ x 70′ (8,400 sq. ft.)

HALL-BUCK BUILDING NET COVERED AREA 7,386 sq. ft.

Offices—1,014 sq. ft.

(Inside)

TOTAL COVERED AREA 8,400 sq. ft.

DOORS

East end entry door—16′ wide x 18′ high

LOAD LIMITS

Fill—1,000 lbs./sq. ft.
Concrete—800 lbs./sq. ft.
Dock structure—450 lbs./sq. ft.

NOTE

Operated by Hall-Buck Marine, telephone 503/285-2990

TERMINAL 4 | BERTHS 414 & 415

DOCK

BERTHS 414 & 415 (Dock length—944′, plus mooring dolphins, 370′ upstream and 200′ downstream; elevation, 25′; water depth alongside, -40′ CRD)

Vessel apron—open wharf

Rail tracks (2)

Lead track, No. 430—1,220′
Spur track, No. 431—800′

OPEN STORAGE (NET) 1,729,480 sq. ft., 39.7 acres

CRANE

One 36-ton revolver crane, located Berths 414 and 415

LOAD LIMITS

Fill—1,200 lbs./sq. ft.

BUILDING

WAREHOUSE 5—100′ x 300′ (30,000 sq. ft.)

WAREHOUSE'S NET COVERED AREA 30,000 sq. ft.

(Secured corral, southwest corner, 38′ wide x 50′ long—1,900 sq. ft.)

TOTAL COVERED AREA 30,000 sq. ft.

There is a stationary tailgate ramp at the west end which services the loading of trucks/vans.

DOORS

East end entry door—24′ wide x 20′ high
West end entry door—24′ wide x 20′ high

LOAD LIMITS

Fill—1,000 lbs./sq. ft.

TERMINAL 4

BERTHS 414 & 415

BUILDING	WAREHOUSE 6—152′ x 330′ (50,160 sq. ft.) WAREHOUSE'S NET COVERED AREA 50,160 sq. ft.
DOORS	East end entry door—30′ wide x 20′ high West end entry door—30′ wide x 20′ high
BUILDING	WAREHOUSE 7—(100,000 sq. ft.) WAREHOUSE'S NET COVERED AREA 100,000 sq. ft. (under construction. Anticipated completion November 1990)
BUILDING	BERTH 412 Office and machinery shed—5,878 sq. ft.
LOAD LIMITS	Fill—1,500 lbs./sq. ft.—50,160 sq. ft.
NOTE	Berths 414/415 managed by Oregon Terminal Company, telephone 503/289-9380

TERMINAL 4 | BERTH 416

DOCK

BERTH 416 (Dock length, 414′; elevation, 14′; water depth alongside, -40′ CRD)

Dock—floating ship hull—56′ wide x 414′ long; mooring dolphins; 200′ upstream, 200′ downstream
Two hinged and ramped shore bridges 20′ wide x 125′ long; maximum loading; standard highway (H10) at single lane on center of ramp.

Open storage—72.7 acres
Herringbone storage—maximum 12,500 vehicles

VEHICLE PROCESSING TRUCK AND RAIL LOADING AREA

Processing area—32.06 acres, includes staging area, processing building—offices, paint and body shop, de-Cosmoline, accessory installation, underseal and car wash.

Building—41,875 sq. ft.

Rail yard—5.28 acres, includes five ladder tracks, Nos. 731-735, each 500′ long, designed to allow simultaneous loading of five railcars on each track. Yard served by rail-mounted loading ramp, permitting accessibility to bi-level and tri-level railcars.

LOAD LIMITS

Fill—all staging, processing, and storage areas—1,000 lbs./sq. ft. (ramps structured for automobiles only)

NOTE

Leased to Toyota Motor Company, telephone 503/286-5881

Management Agreement
Between
The Port Of Portland
And
Oregon Terminal Company

Management Agreement
Between
The Port Of Portland
and
Oregon Terminal Company

This MANAGEMENT AGREEMENT, made and entered at Portland, Oregon, by and between THE PORT OF PORTLAND, a public corporation organized and existing under the laws of the State of Oregon, hereinafter referred as "PORT," and OREGON TERMINAL COMPANY, a corporation duly organized and existing under the laws of the State of Oregon, hereinafter referred to as "OTC."

WITNESSETH

WHEREAS, the PORT is willing to enter into a management agreement with a qualified company for its existing multiple-user general cargo facilities, or portions thereof, at Terminal 4 provided that certain conditions are met which are necessary for the community's best interests; and

WHEREAS, OTC has made a proposal to the PORT to operate portions of the PORT's Terminal 4 facility; and

WHEREAS, OTC will further the efficient utilization of Terminal 4 in worldwide commerce, market Terminal 4 capacities, and provide professional marine terminal management services for Terminal 4; and

WHEREAS, the parties desire to set forth their respective responsibilities for the management of Terminal 4.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

ARTICLE I - TERM

Section 1.1 - Initial Term

This Agreement shall be for a term of two years, effective on the date established according to Article II.

Section 1.2 - Option Term

At the end of the Initial Term, provided OTC is not in default of any of the terms of this Agreement, OTC shall have three options to renew this Management Agreement, for a

period of three years each, under the same terms and conditions contained herein, subject to adjustment of the Minimum Annual Guarantee as set forth below in Section 6.5. OTC may exercise its option by giving written notice to PORT at least four months, but not more than six months before the last day of the expiring term, subject to the following exception. Should the PORT at its sole option deem it necessary to convert all or a portion of Berth 414/415 to a container terminal complete with container gantry cranes and other necessary container facility improvements, and upon giving written notification to OTC of its intent to do so, the PORT and OTC agree to negotiate in good faith a new minimum guarantee for the area that is converted to container cargo usage. It will be the responsibility of the PORT to file such changes with the Federal Maritime Commission prior to their going into effect in the event OTC exercises these options.

At the end of the third Option Term, and provided OTC is not in default of any of the terms of this Agreement, OTC shall have two options to renew this Agreement for a period of three years each. The PORT and OTC agree to negotiate the renewal terms and conditions contained herein in good faith on mutually agreeable terms. Notwithstanding any other provisions of this Agreement, the failure to agree to the renewal terms shall not be subject to arbitration, any third-party intervention, or to specific performance. It will be the responsibility of the PORT to file such changes with the Federal Maritime Commission prior to their going into effect in the event OTC exercises these options.

ARTICLE II - EFFECTIVE DATE

This Agreement shall be filed by the PORT with the Federal Maritime Commission (FMC) pursuant to Section 5 of the Shipping Act of 1984, as amended. This Agreement shall be effective the third day of January 1989. If the FMC rejects this Agreement, this Agreement shall be of no force or effect. The foregoing shall also apply to each amendment to this Agreement filed with the FMC pursuant to Section 5 of the Shipping Act of 1984, as amended.

ARTICLE III - PREMISES

Section 3.1 - Description of Premises

The Premises subject to this Management Agreement, shall consist of approximately 61.2 acres, three marine terminal berths, paved and lighted backup storage area, a gearlocker building, and three warehouses at Terminal 4, as described in PORT Drawing No. T4 88-3 1/1 (LP), attached hereto as Exhibit A and made a part hereof, and hereinafter referred to as "Premises." Berths 406 and 407 may be utilized by OTC for waterside cargo operations, subject to the following conditions: The PORT may at its sole option withdraw these berths from usage if such berths cannot be declared a "safe berth" for waterside cargo operations and/or a change in use due to major rehabilitation.

ARTICLE IV - USE OF PREMISES

Section 4.1 - Use of Premises

OTC may use Premises to perform the professional marine terminal services the PORT presently provides at Terminal 4 and to perform any other marine terminal services in their capacity as the marine terminal operator. Stevedoring services at the Premises may be provided by any stevedoring firm, consistent with the management practices of the PORT at Premises existing prior to the effective date of this Agreement. Any and all stevedore companies can stevedore cargo at Premises to/from place of rest, to/from direct transfer point or overside, as appropriate. OTC agrees that it will manage and operate Premises in a prudent, open, and to the extent possible, nondiscriminatory manner. OTC shall serve the needs of the exporters, importers, and the marine-related businesses located within the Port District.

Section 4.2 - Leasehold Interest

OTC understands that this Agreement does not create any leasehold interest and only conveys a license to OTC for its use of Premises to the extent necessary for the performance of OTC's management obligations under this Agreement.

Section 4.3 - Access to Premises

The PORT hereby grants to OTC the unrestricted right of ingress and egress to the Premises through the common area roadways and driveways, and common industrial spur tracks. OTC and the PORT agree that vessels not requiring cargo handling services may use the facility if such usage does not interfere with ship scheduling or cargo handling at the premises with revenue accruing as per Section 6.4. PORT shall have the unrestricted right of ingress and egress to the Premises. The PORT and its vessel stevedores authorized by the PORT and their employees, agents, and contractors shall also have access across the Premises when needed for their operations. OTC will cooperate in good faith with the PORT in granting access to the Premises to the media.

ARTICLE V - GENERAL ADMINISTRATION

Section 5.1 - Good Faith

The terms and conditions set forth in this Agreement are for the mutual benefit of both parties. Because of the nature of this Agreement, the parties agree that time is of the essence, and that there is an obligation and implied duty of reasonable diligence and good faith imposed on both parties to make reasonable efforts to fulfill the terms, conditions, and covenants imposed by this Agreement.

Section 5.2 - Information and Cooperation

Both parties shall provide full information regarding their requirements for the successful accomplishment of the purposes of this Agreement and marketing of Premises.

OTC and PORT agree to share all information relevant to this Agreement excluding exempt information as provided in ORS Chapter 192, and to cooperate with all corporations, firms, contractors, governmental entities, and other persons involved in, or associated with Premises. Access to Premises for media coverage, tours, promotional events, or political events shall be coordinated between the PORT and OTC. OTC shall prepare vessel report to the PORT reasonably detailing arrival and departure, vessel characteristics, tonnage statistics, and other documents deemed necessary to substantiate gross receipts within five working days after each vessel sails as per Exhibit D. OTC will also provide documentation acceptable to the PORT to substantiate receipts in Exhibit C.

Section 5.3 - Duty to Inform

If at any time during the performance of this Agreement, or at any time in the future, with respect to Premises, either party becomes aware of actual or potential problems, faults or defects, any nonconformance with contract, federal, state, or local law, rule or regulation, or have any objection to any decision or order made by the other party, the parties agree to give prompt notice to the other party's Project Manager.

Section 5.4 - Port's Project Manager

The PORT shall appoint a Project Manager who will speak on behalf of the PORT and to the extent of the Project Manager's delegated authority, shall make decisions concerning the interpretation of this Agreement on behalf of the PORT. Within twenty days after execution of this Agreement, PORT shall give OTC written notice of its Project Manager. PORT shall give OTC written notice of any change in its Project Manager.

Section 5.5 - OTC's Project Manager

OTC shall name a Project Manager within twenty days after execution of this Agreement. OTC shall act through its Project Manager who shall have full authority to act on behalf of and execute written documents that legally bind OTC. OTC shall give PORT written notice of any change in its Project Manager.

Section 5.6 - Inspection of the Premises

On the Effective Date of this Agreement and on each anniversary thereafter during the period of this Agreement or extension thereof, PORT and OTC, each at their own expense, will jointly inspect Premises to review the conditions of the facility and improvements and to mutually agree upon the need for reasonable repairs or upgrading of Premises. A fender pile survey will be performed prior to the effective date of this Agreement and any damaged piling will be repaired consistent with the PORT's maintenance policies and procedures. The cost of the initial survey will be borne by the PORT. On each anniversary thereafter during the term of this Agreement or extension thereof, a fender piling survey will be conducted jointly by PORT and OTC and any damaged piling not specifically assigned to a third party will be repaired, the cost of which will be shared 80/20 by the PORT and OTC respectively.

Section 5.7 - Marketing Programs

PORT and OTC shall be responsible for establishing and conducting their respective marketing programs to attract customers to Premises. On a periodic basis, the parties shall jointly review their marketing programs to ensure that such plans are coordinated.

ARTICLE VI - PAYMENTS AND FEES

Section 6.1 - Applicable Rates

The PORT and OTC agree that during the Agreement term and any extensions thereof, the PORT reserves the exclusive right to determine the rates published in the current Port of Portland Terminal Tariff No. 6, supplements thereto and reissues thereof. All PORT-published tariff rates applicable to Premises, including any published discounts, shall at all times be competitive with rates in effect by the PORT at its other facilities, whether or not such facilities are operated by the PORT. OTC reserves the right to establish special pricing or to withdraw from any and all portions of the Port Terminal Tariff No. 6, supplements thereto and reissues thereof, as OTC may determine necessary.

Section 6.2 - Minimum Annual Guarantee

OTC agrees to guarantee to the PORT a Minimum Annual Guarantee of Eight Hundred Seventy Thousand and No/100 Dollars ($870,000.00) based upon the Revenue-Sharing formula as defined in Section 6.4 and subject to escalation as defined in Section 6.5.

Section 6.3 - Definition of Gross Receipts

As used herein the term "Gross Receipts" shall mean the total amount of revenue received or realized by, or accruing or due to, OTC from all wharfage and dockage charges from Premises by application of the then current Port Terminal Tariff No. 6, supplements thereto and reissues thereof, or such other PORT-published and/or approved rates. All Gross Receipts shall be deemed to be received on the date of the invoice from OTC to its customers for each transaction, whether for cash or credit, and not at the time of payment, unless otherwise specifically authorized by PORT in writing. Nothing contained herein shall be construed to entitle the PORT to any portion of receipts paid to OTC for the stevedoring or marine terminals services (except as provided in Exhibit C) provided by OTC.

Section 6.4 - License Fee

OTC shall pay to the PORT a fee based upon the revenue-sharing formula of Dockage and Wharfage revenues generated at Premises for specific classes of customers as described below with the following exception of Pacific Commerce Line described in Section 6.4(D). Customers are defined by name and type of service in Exhibit B.

A. For all Gross Receipts for Dockage and Wharfage generated by and attributed to each of the existing customers of the PORT as defined by Exhibit B:

Share of Gross Receipts	
80% to PORT	20% to OTC

B. For all Gross Receipts for Dockage and Wharfage generated by and attributed to customers not calling at the PORT within the previous twelve months:

Share of Gross Receipts	
40% to PORT	60% to OTC

C. For all Gross Receipts for Dockage and Wharfage generated by and attributed to customers not described in either Section 6.4(A) or (B):

Share of Gross Receipts	
60% to PORT	40% to OTC

D. OTC will maintain existing agreements between the PORT and Terminal 4 customers during the unexpired terms of their contracts with regard to pricing and preferential berth assignments. The following exception to the revenue-sharing formula is Pacific Commerce Line as described in Exhibit D, FMC Agreement No. 224-200085. License fee due under the revenue-sharing formula for Pacific Commerce Line will be limited to 100 percent of the published dockage rate in the Port of Portland Terminal Tariff No. 6, supplements thereto and reissues thereof. At the conclusion of the option periods as described in the FMC Agreement No. 224-200085, Gross Receipts from Pacific Commerce Line will be shared 60 percent to OTC and 40 percent to the PORT. In the event Toyota uses Berth 415 per their agreement dated January 31, 1986, dockage will be shared, with the PORT receiving 80 percent and OTC receiving 20 percent, and will be applied to the Minimum Annual Guarantee. OTC acknowledges that potential conflicts may arise in preferential berth assignments and agrees that the PORT shall resolve any such conflicts.

E. Any shifting of existing PORT Terminal 6 stevedoring customers to or from Premises during the term of this Agreement shall be effected only upon mutual consent of the parties.

F. The PORT and OTC may mutually agree to rates, charges, revenue sharing, credit and collection terms, that may be exceptions to those stated herein on cargo movements that are not regulated by the Federal Maritime Commission. Such rates and charges, including any applicable discounts, shall at all times be competitive with rates offered by the PORT at its other facilities, whether or not such facilities are operated by the PORT.

G. The charges for other items described in Exhibit C shall be divided in accordance with that Exhibit.

amounts not paid by OTC when due shall bear interest at the rate set forth in the PORT's then current Marine Terminal Tariff No. 6, supplements theretoto and reissues thereof.

Section 7.4 - Annual Reconciliation

Within ninety days of each and every anniversary year of this Agreement, OTC will reconcile the payments made to the PORT pursuant to this Agreement to ensure that all payments accurately reflect the percentage due to the PORT pursuant to Section 6.4. In the event that such payments do not equal the Minimum Annual Guarantee provided in Section 6.2, OTC shall pay the deficiencies to the PORT within thirty days after completing the reconciliation.

Section 7.5 - Audit of Records

The PORT reserves the right to audit at any time OTC's revenue control system and records of revenue at any time for the purpose of verifying the amount of Gross Receipts hereunder. OTC shall make available at a location in Portland, Oregon, those records specified that pertain to this Agreement, when requested by the PORT, so PORT may audit those records. If, as a result of such audit, it is established that OTC has understated the Gross Receipts by three percent or more during the previous annual reporting period under this Agreement, the entire expense of such audit shall be borne by OTC subject to a cap of $10,000. If such audit discloses that OTC has understated Gross Receipts, and has, as a result, understated the PORT's license fee, such additional license fee due shall be paid by OTC to the PORT within thirty days with interest thereon at the PORT's prevailing interest rate as published in the PORT's current Marine Terminal Tariff from the date such wharfage and dockage charges became due. If OTC has overstated the license fee, any credit for overpayment shall be made by the PORT to OTC and the PORT shall refund the overpayment to OTC within thirty days.

ARTICLE VIII - OTC OBLIGATIONS

Section 8.1 - Construction of Improvements

OTC shall not construct or install any improvements at Premises without the PORT's written permission.

Section 8.2 - Conduct of Business

OTC agrees to conduct and carry on its professional management services at Premises. OTC will operate the facility under normal and customary business practices for receipt and delivery of cargo. A schedule providing for weekday receipt and delivery of cargo will be maintained, subject to cargo volume and reasonable needs of the shipping community.

Section 8.3 - Fixtures

All fixtures placed upon Premises by OTC during the term of this Agreement shall remain the property of OTC. Movable furniture, decorations, floor covering other than hard

surface bonded or adhesively fixed flooring, curtains, blinds, furnishing and trade fixtures shall also remain the property of OTC if placed on Premises by OTC.

Section 8.4 - Title to Improvements

Upon termination of this Agreement by the passage of time or otherwise, the PORT shall require OTC to remove all structures, installations, or improvements built by OTC at Premises pursuant to this Agreement, within ninety days after the expiration of this Agreement, at OTC's sole expense unless the PORT and OTC are able to mutually agree upon PORT's purchase of any OTC improvements.

Section 8.5 - Maintenance

OTC shall keep and maintain equipment provided by OTC and all improvements of any kind, which may be erected, installed, or made thereon by OTC, in good and substantial repair and condition, including the exterior condition thereof, and shall make all necessary repairs and alterations thereto. At the conclusion of the term of this Agreement, OTC shall return the Premises to the PORT in like condition in which it was received, normal wear and tear excepted. OTC agrees that equipment used on the Premises shall not exceed weight limitations as prescribed in the Marine Terminal Guide. Exceptions to the stated weight limits must be obtained in writing from the PORT prior to use. OTC shall provide proper containers for trash and garbage and shall keep the Premises free and clear of rubbish, debris, and litter at all times. PORT shall have the right to enter upon and inspect Premises. OTC shall be responsible for deteriorating conditions caused by non-Port approved handling equipment.

The Port shall maintain the Premises at its own expense in a condition equal to the condition which the Port provides the Premises to OTC. If the Port is unable to provide such maintenance to the Premises and if the failure to provide such maintenance results in the interruption of OTC's business on the Premises or a portion thereof, OTC shall receive an abatement in the minimum License Fees due for the period during which its business activities were disrupted.

Section 8.6 - Liens

Except with respect to obligations incurred by the PORT, OTC agrees to pay, when due, all sums of money that may become due for, or purporting to be for, any labor, services, materials, supplies, utilities, furnishings, machinery, or equipment which have been furnished or ordered with OTC's consent to be furnished to or for OTC in, upon, or about Premises herein described, which may be secured by any mechanics materialsmen, or other lien against Premises or PORT's interest therein, and will cause each such lien to be fully discharged and released at the time the performance of any obligation secured by any such lien matures or becomes due, provided that OTC may in good faith contest any mechanic or other liens filed or established, and in such event may permit the items so contested to remain undischarged and unsatisfied during the period of such contest.

Section 8.7 - Taxes

OTC agrees to pay any and all lawful taxes and assessments which during the term hereof or any extension may become a lien or which may be levied by the state, county, city, or any other tax-levying body upon Premises or upon any taxable interest by OTC acquired in this Agreement or any taxable possessory right which OTC may have in or to Premises or facilities herein described or the improvements thereon by reason of OTC occupancy thereof as well as all taxes on all taxable property, real or personal, owned by OTC in or about said Premises, provided that OTC may, in good faith, contest the levying of such taxes and in such event may permit the taxes so contested to remain undischarged and unsatisfied during the period of such contest. Upon making such payments, OTC shall give to the PORT a copy of the receipts and vouchers showing such payment. Notwithstanding any other provisions contained in this Agreement, upon termination of the Agreement, all taxes then levied or then a lien on any of Premises or taxable interest therein shall be paid in full with proration by OTC forthwith or as soon as a statement thereof has been issued by the tax collector. In the event that real property taxes are assessed upon Premises, PORT agrees to contest the levying of such taxes at its own expense.

Section 8.8 - Operating Program

On or before the anniversary of the effective date of each calendar year, OTC shall submit its operating plan for Premises for the ensuing twelve–month period to the PORT which shall include, among other things, OTC's program for operating, managing, improving, and marketing Premises, and the status of relationship with community groups, regulatory agencies, and other interested groups.

Section 8.9 - Port Use

Assuming there is no conflict with OTC's customers, OTC agrees to make Premises available to the PORT for PORT use upon written notice by the PORT of seven calendar days in advance of the event. PORT shall share wharfage and dockage revenues with OTC on the basis set forth in Section 6.4. OTC shall perform all billing and collection services for PORT use.

Section 8.10 - Signs

All signs installed on Premises shall be submitted to the PORT for review and approval prior to installation. Such approval shall not be unreasonably withheld. No sign shall be permitted on the exterior of Premises except as approved by the PORT.

ARTICLE IX - INDEMNITY AND INSURANCE

Section 9.1 - Indemnity

OTC agrees to fully indemnify, save and hold harmless, and defend the PORT, its commissioners, directors, agents, officers, and employees from and against OTC's pro rata share of all claims, damages, losses, and expenses, including investigative attorney fees and costs aris-

ing out of damages or injuries (including death) to any persons or their property, caused by, arising out of or in any way connected to any alleged act, omission, fault, mistake or negligence of OTC, its employees or agents in the use or occupancy of Premises.

The PORT shall give OTC prompt and reasonable notice of any such claims or actions known to PORT, and OTC shall have the right to investigate, compromise, and defend same, provided such claim is not caused by the negligence of the PORT, its employees or agents.

In the event that there is any bodily injury at, or property damage to any portion of Premises caused by OTC or any third party, including vessels, OTC shall immediately notify the PORT's Claims Manager and shall cooperate in the PORT's investigation of such incident. OTC shall make all reports or documents concerning the incident, except for medically and legally privileged information, available to the PORT and cooperate with the PORT in investigating, compromising, or litigating the claim against third parties.

For any property damage done to Premises proximately caused by the negligence of OTC or the breach of this Agreeement, OTC shall be given the option of repairing the damage or having the PORT repair the damage and invoice OTC for its pro rata share of the repair expense. Should OTC elect to repair the damage, Port shall reserve right to inspect and accept repair. If OTC repair is not acceptable to Port, OTC shall repair to Port's satisfaction or reimburse the Port for costs to make required repairs.

For any property damage done to Premises by third parties not proximately caused by the negligence of OTC, PORT shall bear the cost of investigating, compromising, or litigating the claim. OTC shall notify PORT immediately that damage has occurred.

Section 9.2 - Waiver of Subrogation

The PORT and OTC agree that each forfeits any right of action that it may later acquire against the other of the parties to this Agreement for loss or damage to its property, or to property in which it may have an interest, where such loss is caused by fire or any of the extended coverage hazards, and arises out of or is connected with OTC's use of Premises.

Section 9.3 - Insurance

OTC shall maintain commercial, general, and automobile liability insurance and terminal operators liability insurance for the protection of OTC, its directors, officers, servants, and employees, insuring OTC against liability for damages because of personal injury, bodily injury, death, or damage to property, including loss of use thereof, and occurring on or in any way related to Premises or occasioned by reason of the operations of Premises with insurance limits of not less than ($5,000,000) Five Million and No/100 Dollars combined single limit. The policy will cover the legal, contractual, and assumed liability of OTC as respects its operation of Premises, including stevedoring. This policy will respond to loss or damage to vessels, their equipment, and cargo while in the care, custody, and control of OTC and to claims for

extra expenses arising out of misdelivery or misdirection of cargo. Such amount of insurance coverage shall be subject to adjustment consistent with insurance coverage amounts then considered appropriate by industry standards for OTC's operation of Premises. Such insurance shall not be invalidated by any act or neglect or breach of contract by OTC.

OTC shall maintain in force Workers' Compensation insurance, including coverage for Employer's Liability and Longshore and Harbor Workers' Compensation Act.

OTC shall furnish to the PORT a certificate, which shall be consistent with OTC's obligations under Article IX of this Agreement, evidencing the date, amount, and type of insurance that has been procured pursuant to this Agreement. All policies will provide for not less than thirty days written notice to the PORT and OTC before such policies may be revised, nonrenewed, or cancelled.

ARTICLE X - DEFAULT

Section 10.1 - Events of Default

The following shall be "Events of Default:"

A. Default in Payments

Failure of OTC to make any payment or other charge within ten days after it is due upon the PORT giving OTC ten days written notice shall be considered in default.

B. Default in Other Covenants

Failure of OTC to comply with any term or condition or fulfill any obligation of this Agreement, other than the payment of rent or other charges, within ten days after written notice by PORT specifying the nature of the default with reasonable particularity; provided, however, that, if the default is of such a nature that it cannot be completely remedied within the ten–day period, such default shall not be deemed an Event of Default if OTC begins correction of the default within the ten–day period and thereafter proceeds with reasonable diligence and in good faith to effect the remedy as soon as practicable.

C. Insolvency

Insolvency of OTC; an assignment by OTC for the benefit of creditors; the filing by OTC of a voluntary petition in bankruptcy; an adjudication that OTC is bankrupt or the appointment of a receiver of the properties of OTC; the filing of an involuntary petition of bankruptcy and failure of OTC to secure a dismissal of the petition within thirty days after filing; attachment of or the levying of execution on OTC's interest in this Agreement and failure of OTC to secure discharge of the attachment or release of the levy of execution within ten days shall result in forfeit of said bond to the PORT to cover outstanding fees.

Section 10.2 - Notice of Default

In the event of a default under the provision of this Agreement, the PORT will provide OTC a notice of default in writing by certified mail.

Section 10.3 - Remedies

Upon an Event of Default defined in Section 10.1 above, the PORT shall be entitled to any or all of the following remedies:

A. Damages

PORT shall be entitled to recover immediately all past due charges owed to PORT by OTC and any other damages incurred by PORT, including any costs of re-entering Premises, as a result of OTC's default. OTC will furnish the PORT with a financial performance bond in the amount of $500,000 (Five Hundred Thousand and No/100ths Dollars) to guarantee recovery of past due charges.

B. Termination

PORT may terminate this Agreement.

C. Reentry After Termination

If this Agreement is terminated for any reason, OTC's liability for damages shall survive such termination, and the rights and obligations of the parties shall be as follows:

1. OTC shall vacate Premises immediately, remove any property of OTC including any fixtures which OTC is required to remove, under Section 8.3, at the end of the Agreement term, perform any cleanup, alterations, or other work required to leave Premises in the condition required at the end of the term, and deliver all keys to the PORT. Depreciation and wear from ordinary use for the purpose for which Premises was used need not be restored, but all repair for which OTC is responsible shall be completed to the latest practical date prior to such surrender.

2. If OTC fails to do so, the PORT may retain such property and all rights of OTC with respect to Premises shall cease or, by notice in writing given to OTC within twenty days after removal was required, the PORT may elect to remove such property. OTC shall be liable to the PORT for the cost of removal, transportation to storage, and storage, with interest at eighteen percent per annum on all such expenses from the date of expenditure by the PORT.

3. PORT may re-enter, take possession of, and operate Premises, and may remove any persons or property by legal action or by self-help with the use of reasonable force and without liability for damages.

2. If OTC fails to do so, the PORT may retain such property and all rights of OTC with respect to Premises shall cease or, by notice in writing given to OTC within twenty days after removal was required, the PORT may elect to remove such property. OTC shall be liable to the PORT for the cost of removal, transportation to storage, and storage, with interest at eighteen percent per annum on all such expenses from the date of expenditure by the PORT.

3. PORT may re-enter, take possession of, and operate Premises, and may remove any persons or property by legal action or by self-help with the use of reasonable force and without liability for damages.

ARTICLE XI - FORCE MAJEURE

A. The duties and obligations of each of the parties hereunder shall be suspended during such time as performance by either party is prevented or made impracticable by occurrences beyond the control of the party affected, and to the extent such occurrences are not due to the fault or negligence of the party affected. Such occurrences shall include, but shall not be limited to strikes, labor disturbances, riots, fire, governmental action, war, acts of God, or other causes of similar nature.

B. The foregoing shall not be considered a waiver of either party's obligation under this Agreement, but upon written notice from OTC indicating the effective date of such stoppage, the Minimum Annual Guarantee shall be reduced on a pro rata basis for the contract year or until the cause of such stoppage is removed or overcome. The party seeking relief under this clause shall be required to have used reasonable diligence in seeking to overcome such obstacles, and performance shall have been resumed within a reasonable time after the obstacle is removed.

C. In the event that performance is prevented under the provisions of Section A, or there is reasonable certainty that performance will be prevented for a period of ninety days from the commencement thereof, either party shall have the right to terminate this Agreement by delivering to the other party thirty days written notice of its intent to do so. In such an event, the Minimum Annual Guarantee shall be reduced on a pro rata basis for the contract year or until the cause of such stoppage is removed or overcome. The proration shall be based upon the average monthly amount of the Minimum Annual Guarantee of the year of termination.

In that event, the PORT shall have the right to invoice and OTC shall pay to the PORT, within forty-five days of invoice date, the difference between the amount the PORT has received from OTC and the prorated Minimum Annual Guarantee for the termination year, without further recourse by the PORT.

ARTICLE XII - GENERAL PROVISIONS

Section 12.1 - Dispute Resolution

A. In the event of any dispute, other than as set forth in Section 12.1 (B) below, between the PORT and OTC, including without limitation and dispute as to whether there is an Event of Default, the PORT and OTC shall attempt to resolve the dispute by good faith negotiations between the PORT and OTC. If such negotiations are unsuccessful, either party may, at any time, request arbitration in accordance with the Multnomah County Circuit Court's Mandatory Arbitration Rules, subject to the following modifications:

1. Except as otherwise mutually agreed to by the parties, the decision of the arbitrator shall be binding upon the parties and enforceable in any court of law without any right of a trial de Novo, or otherwise on the merits, or any appeal to the extent that the item or amount in dispute between the parties does not exceed Fifty Thousand and No/100 Dollars ($50,000.00) in amount or in the cost of performance.

2. The PORT and OTC shall bear their own cost of negotiating, arbitrating, and litigating any dispute among themselves.

B. Any stevedoring company, other than OTC, and any other incidental beneficiaries of this Agreement, such as customers of the PORT and OTC, shall be entitled to notify the PORT of any practice of OTC which it feels is an Event of Default under this Agreement, including without limitation, any alleged discriminatory practices of OTC against other stevedoring companies. Upon such notice, and subject to the other terms of this Agreement, the PORT shall attempt to determine whether an Event of Default exists, and upon such determination the PORT shall notify OTC and OTC shall then attempt to remedy the Event of Default or contest the determination as OTC deems fit. A written notice shall then be sent to such third party of the determinations by the PORT that there is no Event of Default or that the Event of Default has been remedied by OTC. After receipt of the PORT's notice, such third party may request a hearing at a regularly scheduled meeting of the PORT's Commissioners at which it may request the Commissioners to review the PORT's determination and require PORT staff to request further remedy or arbitration in accordance with this Agreement.

Notwithstanding anything to the contrary in this Agreement, OTC and the PORT are the only parties to the Agreement and as such are the only parties entitled to enforce the terms of this Agreement. The sole and exclusive remedy and rights of third parties, including the incidental beneficiaries stated above, under this Agreement are limited to the provisions of Section 12.1(B).

Section 12.2 - Assignment

No part of Premises or this Agreement may be assigned, nor may a right of use of any portion of Premises be conferred on any third person by any other means, without the prior written consent of PORT. Any assignment or attempted assignment without PORT's prior written consent shall be void. This provision shall apply to all transfers by operation of law and to any sale of a controlling interest in the stock of OTC. This provision shall not preclude any corporate reorganization which involves OTC.

No consent in one instance shall prevent the provision from applying to a subsequent instance. Although any consent shall be the sole and exclusive prerogative of the PORT, in determining whether to consent to an assignment the PORT may consider the following factors: financial ability, business experience, and intended use.

Section 12.3 - Condemnation

If Premises or any interest therein is taken as a result of the exercise of the right of eminent domain, this Agreement shall terminate as to such portion as may be taken. If the portion taken does not feasibly permit the continuation of the operation of Premises by OTC, OTC shall have the right to cancel. Such cancellation shall be effective as of the date of taking. PORT shall be entitled to that portion of the award as represented by the land and improvements owned by the PORT.

Section 12.4 - Nonwaiver

Waiver by either party of strict performance of any provision of this Agreement shall not be a waiver of or prejudice the party's right to require strict performance of the same provision in the future or of any other provision.

If suit or action is instituted in connection with any controversy arising out of this Agreement, the prevailing party shall be entitled to recover in addition to costs such sum as the court may adjuge reasonable as attorney fees, or in the event of appeal, as allowed by the appellate court.

Section 12.5 - Labor Agreement

Any traditional longshore and warehouse work assignment provisions of the ILWU-PMA Agreements, dated July 1, 1984, which are not in conflict with agreements entered into between OTC, through its membersip in the Pacific Maritime Association (PMA), and the International Longshoremen's and Warehousemen's Union (ILWU), are applicable to the signatories of the Agreement made between International Longshoremen's and Warehousemen's Union, Locals 8 and 40 and the Port of Portland, their lessees and assigns. OTC shall preserve traditional work assignment jurisdictions between the ILWU and the District Council of Trade Unions (DCTU) currently in effect at Terminal 4 as expressed in those certain agreements dated October 22, 1984, as amended (ILWU), and Febraury 10, 1988 (DCTU).

Section 12.6 - Hazardous Wastes

A. OTC agrees to indemnify and save harmless the Port and its officers, directors, employees and agents (collectively "Indemnified Parties") from and against expense, cost or damages related to any response, removal, or remedial costs which may be assessed against the Indemnified parties by federal or state govermental authorities as a result of OTC's activities on the Premises relating to cargo or goods within its care, custody or control occurring after the date of OTC's occupancy of the Premises which involve the use, storage, handling, transportation, treatment, disposal, or release of hazardous or toxic wastes, substances, pollutants, or contaminants regulated by federal, state, or local environmental law or regulations, including, without limitation, the Federal Water Pollution Control Act, as amended; the Resource Conservation and Recovery Act, as amended; the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendment and Reauthorization Act of 1986, or as amended in the future; and the Toxic Substances Control Act as amended; and rules and regulations issued or promulgated thereunder. The foregoing indemnity shall include, without limitation, expenses for all costs and expenses incurred by the Port for attorneys employed to defend any such claim whether before or after initiation of a formal lawsuit or administrative proceeding; provided that the Port shall notify OTC in writing of the existence of such claims following the knowledge of such claims.

B. The Port agrees to indemnify and save harmless OTC and its officers, directors, employees and agents (collectively, "Indemnified Parties") from and against any claims, demands, damages, liabilities and costs including, without limitation, attorneys' fees at trial and on appeal and response, removal or remedial costs (collectively "claims") which may be assessed against the Indemnified Parties by reason of any use or condition of the Premises or any action occuring thereon or on adjoining lands or waters which involves the transportation, treatment, disposal, presence or release of any hazardous or toxic wastes, substances, pollutants, or contaminants regulated by any federal, state, or local environmental laws or regulations (including, without limitation, the hazardous substances regulated by the Federal Water Pollution Act, as amended; the Resource Conservation and Recovery Act, as amended; the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendment and Reauthorization Act of 1986, or as amended in the future; and the the toxic Substances Control Act as amended; and all rules and regulations issued or promulgated thereunder) to the extent that (I) such use, storage, handling, transportation, treatment, disposal or release occurred prior to the date of occupancy of the Premises by OTC or (II) such hazardous materials which were present in the Premises prior to such date or (III) such hazardous materials were found to originate from adjoining lands or waters or (IV) the claims are based on or arise out of any act or omission of the Port or its agents, contractors and employees. The foregoing indemnity shall include, without limitation, all costs and expenses reasonably incurred by OTC for attorneys employed to defend any such claim whether before or after initiation of a formal lawsuit or adminitrative proceeding, provided

that OTC shall notify the Port in writing of the existence of such claims following the knowledge of such claims.

Section 12.7 - Adherence to Law

OTC shall adhere to all applicable Federal, State of Oregon, and municipal laws of the City of Portland and the County of Multnomah, rules, regulations, and ordinances, including laws governing its relationship with its employees, including but not limited to, laws, rules, regulations, and policies concerning Workers' Compensation and minimum and prevailing wage requirements, including but not limited to Port of Portland Terminal Tariff No. 6, supplements thereto and reissues thereof, as modified by this Agreement. OTC further agrees to indemnify and hold harmless the PORT, its Commissioners, officers, agents, and employees from any liability or penalty which may be imposed by governmental authorities by reason of any proven violation by OTC or its agents of the foregoing.

Section 12.8 - Warranties/Guarantees

Except for those warranties specifically set forth herein, PORT makes no warranty, guarantee, or averment of any nature whatsoever concerning the physical condition of Premises, and it is agreed that PORT will not be responsible for any loss, damage, or costs which may be incurred by OTC by reason of any such physical condition.

A. PORT shall use its best efforts to maintain a draft of forty feet of mean low water for the berth(s) at Premises at no expense to OTC.

B. PORT shall maintain the structural integrity of Premises and shall repair promptly any damage to Premises which would undermine its structural integrity or safe working conditions, subject to indemnification by OTC under Section 9.01 for damages caused by OTC.

Section 12.9 - Headings

The article and section headings contained herein are for convenience in reference and are not intended to define or limit the scope of any provisions of this Agreement.

Section 12.10 - Consent of Port

Whenever consent, approval, or direction by the PORT is required under the terms contained herein, all such consent, approval, or direction shall be received in writing from the PORT's Project Manager.

Section 12.11 - Notices

All notices required under this Agreement shall be deemed to be properly served if sent by certified mail to the last address previously furnished by the parties hereto. Until hereafter changed by the parties by notice in writing, notices shall be sent to the PORT at The Port of Portland, P.O. Box 3529, Portland, Oregon 97208, and to OTC at P.O. Box 10167, Portland, Oregon 97210. Date of Service of such notice is date such notice is deposited in a post office of the United States Post Office Department, postage prepaid.

Section 12.12 - Modification

Any modification of this Agreement shall be mutually agreed upon and reduced to writng.

Section 12.13 - No Pledge of OTC Interest

OTC shall not pledge its interest in this Agreement.

Section 12.14 - Entire Agreement

It is understood and agreed that this instrument and the attachments, schedules, and exhibits thereto contain the entire Agreement between the parties hereto with respect to Premises. It is further understood and agreed by OTC that PORT and PORT's agents have made no representations or promises with respect to this Agreement or the making or entry into this Agreement, except as in this Agreement expressly set forth and that no claim or liability or cause for termination shall be asserted by OTC against PORT for, and PORT shall not be liable by reason of the breach of any representations or promises prior to the Effective Date not expressly stated in this Agreement, any other written or oral agreement with PORT existing prior to the Effective Date being expressly waived by OTC, it being understood that the PORT requires this Agreement to be in writing and adopted by PORT Commission.

The individuals executing this Agreement warrant that they have full authority to execute this Agreement on behalf of the entity for whom they are acting herein.

The parties hereto further acknowledge that they thoroughly read this Agreement, including any exhibits or attachments hereto, and have sought and received whatever competent advice and counsel was necessary for them to form a full and complete understanding of all rights and obligations herein; and, having so done, do hereby execute this Agreement on the day and year first-above mentioned.

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IN WITNESS WHEREOF, the parties hereto have subscribed their names.

OREGON TERMINAL COMPANY

By _____
Clayton R. Jones, III
President

THE PORT OF PORTLAND

By _____
Mildred A. Schwab, Vice President

By _____
Darla Swensen, Assistant Secretary

APPROVED AS TO
LEGAL SUFFICIENCY

_____
Dean Phillips, Assistant General Counsel

APPROVED BY COMMISSION ON:

Sept. 14, 1988

STATE OF OREGON)
) SS.
County of Multnomah)

On this 30th day of December 19 88 before me appeared Mildred A. Schwab and Darla Swensen, who, being duly sworn, did say that, Mildred A. Schwab is the Vice President and, Darla Swensen, is the Assistant Secretary of the within named The Port of Portland, a municipal corporation, that the seal to the within instrument is the corporate seal of said municipal corporation, and that said instrument was signed and sealed by authority of its Board of Commissioners, and Mildred A. Schwab and Darla Swensen acknowledged this to be the free act and deed of said municipal corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this day and year first in this certificate written.

Notary Public for Oregon
Dean M. Phillips
1/11/92
My Commission Expires

STATE OF OREGON)
) SS.
County of Multnomah)

On this 30TH day of December, 1988, before me appeared Clayton R. Jones III, who, being duly sworn, did say that he Clayton R. Jones III, is the President of the within named Oregon Terminal Company, that the seal to the within instrument is the corporate seal of said corporation, and that said instrument was signed and sealed by authority of its Board of Directors, and Clayton R. Jones III, acknowledges this to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this day and year first in this certificate written.

Notary Public for Oregon

May 24 1991
My Commission Expires

EXHIBIT B

Existing customer list for application of License Fee - Revenue Sharing.

EXISTING CUSTOMERS	EXISTING TRADE/CARRIER SERVICE
Daichi Chuo Kisen Kaisha Company, Ltd.	Inbound Japanese Steel Service
Eurolines (Europe - Overseas Steamship Lines, N.V.) (American Maritime Agencies)	Inbound European Steel Service
Star Shipping (U.S.W.C.), Inc.	Inbound European Steel Service
Trade Ocean Lines, Ltd.	Inbound Japanese Steel Service
Mitsui & Company	Logs
Sumitomo Forestry Company, Ltd.	Logs
Tosa Lumber Company	Logs

EXHIBIT C

The charges for providing the following services/equipment/facilities shall be divided between OTC and the PORT on the following basis:

	OTC	Port
Banding	100%	0%
Cargo board rental		
OTC cargo boards	100%	0%
Port cargo boards	0%	100%
Copies of documents		
Provided by OTC	100%	0%
Provided by Port	0%	100%
Electricity	100%	0%
Labeling, marking, stenciling, tagging, or recording serial numbers	100%	0%
Marine Fire and Safety Association assessment	0%	100%
Prepaid intermodal freight service charge		
Performed by OTC	100%	0%
Performed by Port	0%	100%
Providing services under man-hour and/or equipment rental rates		
Provided by OTC	100%	0%
Provided by Port	0%	100%
Sorting	100%	0%
Storage (to be mutually agreed upon between OTC and the Port and filed with the FMC before going into effect.)	50%	50%
Telephone	100%	0%
Transportation documentation service fee		
Performed by OTC	100%	0%
Performed by Port	0%	100%
Water	100%	0%
Services/Equipment/Facilties, not described above -	To be mutually agreed upon between OTC and the Port and filed with the FMC before going into effect	

Amendment No. 1
To FMC Agreement No. 224-200209
Management Agreement
Between
The Port Of Portland
And
Oregon Terminal Compa

Amendment No 1 original
Dec 30, 88
confirmed FMC on 1/3/89

THIS AMENDMENT NO. 1 is entered into by
PORTLAND (PORT) and OREGON TERMINAL COMP
organized and existing under the laws of the State of Orego

WITNESSETH:

WHEREAS, the PORT and OTC have entered into
December 30, 1988, (Original Management Agreement)
Commission on January 3, 1989; and

WHEREAS, the PORT and OTC desire to amend the Original Management Agreement to include the Terminal No. 4 truck check-in facility to the Premises; and

WHEREAS, the parties have negotiated certain other terms and conditions contained herein;

NOW, THEREFORE, in consideration of the mutual covenants herein, the parties agree as follows:

I.

ARTICLE III, Section 3.1 – Description of Premises, of the Original Management Agreement, is amended by adding the following paragraphs:

The Premises shall include approximately 2,252 square feet within the total 3,286 square feet truck check-in facility in conjunction with the provision of terminal services, as described in PORT Drawing No. T-4 79-500 5/20, attached hereto and marked Exhibit D.

Parties understand that approximately 699 square feet is building common area, approximately 335 square feet shall be occupied by U.S. Customs, and the remainder of the building, approximately 2,252 square feet, shall be occupied by OTC, which comprises the total of 3,286 square feet of the facility.

OTC shall have a nonexclusive appurtenant right to use the automobile spaces in the parking area adjacent to the truck check-in facility in common with U.S. Customs, the location of which is shown on the attached PORT Drawing No. T-4 79-500 1/20, attached hereto and marked Exhibit E.

II.

ARTICLE VI – Section 6.6 – Financial Responsibility for Operations, in the Original Management Agreement, is renumbered to become Section 6.7 and the following new Section 6.6 – Facility Fee – Truck Check-In Facility, is added:

Section 6.6 – Facility Fee – Truck Check-In Facility

A. OTC shall pay monthly, in advance, to the PORT, $1,463.80 based on a rate of $0.65 per square foot per month, for the use of the approximately 2.252 square feet in the truck check-in facility described herein, such truck check-in facility to be used in conjunction with dock operations.

B. At the beginning of each three-year interval of this Management Agreement, or any extension thereof, commencing January 3, 1992, the Facility Fee shall be subject to an upward adjustment based on the increase of the "Consumer Price Index – Seasonally Adjusted U.S. City Average for all Items for All Urban Consumers" published in the Monthly Labor Review by the Bureau of Labor Statistics of the United States Department of Labor, (hereinafter the "CPI-U"), for the previous three-year period of the Management Agreement. The Adjustment shall be determined by multiplying the initial Facility Fee by a fraction, the numerator of which is the CPI-U for the last full calendar month of the current three-year period, and the denominator of which is the CPI-U for the first full calendar month of the term of this Management Agreement. In the event the CPI-U is discontinued, the "Consumer Price Index - Seasonally Adjusted U.S. City Average for all Items for Urban Wage Earners and Clerical Workers" published in the Monthly Labor Review by the Bureau of Labor Statistics of the United States Department of Labor (CPI-W) shall be used for making the computation. In the event the Bureau of Labor Statistics shall no longer maintain statistics on the purchasing power of the consumer dollar, comparable statistics published by a responsible financial periodical or recognized authority mutually agreed to between the Port and OTC shall be used for making the computation. In no case shall the Facility Fee be less than the initial Facility Fee as stated in Section 6.6 of this Management Agreement nor less than the adjusted Facility Fee in any prior three-year period of the Management Agreement Term.

III.

ARTICLE VI, Section 6.7 – Financial Responsibility for Operations, Paragraph (C), is amended by adding the following paragraph:

PORT shall pay OTC the prorated share of the utility costs for that portion of the 3,286 square feet truck check-in facility occupied by U.S. Customs, based on square footage occupied by U.S. Customs. The proration of costs for utilities shall be based on the percentage of space occupied by OTC and U.S. Customs. The total occupied space is equal to 2,587 square feet, of which 2,252 square feet or 87 percent is occupied by OTC, and 335 square feet or 13 percent is occupied by U.S. Customs. In the event the office space of U.S. Customs becomes taxable, OTC shall have no liability for said taxes.

IV

ARTICLE VII, Section 7.2 – Payment to Port, of the Original Agreement, is amended by adding the following paragraph:

OTC shall pay PORT the monthly Facility Fee for the truck check-in facility which shall be due on the first day of each month, said Facility Fee to be delinquent if not paid within five business days of due date. In the event the Management Agreement commences after the first day of a month, the Facility Fee for the first month shall be prorated on the basis of a thirty-day month.

V.

ARTICLE VIII, Section 8.1 – Construction of Improvements, of the Original Management Agreement, is amended by adding the following paragraph:

Any improvements to the truck check infacility, including, but not limited to, the installation of wall partitions or other modifications to make use of the truck check-in facility by OTC, and improvements to relocate or accommodate existing users of the truck check-in facility, shall be at OTC's expense, and subject to the PORT's prior written approval.

VI.

ARTICLE VII, Section 8.5 – Maintenance, of the Original Management Agreement, is amended by adding the following paragraph:

OTC shall provide for garbage service and janitorial service, including, but not limited to, window washing, for the entire 3,286 square feet truck check-in facility, including any areas occupied by U.S. Customs, the bathrooms, and common hallways. The PORT agrees to reimburse OTC for the prorated cost of the janitorial service and garbage service for U.S. Customs based on the square footage occupied by U.S. Customs in accordance with the percentages set forth in Section 6.7 (C), as amended. OTC shall provide, at PORT request, verification of such costs.

VII.

This Amendment No. 1 shall be filed with the Federal Maritime Commission (FMC). This Amendment No. 1 shall be effective the day it is received in the office of the FMC. If the FMC rejects this Amendment, it shall be of no force or effect.

VIII.

Except as modified herein, the Original Management Agreement shall remain in full force and effect.

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IN WITNESS WHEREOF, the parties have executed this Amendment No. 1 this 23rd day of February 1989.

OREGON TERMINAL COMPANY

By _____
Jon R. Walsh, Project Manager

THE PORT OF PORTLAND

By _____
Robert Ames, President

By _____
Darla Swensen, Assistant Secretary

APPROVED AS TO LEGAL SUFFICIENCY

_____
Dean Phillips
Counsel for The Port of Portland

APPROVED BY COMMISSION:

January 11, 1989

STATE OF OREGON)
) SS.
County of Multnomah)

On this 23rd day of February, 1989 before me appeared Robert Ames and Darla Swensen who, being duly sworn, did say that they are President and Assistant Secretary, respectively, of the within named Port of Portland, a municipal corporation, and that said instrument was signed and sealed by authority of its Board of Commissioners, and they acknowledge to be the free act and deed of said municipal corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this day and year first in this certificate written.

Notary Public for Oregon

3-7-90
My Commission Expires

STATE OF OREGON)
) SS.
County of Multnomah)

On this 15th day of February, 1989, before me appeared Jon R. Walsh who, being duly sworn, did say that he is the Project Manager of the within named Oregon Terminal Company, and that said instrument was signed and sealed by authority of its Board of Directors, and that this is the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal this day and year first in this certificate written.

Notary Public for Oregon

3-7-90
My Commission Expires

224 200209-002

Port of Portland

Box 3529 Portland, Oregon 97208
503/231-5000
TLX: 474-2039

RECEIVED
DEC 21 1990
FEDERAL MARITIME COMMISSION

December 17, 1990

Joseph C. Polking, Secretary
Federal Maritime Commission
1100 L Street, N.W.
Washington, DC 20573

FILING AMENDMENT 2 TO AGREEMENT NO. 224-200209-002
BETWEEN THE PORT OF PORTLAND AND OREGON TERMINAL COMPANY

Enclosed are the Original and 15 copies of Amendment No. 2 to Agreement No. 224-200209 between The Port of Portland (Port) and Oregon Terminal Company (OTC) for your review as provided in Section 5 of the Shipping Act of 1984.

This amendment extends the term for three years (from January 3, 1991, through January 2, 1994), as provided in Section 1.2 of the Agreement.

This amendment also restates Section 6.4.D and indicates that the revenue-sharing formula due to the Port for Pacific Commerce Line (PCL) continues to be 100 percent of the Port' after the Port's agreement with PCL expi

Please do not hesitate to call on us if information.

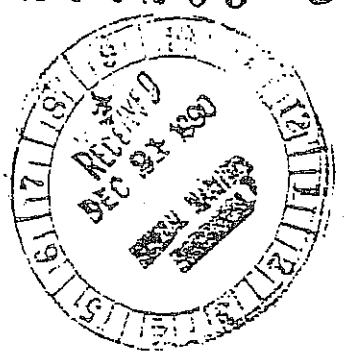
Amendment No 2
1-3-91
To
1-2-94

Yours truly,

Elaine Lycan
Elaine Lycan, Manager
Price Estimating and Regulatory Affairs

Enclosures - Original and 15 copies of

224 200209-002



AMENDMENT NO. 2
TO FMC AGREEMENT NO. 224-200209
MANAGEMENT AGREEMENT
BETWEEN
THE PORT OF PORTLAND
AND
OREGON TERMINAL COMPANY

RECEIVED
'90 DEC 21 A11:20
FEDERAL MARITIME COMMISSION
OFFICE OF THE SECRETARY

THIS AMENDMENT NO 2. is entered into by and between THE PORT OF PORTLAND (PORT) and OREGON TERMINAL COMPANY (OTC), a corporation duly organized and existing under the laws of the state of Oregon.

W I T N E S S E T H

WHEREAS, the PORT and OTC have entered into a management agreement dated December 30, 1988 (Original Management Agreement) filed with the Federal Maritime Commission on January 3, 1989 and Amendment No. 1 dated February 15, 1989 and filed with the Federal Maritime Commission on February 28, 1989.

WHEREAS, the OTC wishes to extend its option and renew this agreement for the first three-years term; and

WHEREAS, the PORT and OTC desire to amend the Original Management Agreement as it relates to Pacific Commerce Line; and

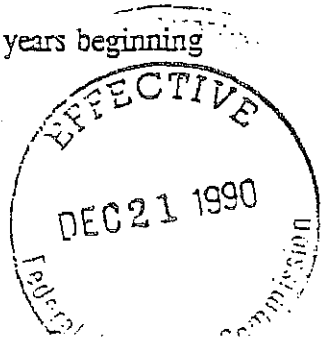
WHEREAS, the parties have negotiated certain terms and conditions contained herein;

NOW, THEREFORE, in consideration of the mutual covenants herein, the parties agree as follows:

I.

Section 1.1 - Initial Term

The term of the Original Agreement is extended for a period of three years beginning January 3, 1991 and continuing through January 2, 1994.



II.

ARTICLE VI, Section 6.4 (D) - License Fee of the Original Management Agreement is replaced with the following:

D. OTC will maintain existing agreements between the Port and Terminal 4 customers during the unexpired terms of their contracts with regard to pricing and preferential berth assignments. The following exception to the revenue sharing formula is Pacific Commerce Line. License fee due under the revenue sharing formula for Pacific Commerce Line, unless later mutually agreed to between the Port and OTC (and filed with the FMC) will be limited to 100% of the published dockage rate in the Port of Portland Terminal Tariff No. 6, supplements thereto and reissues thereof. In the event Toyota uses Berth 415 per their agreement dated January 31, 1986, dockage will be shared with the Port receiving eighty percent (80%) and OTC receiving twenty percent (20%), and will be applied to the minimum guarantee. OTC acknowledges that the potential conflicts may arise in preferential berth assignments and agrees that the Port shall resolve any such conflicts.

III.

This Amendment No. 2 shall be filed with the Federal Maritime Commission (FMC). This Amendment No. 2 shall be effective January 3, 1991 or the day it is received in the office of the FMC, whichever is later. If the FMC rejects this Amendment, it shall be of no force or effect.

IV.

Except as modified herein, the Original Management Agreement shall remain in full force and effect.

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IN WITNESS WHEREOF, the parties have executed this Amendment No. 2 this 11th day of Dec 1990.

OREGON TERMINAL COMPANY

By _____
Jon Walsh, Project Manager

THE PORT OF PORTLAND

By _____
Robert L. Woodell, Executive Director

APPROVED AS TO LEGAL SUFFICIENCY

_____
Dean Phillips
Counsel for The Port of Portland

RECEIVED
SEP 1 6 1993
JONES OREGON STEVEDORING CO.

Port of Portland

Box 3529 Portland, Oregon 97208
503/231-5000
TLX: 474-2039

September 15, 1993

Mr. Jon R. Walsh, Vice President
Oregon Terminal Company
P.O. Box 10167
Portland, OR 97210

Dear Jon:

Attached is the signed Amendment No. 3 between the Port and OTC for the management of Terminal 4. Also attached is a copy of the letter to the FMC requesting filing.

I will send you a copy of the returned agreement once it is signed by the FMC. The Amendment will be in effect at that time.

If you have any questions, please give me a call at 240-2213.

Very truly yours,

Fay Malloy
Tenant Relations/
Contracts Administrator

cc: John Hachey

enclosures

1993 Amendment No 3
Extended 1-2-97 contract

Port of Portland

Box 3529 Portland, Oregon 97208
503/231-5000
TLX: 474-2039

September 15, 1993

Mr. Joseph C. Polking
Secretary
Federal Maritime Commission
100 "L" Street, N.W.
Washington, DC 20573

RE: AMENDMENT NO. 3 TO LEASE AGREEMENT NO. 224-200209 BETWEEN THE PORT OF PORTLAND AND OREGON TERMINAL COMPANY

Enclosed please find the original and 10 copies of Amendment No. 4 to the management agreement No. 224-200307 between the Port of Portland (Port) and Oregon Terminal Company (OTC).

This Amendment has the following provisions:

- Extends the original term through January 2, 1997.
- Provides OTC one option to renew for three years under the same terms and conditions, and two three-year options with terms that are to be negotiated.
- Changes the premises to 40.53 acres at Berths 414/415 and the gearlocker area.
- Provides Berth 408 as an alternate berth.
- Reduces the Minimum Annual Guarantee (MAG) for calendar year 1993 to $667,300 and bases all escalation's on this figure.

Please return two stamped copies to me when approved. If you require additional information, please don't hesitate to call.

Very truly yours,

Fay Malloy

Fay Malloy
Tenant Relations/
Contract Administrator

enclosure - Original and 10 copies

AMENDMENT NO. 3
TO FMC AGREEMENT NO. 224-200209
MANAGEMENT AGREEMENT
BETWEEN
THE PORT OF PORTLAND
AND
OREGON TERMINAL COMPANY

THIS AMENDMENT NO. 3 is entered into by and between THE PORT OF PORTLAND ("Port") and OREGON TERMINAL COMPANY ("OTC"), a corporation duly organized and existing under the laws of the State of Oregon.

RECITALS

The Port and OTC entered into a management agreement dated December 30, 1988 ("Original Agreement") filed with the Federal Maritime Commission ("FMC") on January 3, 1989, Amendment No. 1 dated February 15, 1989 and filed with the FMC on February 28, 1989 and Amendment No. 2 dated October 11, 1990 and filed with the FMC on December 21, 1990.

The Port and Hall-Buck Marine, Inc. ("Hall-Buck") have an agreement whereby Hall-Buck will construct and operate a bulk storage facility to be owned by the Port for the storage of outbound bulk cargo at the Port's Terminal 4.

In order to construct the above bulk storage facility, the Management Agreement between the Port and OTC must be modified to return to the Port's control a portion of Terminal 4 presently managed by OTC under the terms of the Original Agreement and the amendments thereto.

OTC is willing to return control of that portion of Terminal 4 necessary for construction and operation of the dome by Hall-Buck under the conditions set out in this Amendment.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the Port and OTC agree as follows:

I.

The terms of Article I of the Original Agreement and Amendments 1 and 2 shall be amended and replaced by a provision to read as follows:

Section 1.1 - Initial Term

The term of the Original Agreement is extended to January 2, 1997.

Section 1.2 - Option Term

Commencing on January 3, 1997, provided OTC is not in default of any of the terms of the Agreement, OTC shall have one option to renew this Management Agreement for a period of three years, under the same terms and conditions contained in the Original Agreement, subject to adjustment of the Minimum Annual Guarantee as set forth below in Section 6.5. OTC may exercise its option by giving written notice to the Port at least four but not more than six months prior to the last day of the expiring term, subject to the following exception: Should the Port at its sole option deem it necessary to convert all or a portion of Berth 414/415 to a container terminal complete with container gantry cranes and other necessary container facility improvements, and upon giving written notification to OTC of its intent to do so, the Port and OTC agree to negotiate in good faith a new minimum guarantee for the area that is converted to container cargo usage. It will be the responsibility of the Port to file such changes with the Federal Maritime Commission prior to their going into effect in the event OTC exercises these options.

At the end of the Option Term, and provided OTC is not in default of any of the terms of this Agreement, OTC shall have two options to renew this Agreement for a period of three years each. The Port and OTC agree to negotiate the renewal terms and conditions contained herein in good faith on mutually agreeable terms. Notwithstanding any other provisions of this Agreement, the failure to agree to the renewal terms shall not be subject to arbitration, any third-party intervention, or to specific performance. It will be the responsibility of the Port to file such changes with the Federal Maritime commission prior to their going into effect in the event OTC exercises these options.

II.

The terms of Section 3.1 of the Original Agreement shall be modified as follows:

Section 3.1 - Premises

The Premises in the Original Agreement is reduced by 20.68 acres to a total of 40.53 acres to consist of Parcels 1A, 1B, 1C and 3 (including all improvements, structures and buildings contained thereon) as they are shown in Exhibit A to the Original Agreement. The Port and OTC may agree to reincorporate Parcels 2A, 2B, 2C and/or 2D subject to terms and conditions to be agreed upon in the future by the parties as well as being conditioned upon the availability of the parcels in the future.

III.

The following section shall be added to Article III:

Section 3.2 - Alternate Berth

OTC is granted a preferential right to use Berth 408 for the alternate berthing of active cargo ships when Berths 414 and 415 are either occupied, congested or a berth conflict is anticipated, said right automatically terminating at the time the Port extends Berths 414 and 415 consistent with the Port's Marine Terminals Master Plan (1991). Furthermore, OTC may use Berth 408 for layberthing. However, such use shall not be in preference to the berth's use by any other vessel. In conjunction with its use of Berth 408 for alternate berthing, OTC may have the use of reasonable and necessary backup land located in Parcels 2A, 2B, 2C and/or 2D for a period of up to thirty (30) days for the receipt and/or delivery of cargo which OTC shall have the right to manage. The Port's Project Manager shall have the right to determine in his sole and reasonable discretion, the amount, locale and time the back-up land will be made available for OTC's use. In the event OTC wishes to use Berth 408, OTC shall give the Port at least 7 days written notice.

IV.

The following section shall be added to Article V:

Section 5.8 - Rail Congestion

The Port and OTC will exercise good faith efforts to study and identify potential solutions to railroad congestion so as to minimize railroad and other vehicular blockages of the Terminal 4 roadway during the daytime shift. These efforts will include monitoring of blockages, identifying potential operational changes, coordinating with rail carriers and adjacent tenants, exploring potential capital improvements or enhancements and coordinating with other local agencies concerning relevant traffic issues. It is understood by both the Port and OTC that the exercise of these "good faith" efforts is only meant to express the parties' intent relative to these issues and not to create any legal or equitable obligation on either party's part to do or refrain from doing any act enforceable under any theory.

V.

Section 6.2 of the Original Agreement is modified to read as follows:

Section 6.2 - Minimum Annual Guarantee

The Minimum Annual Guarantee ("MAG") will be $667,300 for the 1993 calendar year, effective as of the filing date of this Amendment with the Federal Maritime Commission. For the year 1994

and thereafter, the MAG will be calculated in the manner set out in Sections 6.4 and 6.5 of the Original Agreement using the base of $667,300. Business for which the Port has quoted rates to OTC at Berth 408 prior to the execution of this Agreement shall be applied against the fulfillment of OTC's MAG requirement.

VI.

A new section 8.11 is added to the Agreement which is to read as follows:

Section 8.11 - Revenue Sharing

OTC agrees to participate in any discount or revenue sharing agreement with a steamship line calling at Terminal Four in accordance with OTC's applicable revenue split as that is set out in Section 6.4(A) through and including (D) provided OTC is a party to any negotiations between the Port and the steamship line concerning discount or revenue sharing and OTC agrees to participate in any discount or revenue sharing in writing.

VII.

This Amendment No. 3 shall be filed with the Federal Maritime Commission ("FMC") and be effective on the day it is received in the offices thereof. If the FMC rejects this Amendment No. 3, it shall be of no force or effect.

VIII.

Except as specifically modified herein or by the terms of Amendments No. 1 and 2, the Original Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Amendment No. 3 on this 14th day of September, 1993.

OREGON TERMINAL COMPANY

By _____
Clayton R. Jones III
President

THE PORT OF PORTLAND

By _____
Mike Thorne
Executive Director

APPROVED AS TO LEGAL SUFFICIENCY

_____
Counsel for
the Port of Portland

APPROVED BY THE COMMISSION:
Sept 8, 1993

received 1/15/91
postmarked 1/9/91

FEDERAL MARITIME COMMISSION
WASHINGTON, D.C. 20573

Ms. Elaine Lycan, Manager
Price Estimating & Regulatory Affairs
Port of Portland
P.O. Box 3529
Portland, OR 97208

RE: Agreement Name: Port of Portland/
Oregon Terminal Company Terminal
Agreement
Agreement No. : 224-200209-002
Date Received : December 21, 1990
Date Effective: December 21, 1990

Dear Ms. Lycan:

This acknowledges receipt of the above-captioned agreement which has been filed with the Commission pursuant to section 5(a) of the Shipping Act of 1984. The Agreement became effective on the date shown above pursuant to the exemption in 46 C.F.R. § 572.307(e). A numbered copy of the Agreement bearing its effective date is enclosed for your records.

Very truly yours,

Robert E. Rambow

for T. A. Zook, Chief
Office of Terminal Operations
Bureau of Domestic Regulation

Enclosure

Environmental Protection Agency
200 Sixth Avenue Seattle WA 98101
Idaho Oregon Washington

EPA

JUN 24 1991

Reply To The
Attn Of: WD-134

David K. Bowman
Administration Department
Jones Oregon Stevedoring Company
Post Office Box 10167
Portland, Oregon 97210

Dear Mr. Bowman:

Thank you for your letter of June 20, 1991, regarding the National Pollutant Discharge Elimination System (NPDES) storm water regulations.

This letter confirms that application requirements apply only to those portions of a transportation facility which are "either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under [the definition of associated with industrial activity]" (see 40 CFR Part 122.26(b)(14)). I have included a copy of the pages in the regulation which provide a complete definition of "associated with industrial activity" for your information.

If you have any further questions regarding requirements for industrial storm water discharges, please feel free to contact me at (206) 553-8399.

Sincerely,

Andrea M. Lindsay
Regional Storm Water Coordinator

Enclosure

APRIL, 1994

AIRBORNE PENCIL PITCH DUST EVALUATION

AT :

St. Johns Area
Cathedral Park Neighborhood
Portland, Oregon

FOR :

Port of Portland
Risk Management
PO Box 3529
Portland, Oregon 97208

HAZCON, Inc. Project No. 6270

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

11675 SW 66th
PORTLAND, OREGON 97223
(503) 986-2112 FAX (503) 968-2213

EXECUTIVE SUMMARY

Monitoring for ambient airborne concentrations of pencil pitch dust was performed by HAZCON, Inc. at several locations in and near the St. Johns neighborhood. The purpose of this evaluation was to gather information to assess the impact on the neighborhood from possible spillage of product from trucks carrying loads of pencil pitch from Terminal 4 to Koppers Industries, Inc. This evaluation was performed on April 14 and 15, 1994.

The survey was conducted at request of the Port of Portland and the Friends of Cathedral Park Neighborhood Association.

The sampling strategy was planned and implemented by a Certified Industrial Hygienist. Monitoring of sampling pumps and observation of the environment was performed by an Industrial Hygienist under the supervision of a Certified Industrial Hygienist. Interpretation of laboratory results and preparation of the final report was performed by a Certified Industrial Hygienist. All samples were analyzed by a laboratory which is accredited by the American Industrial Hygiene Association.

Six sampling locations were selected to be representative of the residential areas along the truck route. Additionally, samples were collected at five locations near Berth 411, Terminal 4 on April 15, 1994. Efforts were made to differentiate between other environmental sources and the pencil pitch dust as a source of coal tar pitch components, or polynuclear aromatic compounds (PAH).

Laboratory analysis demonstrated detectable concentrations of two or more of the PAH target analytes in samples collected at sample locations #1, #7, #9, #10, and #13. Concentrations of three or more of the target analytes were detected in samples collected at locations #1, #10, and #13. Location #1 was at the entrance to Terminal 4, location #10 was at the entrance to the Koppers Industries, Inc. facility, and location #13 was at Berth 411, near the OTC Gearlocker. In all instances, the concentrations detected were at or below 0.0015 mg/m^3. All sample results demonstrated detectable concentrations of the target PAH compounds to be less than 1/100th of the occupational exposure limit of 0.2 mg/m^3.

Sample #10, collected at the entrance to Koppers, and sample #19, collected near Berth 411 at the Gearlocker, were the only two air samples with any significant amount of PAH collected. These were the only two locations where an association could be made between the pencil pitch bulk and the material in the air samples.

Several changes have occurred, or are in the process of being implemented, to minimize the impact of pencil pitch cargo on the neighborhood. It is recommended that these procedures be continued. These include use of careful work practices during unloading at Berth 411 to minimize spillage of pencil pitch material, careful tarping or covering of the load before leaving Terminal 4, observance of speed limits by truck drivers as they traverse the neighborhood and cross the St. Johns Bridge, substitution of hard covers for soft tarps on the pencil pitch trucks, installation of speed bumps within the Koppers facility to dislodge dust from trucks, and thoroughly washing the trucks before they leave the Koppers facility after delivering pencil pitch cargo.

FAX

INTRODUCTION

Monitoring for ambient airborne concentrations of pencil pitch dust was performed by HAZCON, Inc. at several locations in and near the St. Johns neighborhood. The purpose of this evaluation was to gather information to assess the impact on the neighborhood from possible spillage of product from trucks carrying loads of pencil pitch from Terminal 4 to Koppers Industries, Inc. This evaluation was performed on April 14 and 15, 1994.

The survey was conducted at request of the Port of Portland and the Friends of Cathedral Park Neighborhood Association.

The sampling strategy was planned and implemented by a Certified Industrial Hygienist. Monitoring of sampling pumps and observation of the environment throughout the duration of the data collection was performed by an Industrial Hygienist under the supervision of a Certified Industrial Hygienist. Interpretation of laboratory results and preparation of the final report was performed by a Certified Industrial Hygienist. HAZCON, Inc. personnel involved in this evaluation were Barbara Woodhull, Certified Industrial Hygienist, and Kelly Keeth, Industrial Hygienist.

All samples were analyzed by Sentry Services, Stevens Point, Wisconsin. This laboratory is accredited by the American Industrial Hygiene Association.

SURVEY METHODS

Locations evaluated were selected based on input received from the Friends of Cathedral Park Neighborhood Association representatives, and representatives of the Port of Portland and HAZCON, Inc. Six locations were selected to be representative of the residential areas along the truck route. Two locations were selected which were one or two blocks off of the truck route to evaluate for material which might be capable of blowing into areas off of the regular truck route. Samples were also collected at the exit to Terminal 4 and at the entrance to the Koppers Industries facility. A location at the west end of the St John's Bridge was not included for safety reasons. Monitoring locations selected were:

1. Entrance to Terminal 4 at Lombard
2. Near Intersection of Lombard & Weyerhaeuser
3. Near intersection of Lombard & St. Johns
4. Near intersection of Catlin & Syracuse
5. Near intersection of Catlin & Kellogg
6. Near intersection of Ivanhoe & St. Louis
7. Near intersection of Ivanhoe & Alta
8. Near intersection of Philadelphia & Syracuse
9. Near intersection of Willamette & Philadelphia
10. Entrance to Koppers Industries, Inc.

Additionally, samples were collected at five locations near Berth 411, Terminal 4 on April 15, 1994. These were locations which had been previously monitored, and were repeated during the course of this evaluation.

08/04/94 15:15 ☎503 731 7080 POP-PUBLIC AFF. 001/001
503 731 7080

These locations were:

11. OTC Storage yard, first light pole near Warehouse 4
12. OTC Storage yard third light pole
13. End of Berth 412, near railing
14. Between OTC building and Warehouse 5
15. Inside OTC Gearlocker yard

A sampling "train" was placed at each location. The sampling train consists of a battery operated sampling pump, hose and 37 millimeter glass fiber filter as the collection medium. Opaque or foil covered cassettes were used as sunlight can degrade polynuclear aromatic hydrocarbon compounds (PAH) of interest. Where possible, the filter cassette was located at approximately four to five feet from the ground, to represent the breathing zone of pedestrians.

2 2 LPM USED IN JAN/FEB TESTS

Sampling was conducted at flow rates ranging between 4 and 5 liters per minute. Verification of flow rates was performed for each sample at the beginning of the sampling period, periodically throughout, and at the end of the sampling period. The HAZCON, Inc. Industrial Hygienist made rounds and checked on each sample location approximately once an hour to assure sample integrity and that the proper flow rates were being maintained. Flow rates were verified by use of a precision rotameter calibrated against a primary standard. Sampling was performed between the approximate hours of 8:30 am and 6:30 pm on each date, for a duration of approximately 8 hours for each sample in each location.

Sampling was performed at locations #1 through #10 on April 14, 1994. On April 15, sampling was performed at locations #11 through #15, and repeated at locations #1, #3, #7, #8, and #9. The sample locations repeated included location #3, where the sample cassette was missing at the end of the previous day, the entrance to Terminal 4, and three locations near the St. Johns Bridge which may have been influenced by traffic detours the previous day.

During the monitoring period on April 14, 1994 there was a fire in an apartment building located on Ivanhoe Street. The fire department responded to the scene and closed Ivanhoe to traffic between Baltimore and Chicago. This section of Ivanhoe was closed from approximately 11:00 am to 3:45 pm. Truck traffic was detoured from the normal route, which is Ivanhoe to Philadelphia and then over the St. Johns Bridge. The trucks did not follow a specific detour, however, most of the vehicles used Syracuse, which is one block west of Ivanhoe.

After monitoring was completed, filters were removed from the cassettes and placed in foil covered glass vials for transport to the laboratory.

LABORATORY ANALYTICAL PROCEDURE

There are many sources of organic compounds in the environment. Some sources of these materials can be diesel fuel exhaust, some types of plastics, or other industrial sources. It was very important, for purposes of this study, to differentiate between other sources of PAH compounds in the environment and those which may be associated with the pencil pitch product.

The organic compounds of concern to this study is a group of compounds known as polynuclear aromatic hydrocarbons (PAH). Analysis was performed for the presence of representative PAH

compounds known to be associated with coal tar pitch. These compounds are anthracene, pyrene, phenanthrene, chrysene and benzo (a) pyrene.

Efforts were made to differentiate between other environmental sources of these materials and the pencil pitch dust as a source. On April 14, 1994, the HAZCON, Inc. Certified Industrial Hygienist went to the Koppers Industries, Inc. plant and collected a bulk sample of the pencil pitch directly from one of the trucks which was transporting the material. This material was analyzed by Sentry Services, Inc. by high pressure liquid chromatography (HPLC) according to modified OSHA method 58. A "PAH profile" or "fingerprint" was obtained for the bulk material. Each air sample was then analyzed by the same method and compared to the bulk material.

The purpose was to try and identify a peak or group of peaks that were present in the pencil pitch bulk and in the air samples, but were not present in the PAH pure standard. The idea was that if the PAH fingerprint or profile were sufficiently similar, it could be concluded that the majority of the material collected in the air sample came from the pencil pitch product. If the PAH fingerprint or profile were not sufficiently similar, the material collected by the air sample may be considered to have come from a source other than the pencil pitch product. If this were the case, the actual source would be inconclusive.

FINDINGS

The analytical results for each sample collected are presented on Tables 1.1 through 1.5, found in Appendix A. The laboratory reports from Sentry Services are found in Appendix B.

Laboratory analysis demonstrated detectable concentrations of two or more of the PAH target analytes in samples collected at locations #1, #7, #9, #10, and #13. Concentrations of three or more of the target analytes were detected in samples collected at locations #1, #10, and #13. Location #1 was at the entrance to Terminal 4, location #10 was at the entrance to the Koppers Industries, Inc. facility, and location #13 was at Berth 411, near the OTC Gearlocker. In all instances, the concentrations detected were at or below 0.0015 mg/m^3.

Through comparison of the chromatograms, the conclusion drawn by the analytical laboratory was that the PAH material in sample #10 and sample #19 were sufficiently similar to the pencil pitch bulk material to be due to airborne pencil pitch. However, this does not definitively rule out the possibility of other contributing sources.

During the course of the sampling, an informal traffic count was conducted at 1:30 pm on April 14, 1994. The purpose of this brief count was to determine the number of commercial vehicles traveling down Lombard and the number of which are associated with the transport of pencil pitch. This count was made between 1:30 pm and 1:45 pm, at a location just south of the T-4 railroad overpass, near sample location # 1. This time period was selected because it was thought to be similar to the traffic patterns observed throughout the day.

In this time period, 42 large commercial vehicles passed by, 34 of which were unassociated with the pencil pitch operation, and 8 of which were carrying pencil pitch. This count included vehicles going both northbound and southbound on Lombard.

CONCLUSIONS

The Oregon Occupational Safety and Health Division (OR-OSHA) permissible exposure limit (PEL) for occupational exposure to coal tar pitch is 0.2 mg/m^3. This value is at least partially based on the presence, in sufficient concentration, of the benzene soluble fraction of the mixture and the presence of one or more of the five target polynuclear aromatic hydrocarbon compounds. This exposure limit is based on occupational exposure averaged over a normal 8 hour workday and a 40 hour workweek.

Clearly, the concern here is not one of occupational exposure, but rather one of 24 hour a day living conditions and community impact. For this situation, the laboratory results should not be directly compared to the occupational exposure limits, and there are no applicable regulations for 24 hour a day living conditions. A conservative approach could be to divide the occupational limit by a factor of 10 or 100, and use that value as a basis of comparison to interpret these laboratory results.

Following this approach, and assuming a factor of 1/100th of the occupational exposure limit, all sample results demonstrated detectable concentrations of the target PAH compounds to be less than 1/100th of the occupational exposure limit. The one exception to this was the concentration detected in sample #10, collected at the entrance to Koppers Industries, Inc. The concentration detected at this location was 0.0024 mg/m^3, or slightly above 1/100th of 0.2 mg/m^3.

Sample #10, collected at the entrance to Koppers, and sample #19, collected near Berth 411 at the Gearlocker, were the only two air samples with any significant amount of PAH collected. These were the only two locations where an association could be made between the pencil pitch bulk and the material in the air samples.

RECOMMENDATIONS

Several changes have occurred, or are in the process of being implemented, to minimize the impact of pencil pitch cargo on the neighborhood. It is recommended that these be continued. These factors include least the following:

1. Careful work practices during unloading at Berth 411 to minimize spillage of pencil pitch material.

2. Careful tarping or covering of the load before leaving Terminal 4.

3. Observance of speed limits by truck drivers as they traverse the neighborhood and cross the St. Johns bridge. Speed limits should be observed in both directions.

4. Substitution of hard covers for soft tarps on the pencil pitch trucks, as feasible.

5. Installation of speed bumps within the Koppers facility to dislodge dust from trucks within the confines of this yard.

6. Thoroughly washing trucks before they leave the Koppers facility after delivering pencil pitch cargo.

This report has been prepared for the Port of Portland to use in assessing the impact of pencil pitch transport on the St.Johns neighborhood area. This assessment is for the use of the client and applies only to the specific situation detailed above. This report shall not be used by any other party without the prior consent of the client.

Report Prepared by:

Barbara J. Woodhull, CIH, CSP
Certified Industrial Hygienist
HAZCON, Inc.

Report Reviewed by:

Richard Krause, CIH, CSP
Certified Industrial Hygienist
President
HAZCON, Inc.

APPENDIX A

TABLES of
AIR MONITORING RESULTS

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

TABLE 1.1

INDUSTRIAL HYGIENE SURVEY
Port of Portland
Pencil Pitch Transport Through St. Johns Neighborhood
HAZCON, Inc. Project No. 6270

Survey date: April 14 and 15, 1994
Survey by: Kelly S. Keeth, HAZCON, Inc.

Sample Location	Sample Number	Sample Duration (in Minutes)	Sample Volume (in Liters)	Polynuclear Aromatic Hydrocarbons (in mg/m3)			
				Sample 1	Apr 14, 1994	Sample 12	Apr 15, 1994
Location 1 Samples #1 and #12 Near Entrance to T-4	CTPV-1	9:13 am / 5:36 pm 503 minutes	2009	Phenanthrene Anthracene Benzo a Pyrene	< 0.0005 < 0.0005 0.0001	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001
	CTPV-12	8:26 am / 4:27 pm 481 minutes	2304	Pyrene Chrysene	0.0001 0.0001	Pyrene Chrysene	0.0001 < 0.0002
				Sample 2	Apr 14, 1994		
Location 2 Sample #2 Lombard and Weyerhauser	CTPV-2	9:08 am / 5:23 pm 495 minutes	2371	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.0016 < 0.0002		
				Sample 3	Apr 14, 1994	Sample 13	Apr 15, 1994
Location 3 Samples # 3 and 13 Lombard and St. Johns	CTPV-3	9:28 am / N/A	VOID	Sample was missing		Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 < 0.0001
	CTPV-13	8:35 am / 4:37 pm 482 minutes	2309			Pyrene Chrysene	0.0001 < 0.0002
OR-OSHA Permissible Exposure Limit (PEL) 8 hour TWA: 0.2 mg/m3							

Samples were collected during the transport of pencil pitch through the St. Johns neighborhood.
Samples were collected either directly on truck route or within two blocks of truck route.

Note: Numbers preceded with a "less than" symbol (<) indicate a concentration below the analytical limit of detection.
N/A = Not Applicable

HAZCON, Inc.
April 1994

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

TABLE 1.2

INDUSTRIAL HYGIENE SURVEY
Port of Portland
Pencil Pitch Transport Through St. Johns Neighborhood
HAZCON, Inc. Project No. 6270

Survey date: April 14 and 15, 1994
Survey by: Kelly S. Keeth, HAZCON, Inc.

Sample Location	Sample Number	Sample Duration (in Minutes)	Sample Volume (in Liters)	Polynuclear Aromatic Hydrocarbons (in mg/m3)	
				Sample 4	Apr 14, 1994
Location 4 Sample #4 Catlin and Syracuse	CTPV-4	9:35 am / 5:45 pm 490 minutes	2347	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 0.0001 < 0.0002
				Sample 5	Apr 14, 1994
Location 5 Sample #5 Catlin and Kellog	CTPV-5	9:47 am / 5:50 pm 483 minutes	2314	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.0019 < 0.0002
				Sample 6	Apr 14, 1994
Location 6 Sample #6 Ivanhoe and St. Louis	CTPV-6	9:51 am / 5:57 pm 486 minutes	2328	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.0018 < 0.0002
OR-OSHA Permissible Exposure Limit (PEL) 8 hour TWA: 0.2 mg/m3					

Samples were collected during the transport of pencil pitch through the St. Johns neighborhood.
Samples were collected either directly on truck route or within two blocks of truck route.

Note: Numbers preceded with a "less than" symbol (<) indicate a concentration below the analytical limit of detection.
N/A = Not Applicable

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

TABLE 1.5

INDUSTRIAL HYGIENE SURVEY
Port of Portland
Pencil Pitch Transport Through St. Johns Neighborhood
HAZCON, Inc. Project No. 6270

Survey date: April 14 and 15, 1994
Survey by: Kelly S. Keeth, HAZCON, Inc.

Sample Location	Sample Number	Sample Duration (in Minutes)	Sample Volume (in Liters)	Polynuclear Aromatic Hydrocarbons (in mg/m3)	
				Sample 19	Apr 15, 1994
Location 13 Sample #19 T-4, By Jones' Gearlocker Terminal 4	CTPV-19	9:27 am / 6:17 pm 530 minutes	2539	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 0.0002 0.0002 0.0001
				Sample 20	Apr 15, 1994
Location 14 Sample #20 T-4, Condemned Dock Terminal 4	CTPV-20	9:34 am / 6:21 pm 527 minutes	2421	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 0.0002 < 0.0002
				Sample 21	Apr 15, 1994
Location 15 Sample #21 near OTC Shop Terminal 4	CTPV-21	9:41 am / 6:27 pm 526 minutes	2183	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.002 < 0.0002
OR-OSHA Permissible Exposure Limit (PEL) 8 hour TWA: 0.2 mg/m3					

Samples were collected during the transport of pencil pitch through the St. Johns neighborhood.
Samples were collected either directly on truck route or within two blocks of truck route.

Note: Numbers preceded with a "less than" symbol (<) indicate a concentration below the analytical limit of detection.
N/A = Not Applicable

APPENDIX B

LABORATORY REPORTS

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #1	Phenanthrene	2840	<0.5 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.5 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		0.1 µg/m³	
	Chrysene		0.1 µg/m³	
CTPV #2	Phenanthrene	2841	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<1.6 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #4	Phenanthrene	2842	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		0.1 µg/m³	
	Chrysene		<0.2 µg/m³	

* See Reverse Side

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

RECEIVED MAY 16 1994

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #5	Phenanthrene	2843	<0.3 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<1.9 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #6	Phenanthrene	2844	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<1.8 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #7	Phenanthrene	2845	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		<1.9 µg/m³	
	Chrysene		<0.2 µg/m³	

* See Reverse Side

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #8	Phenanthrene	2846	<0.3 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		<1.9 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #9	Phenanthrene	2847	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		<2.0 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #10	Phenanthrene	2848	0.1 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		1.5 µg/m³	
	Pyrene		0.3 µg/m³	
	Chrysene		0.5 µg/m³	

* See Reverse Side

TED CARAPEZZA, CIH
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LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
* CTPV #11 (blank)	Phenanthrene (blank)	2849	0.7 µg	HPLC OSHA 58 (mod)
	Anthracene (blank)		0.7 µg	
	Benzo (a) pyrene (blank)		0.5 µg	
	Pyrene (blank)		4.3 µg	
	Chrysene (blank)		0.5 µg	
CTPV #12	Phenanthrene	2850	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		0.1 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #13	Phenanthrene	2851	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.1 µg/m³	
	Pyrene		0.1 µg/m³	
	Chrysene		<0.2 µg/m³	

*Average concentration of CTPV #11 & CTPV #22.
White rubber in sealer caps contains small amount of PAH.

* See Reverse Side

TED CARAPEZZA, CIH
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LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #14	Phenanthrene	2852	<0.3 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		0.2 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #15	Phenanthrene	2853	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.1 µg/m³	
	Pyrene		<1.7 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #16	Phenanthrene	2854	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		0.2 µg/m³	
	Chrysene		0.1 µg/m³	

* See Reverse Side

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #17	Phenanthrene	2855	<0.3 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<1.7 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #18	Phenanthrene	2856	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<1.7 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #19	Phenanthrene	2857	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		0.2 µg/m³	
	Pyrene		0.2 µg/m³	
	Chrysene		0.1 µg/m³	

* See Reverse Side

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

Sentry Services
Industrial Hygiene Division

LABORATORY REPORT

HAZCON, INC.
11675 SW 66TH AVENUE
PORTLAND, OR 97223
ATTN: BARB WOODHULL

PROJECT NUMBER: 94-391
DATE RECEIVED: 04/19/94
DATE ANALYZED: 05/09/94
DATE ISSUED: 05/11/94

CUSTOMER PURCHASE ORDER NUMBER:

Sample Number	Contaminant	Laboratory Reference Number	Results	* Analytical Method
CTPV #20	Phenanthrene	2858	<0.3 µg/m³	HPLC OSHA 58 (mod)
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		0.2 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #21	Phenanthrene	2859	<0.3 µg/m³	
	Anthracene		<0.3 µg/m³	
	Benzo (a) pyrene		<0.2 µg/m³	
	Pyrene		<2.0 µg/m³	
	Chrysene		<0.2 µg/m³	
CTPV #22 (blank)	Phenanthrene (blank)	2860	See CTPV #11	
	Anthracene (blank)			
	Benzo (a) pyrene (blank)			
	Pyrene (blank)			
	Chrysene (blank)			

* See Reverse Side

TED CARAPEZZA, CIH
LABORATORY SUPERVISOR
800-443-9655

Sentry Services

Industrial Hygiene Division
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Stevens Point, WI [illegible]
800-[illegible]
FAX 715-[illegible]

May 16, 1994

BARB WOODHULL
HAZCON INC
11675 SW 66TH AVE
PORTLAND OR 97223

SENTRY SERVICES PROJECT NUMBER: 94-391
HAZCON PROJECT NUMBER: 6270

Barb, I will try and explain my interpretation of the data regarding these PAH samples:

1. Retention times are the time marks on the chromatogram. Example: 28.423 means 28.423 minutes. Retention times from one chromatogram to the next may vary up to ± 5%.

2. We are basing all our information on retention times and the observed "foot print" of the chromatogram. We do not have a mass spectrometer that will absolutely identify the compounds by mass number.

3. Chromatograms are labelled by Run #. Runs #1-3 are UV signals at 270 nanometers. Runs #4-6 are fluorescence signals.

4. The Runs have both a separated chromatogram and an overlay chromatogram. Sometimes it's easier to see similarities on one or the other.

My purpose was to try and find a peak or group of peaks that were in the pencil pitch and the air samples but were not in the PAH pure standard or the contribution from the white rubber cap.

Run #1

Note the triplet peaks that are circled. Keep in mind the peak shape and height also. Notice only one peak in the PAH standard.

Run #2

Notice again the triplet peaks in the pencil pitch and sample #10. Notice the difference in peak shape and height of the white rubber cap contribution. This might indicate interfering compounds.

Run #3

Same as Run #2 only comparing just pencil pitch to white rubber cap.

Run #4

Same as Run #1 only different signal (fluorescence). Again notice triplet and peak shape. Also note complete absence of triplet in PAH standard.

Run #5

Note match of triplet on all three chromatograms. Especially note match on overlay, looking not only at triplet peaks but at all peaks. Baseline differences are tricky here.

Run #6

This is the run that offers a little different conclusion. The pencil pitch and white rubber cap chromatogram have the triplet that look similar. However, if you look at the peaks in Run #2 at UV 270 nm, you will note that the white rubber cap triplet is very dissimilar. I looked at the spectra of the triplets in Run #2 and the white rubber cap was not similar to the pencil pitch or sample #10.

My conclusions:

1. The pencil pitch bulk has a triplet peak that is similar to the triplet peaks in samples #10 and #19. These triplet peaks are not in the PAH standard or the white rubber cap. My opinion is that the PAH in samples #10 and #19 are due to airborne pencil pitch. However, this does not rule out the fact that other unknown PAH sources may have contributed to the airborne samples.

2. Samples 10 and 19 are the only airborne samples with any significant amounts of PAH.

3. Run #5 shows a very good match for the pencil pitch, sample #10, and sample #19.

Barb, if you have any questions, please feel free to call.

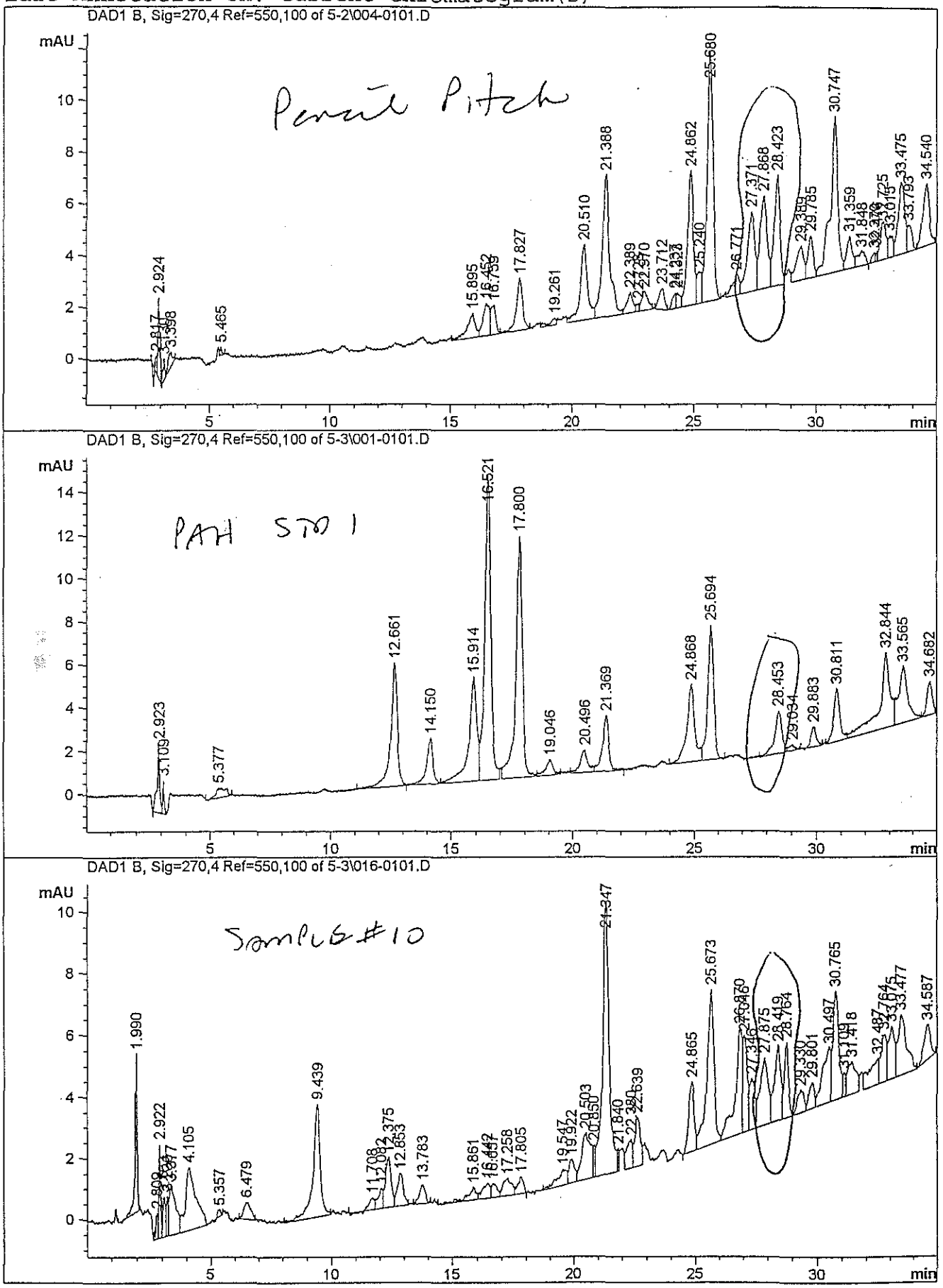
Ted Carapezza, CIH
Industrial Hygiene Lab Supervisor

nf

cc: W. Kent Foster - Industrial Hygiene Lab Director

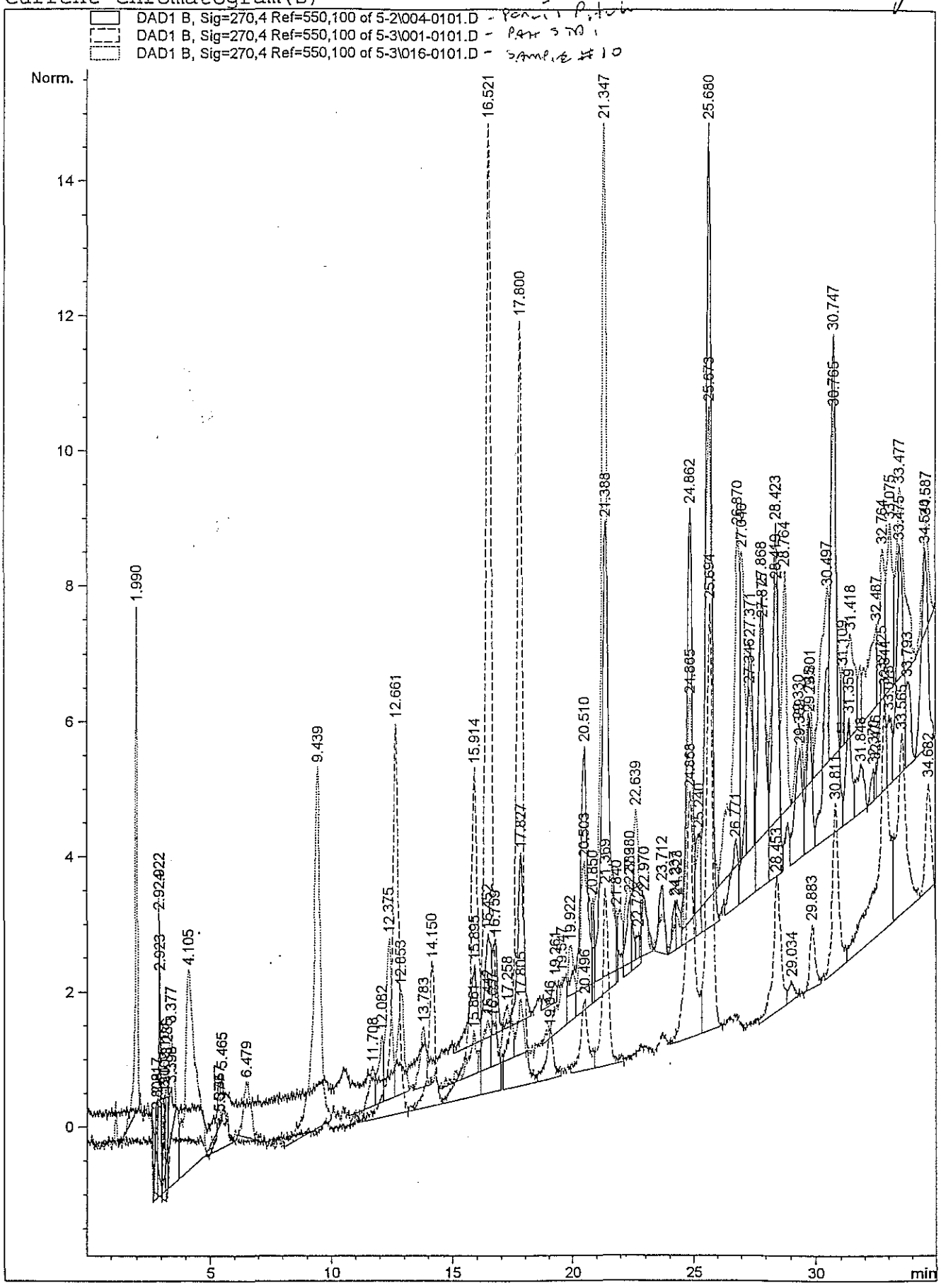
RUN #1

Edit Annotation on: Current Chromatogram(s)



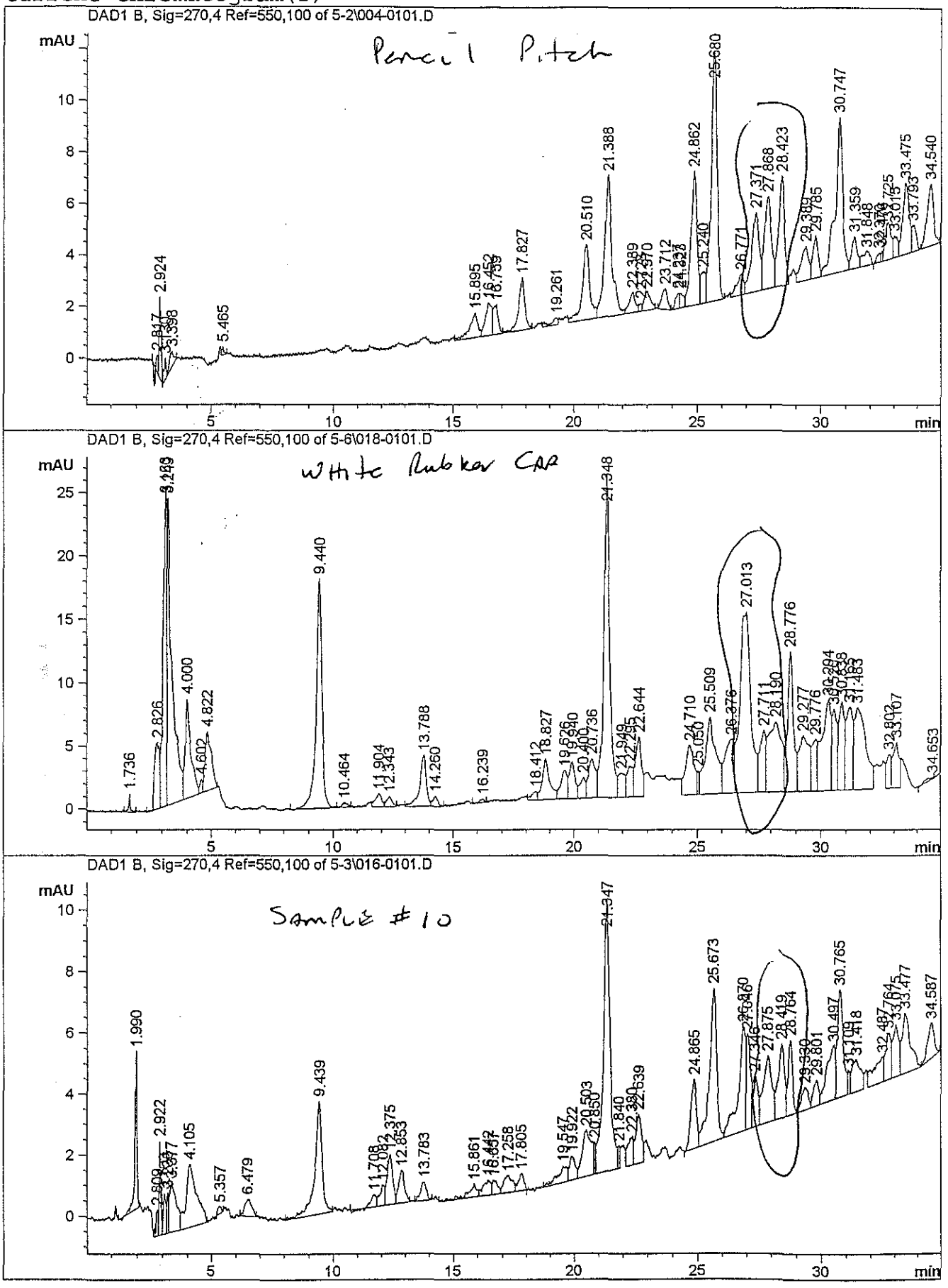
Run #7

Current Chromatogram(s)



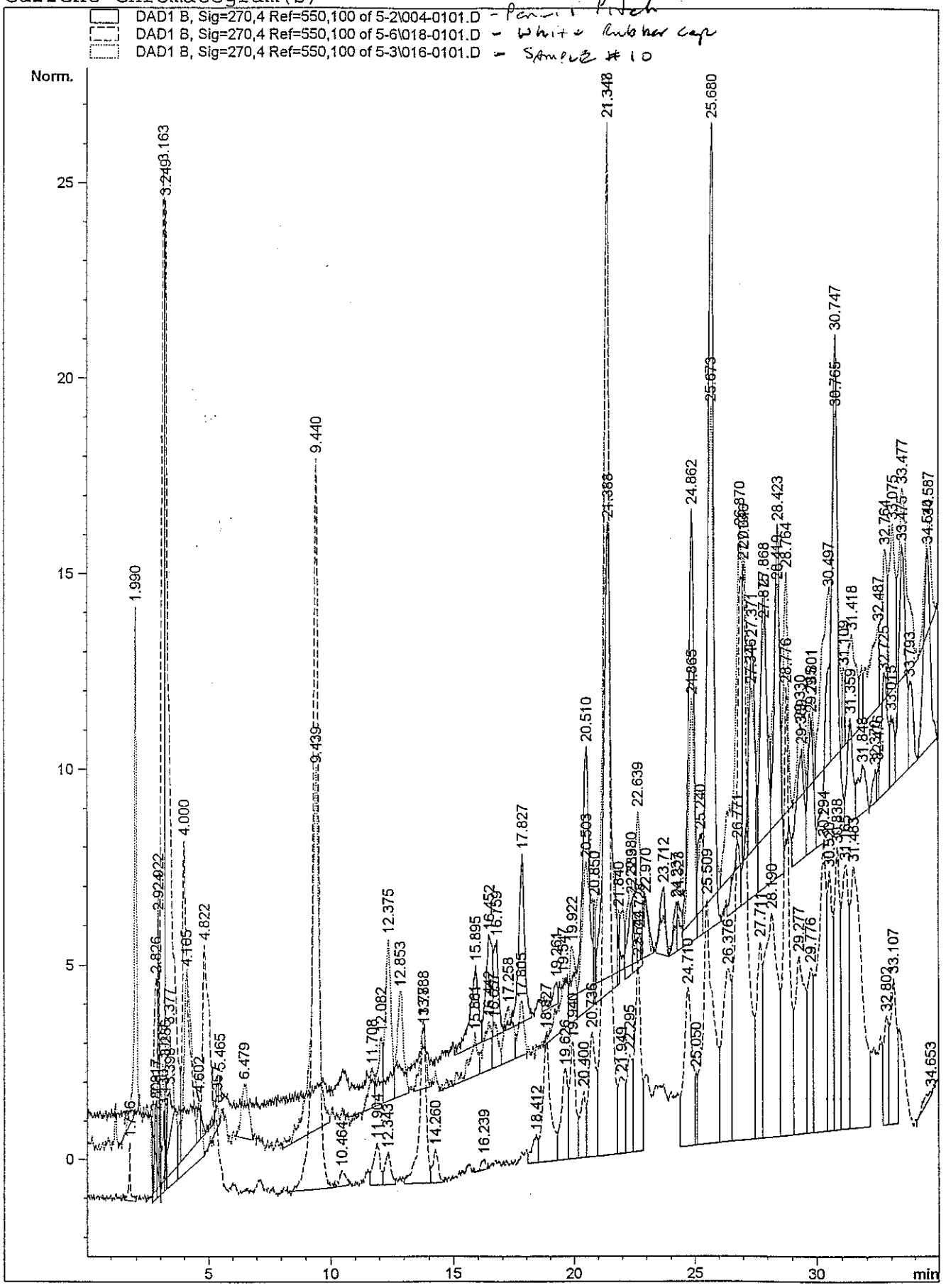
RUN # 2.

Current Chromatogram(s)



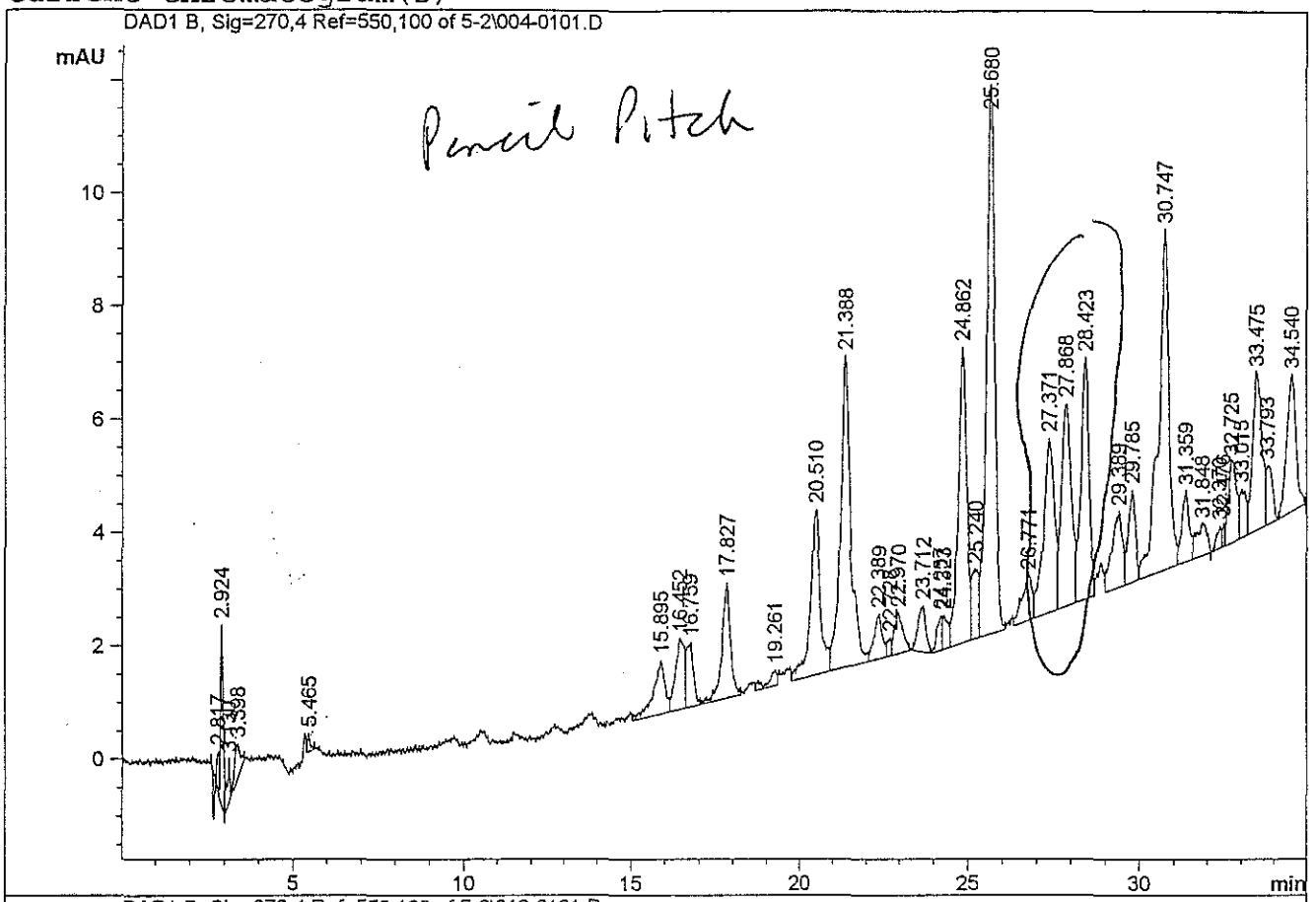
Run #2

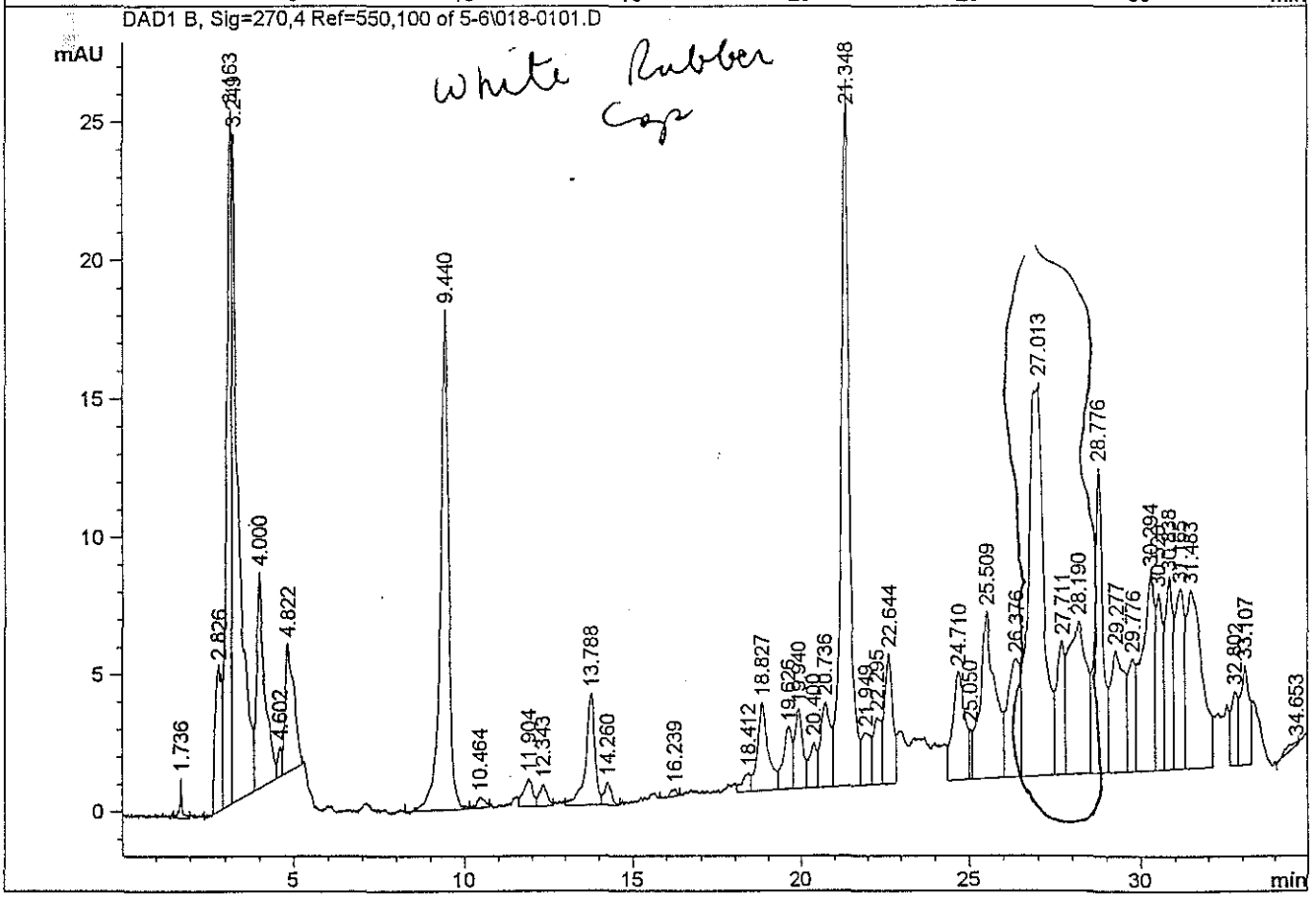
Current Chromatogram(s)



RUN #3

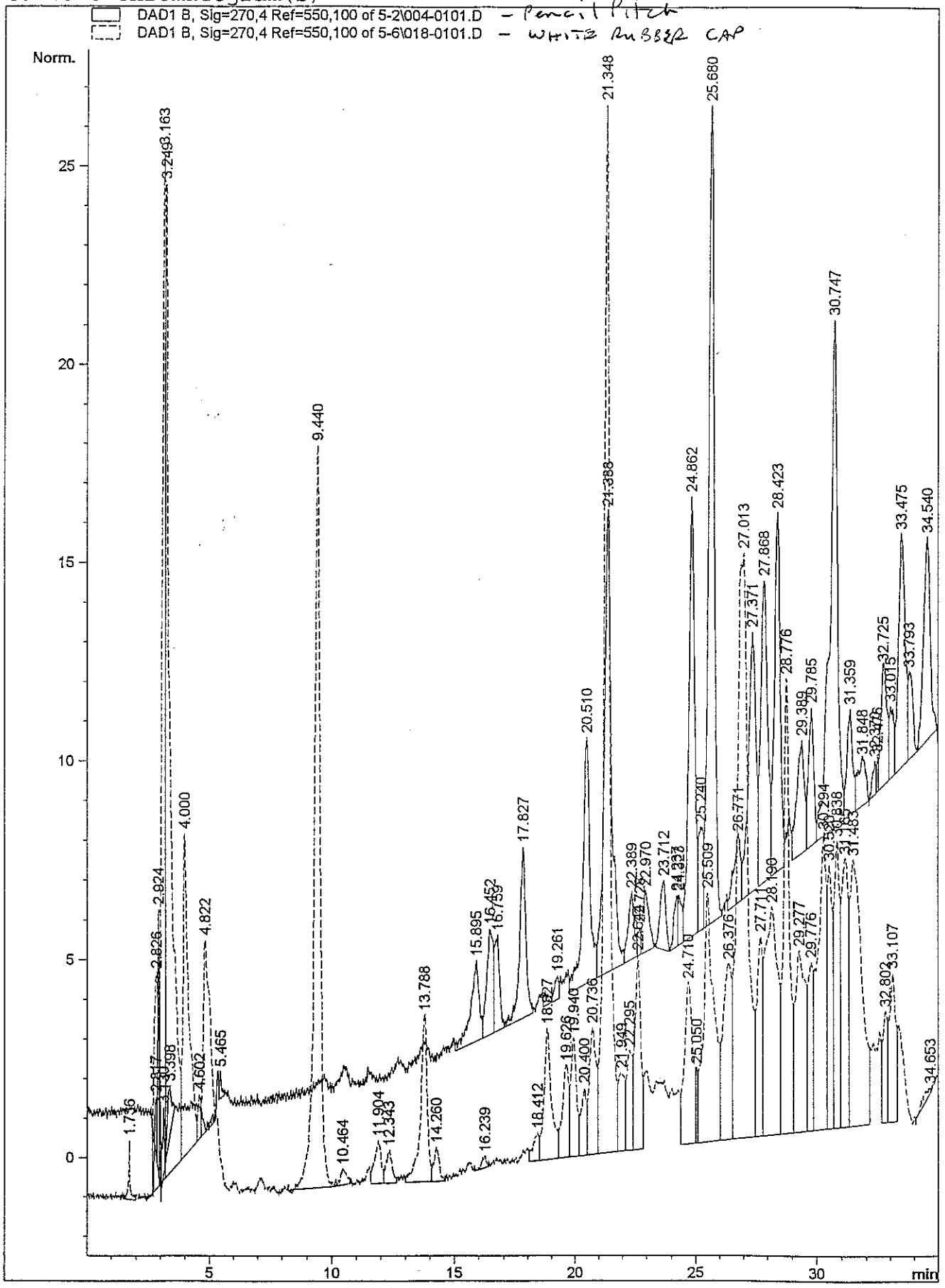
Current Chromatogram(s)





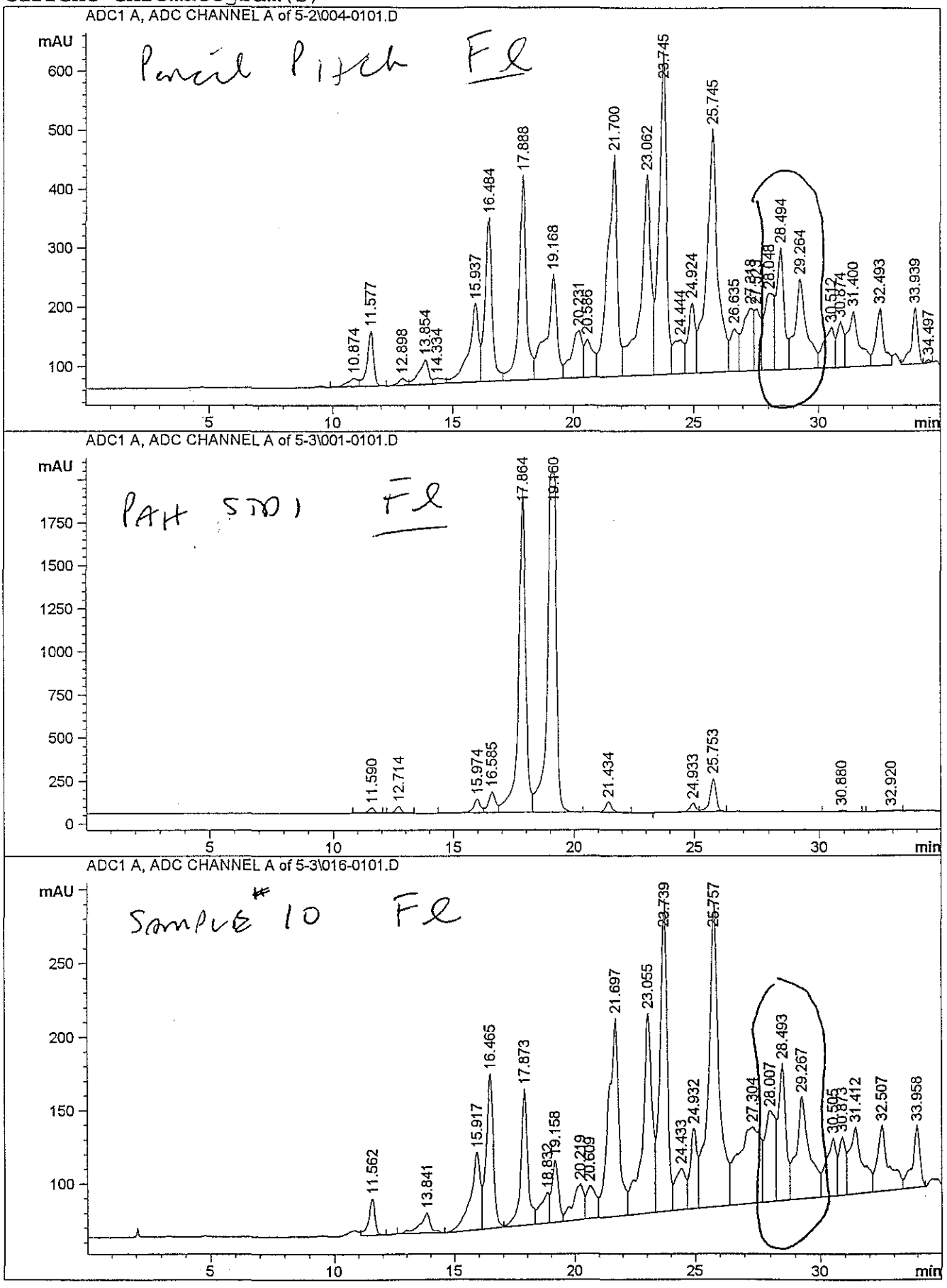
RUN #3

Current Chromatogram(s)



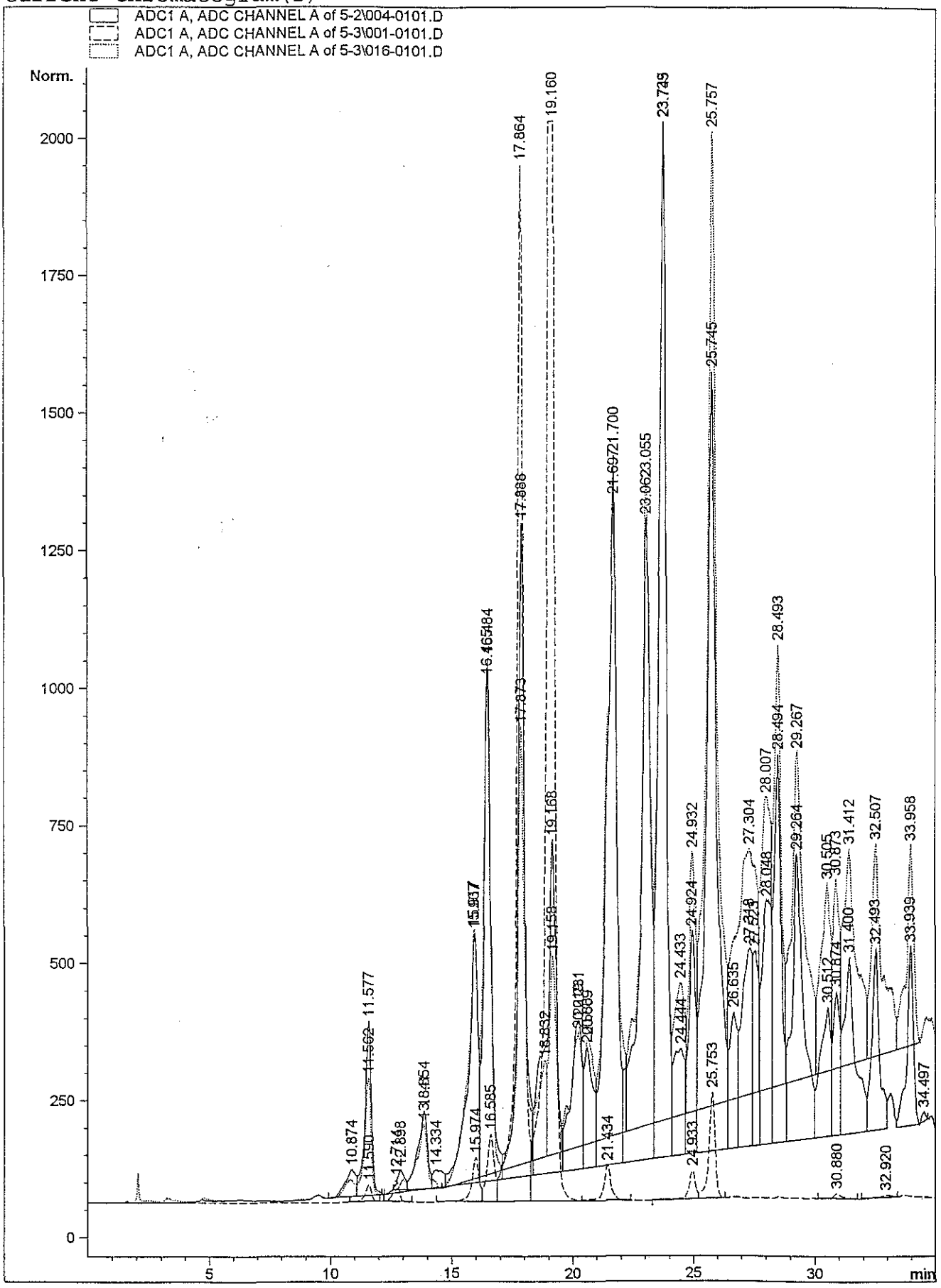
Run #4

Current Chromatogram(s)



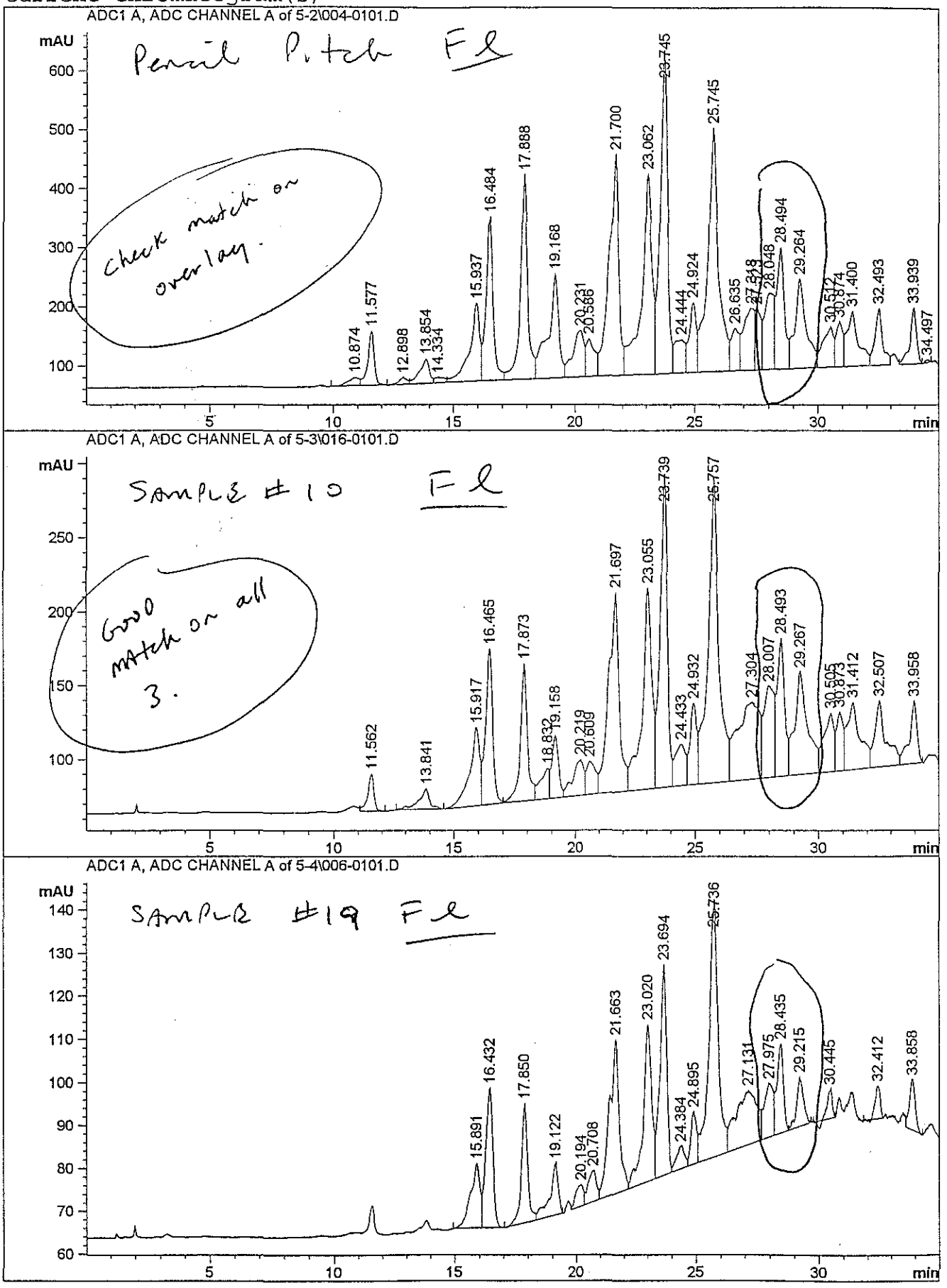
RUN #4

Current Chromatogram(s)



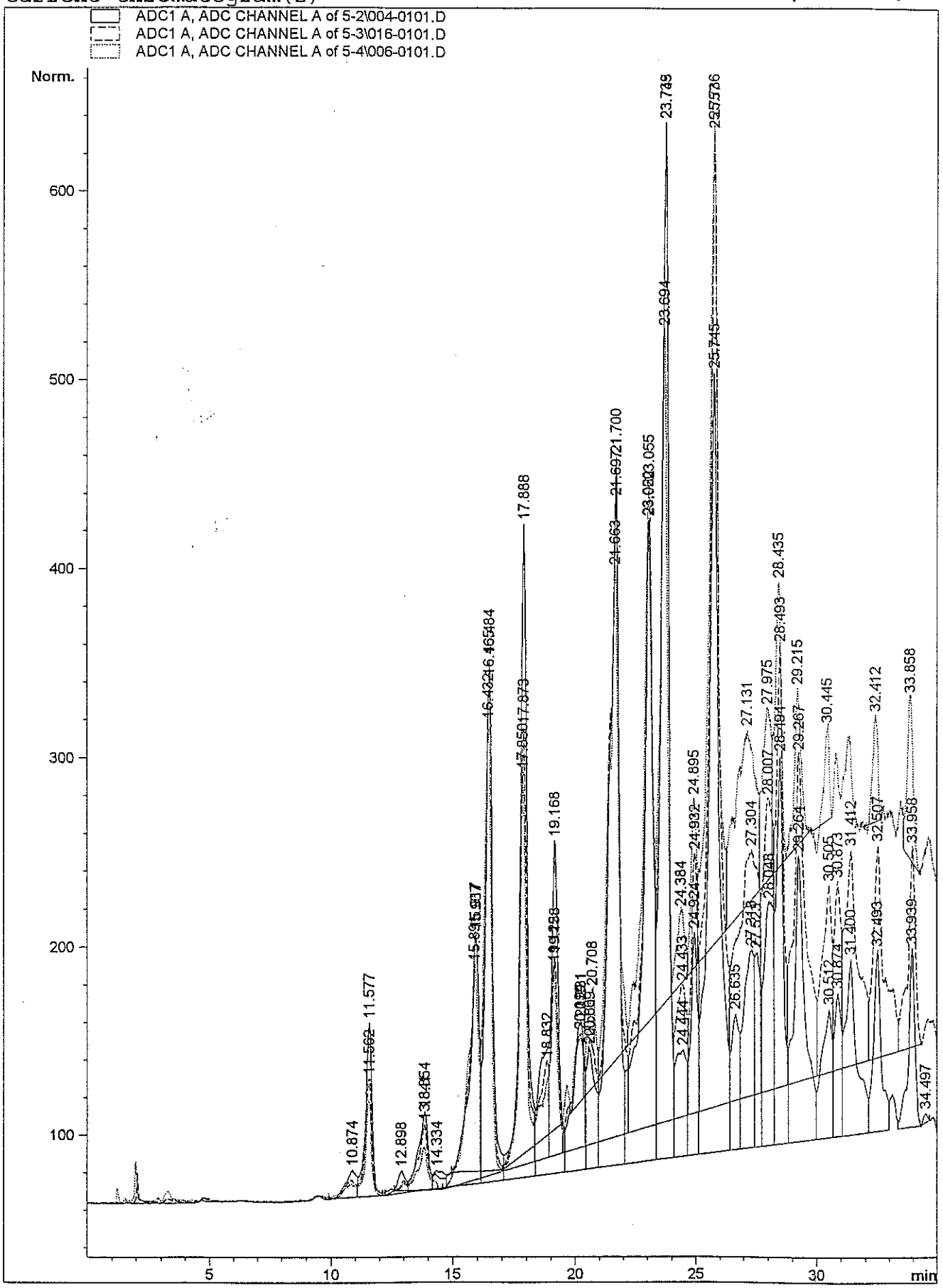
RUN #5

Current Chromatogram(s)



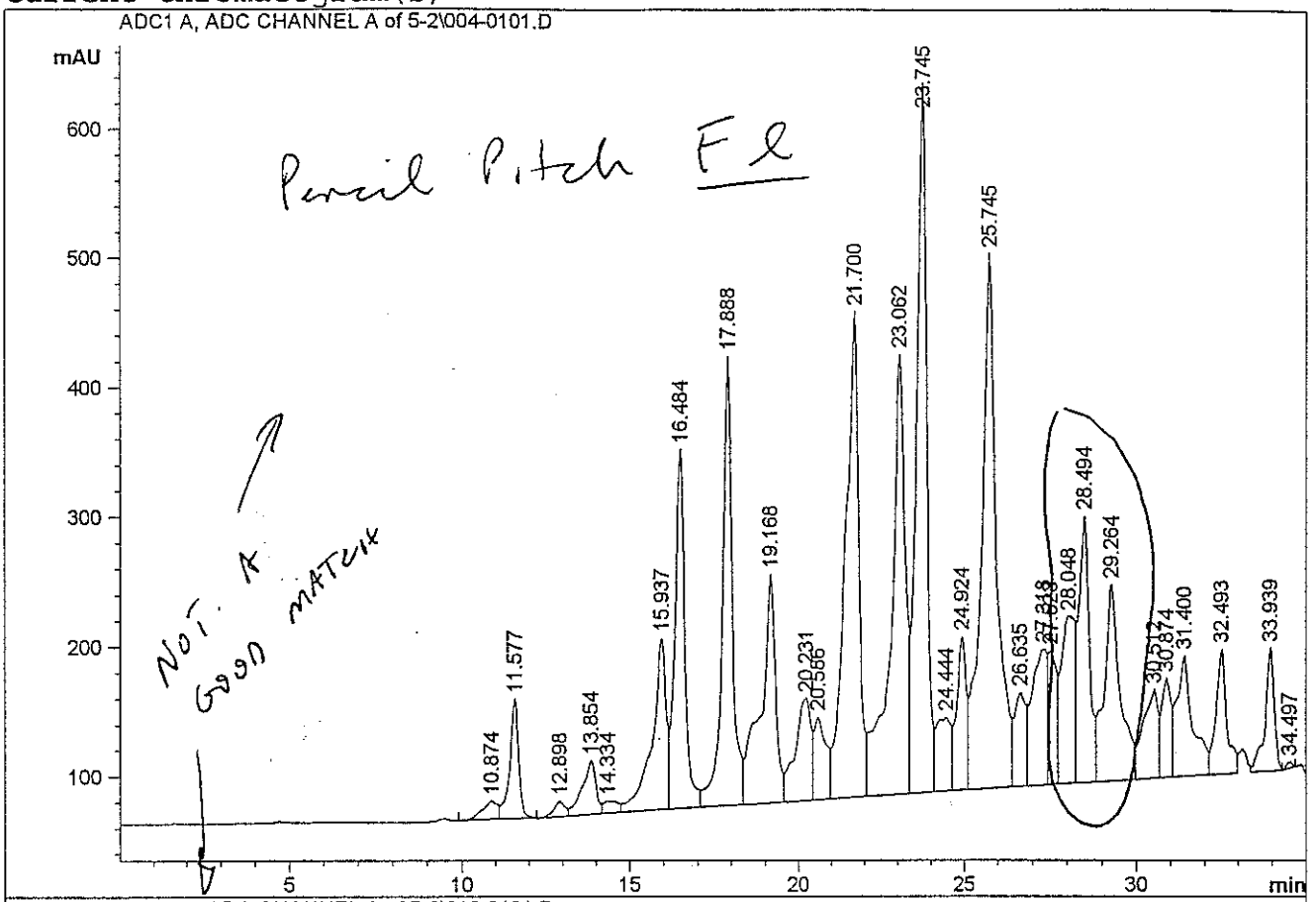
Run #5

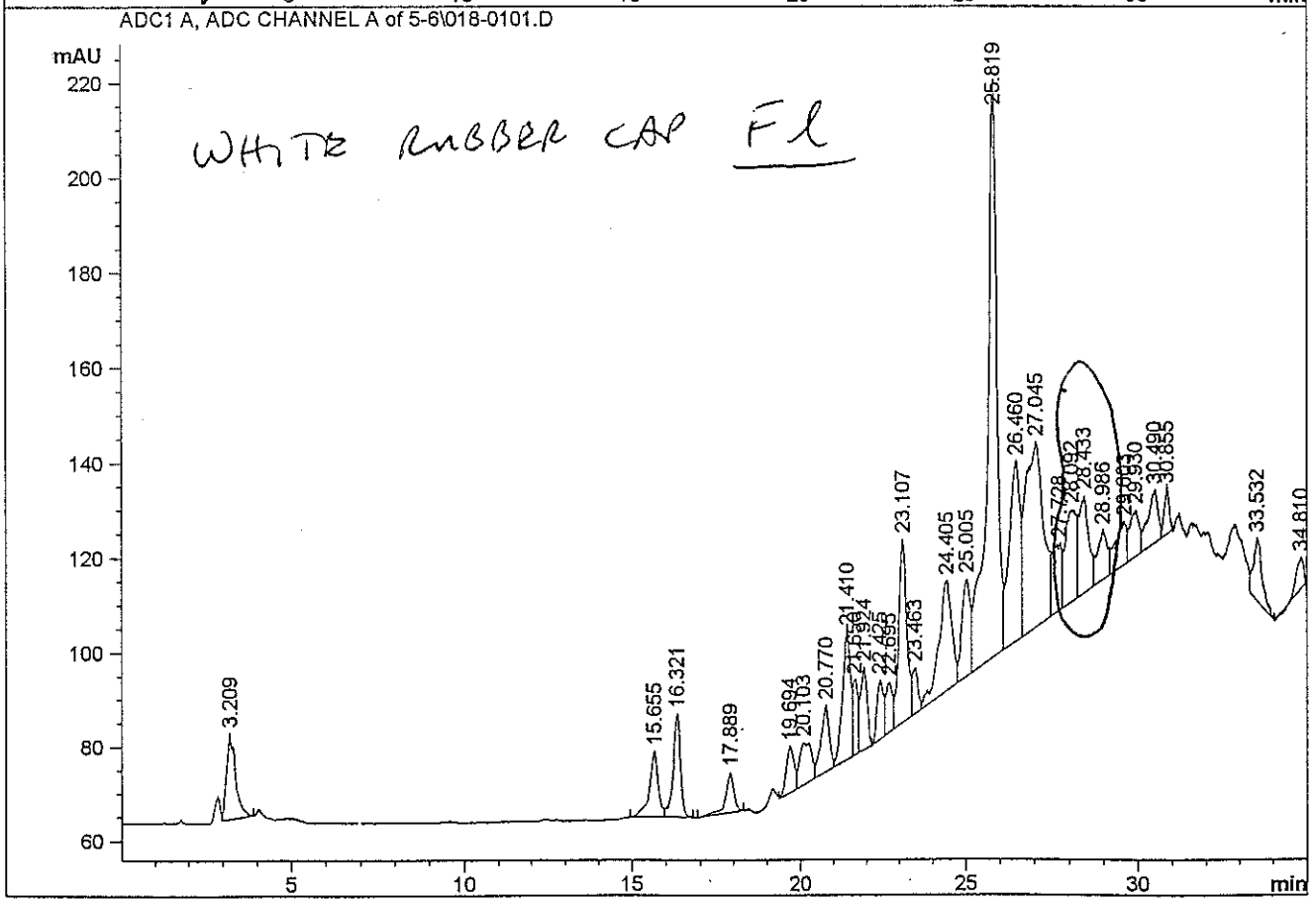
Current Chromatogram(s)



RUN # 6

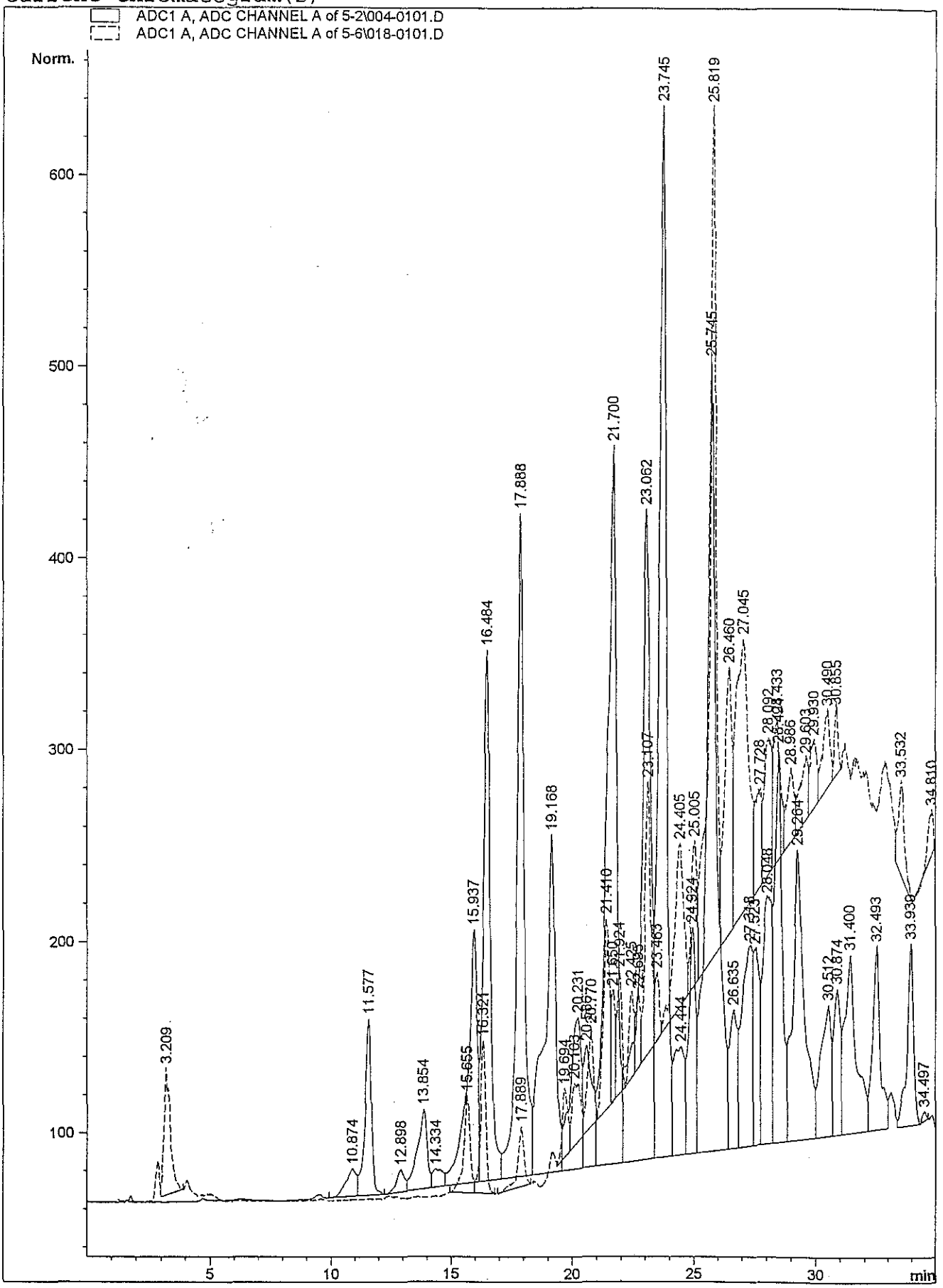
Current Chromatogram(s)





Run #6

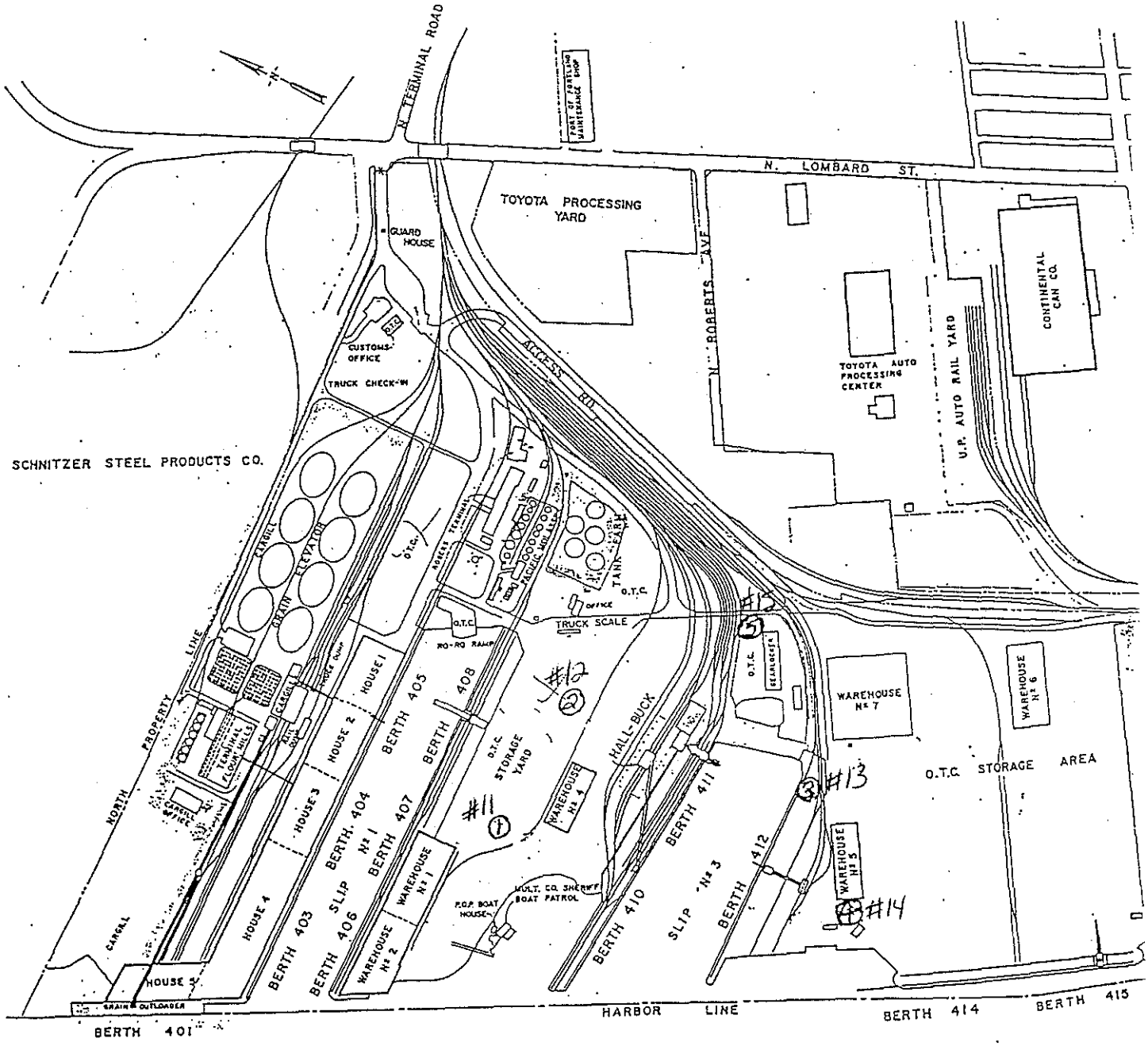
Current Chromatogram(s)



APPENDIX C

MAPS SHOWING SAMPLE LOCATIONS

TT 1993 Thomas Bros. Maps ® -2-



OTHER TENANTS

Oregon Terminal Company (OTC)

Hall-Buck Marine (HBM)

APPENDIX D

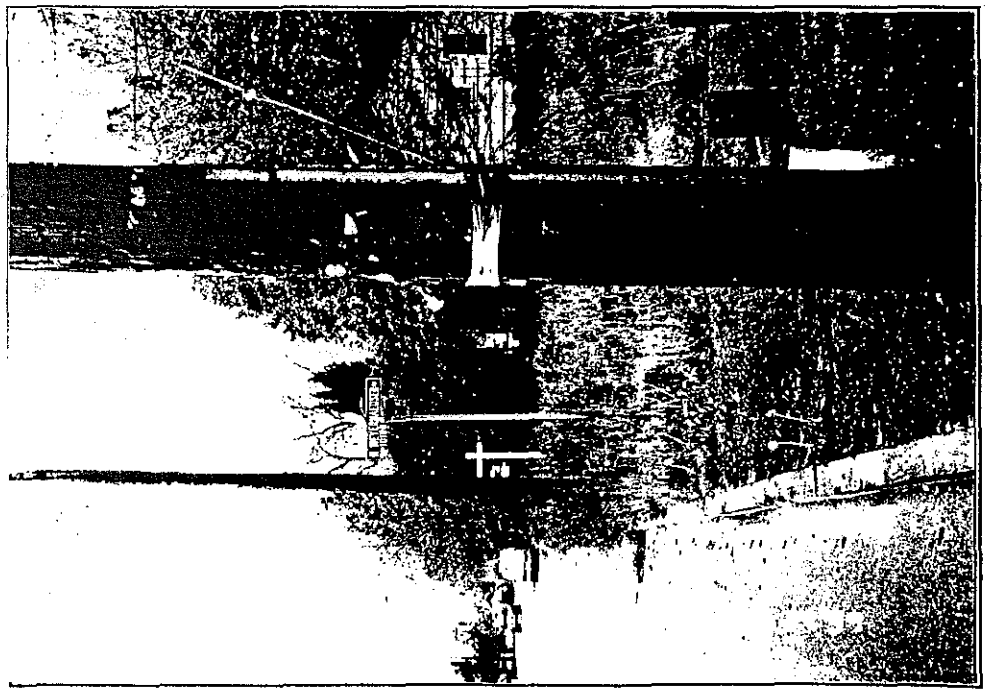
PHOTOGRAPHS

PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #3
Description: Sample Location #2, Lombard and Weyerhauser

Photo #4
Description: Sample Location #2, Lombard and Weyerhauser

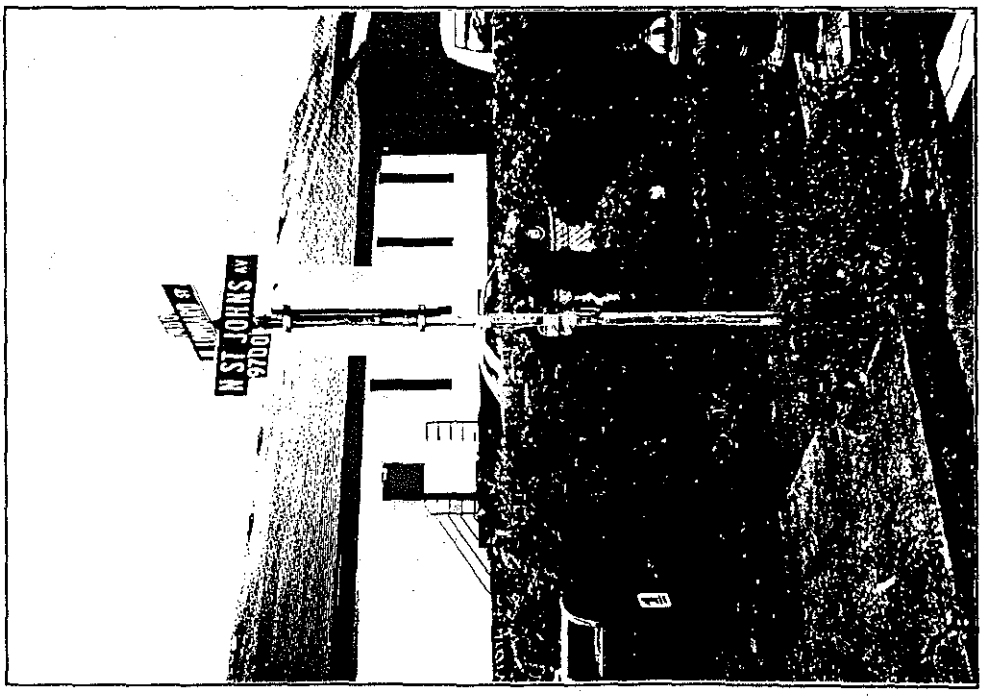


PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #5
Description: Sample Location #3, Lombard and St. Johns

Photo #6
Description: Sample Location #3, Lombard and St. Johns



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #7
Description: Sample Location #4, Catlin and Syracuse

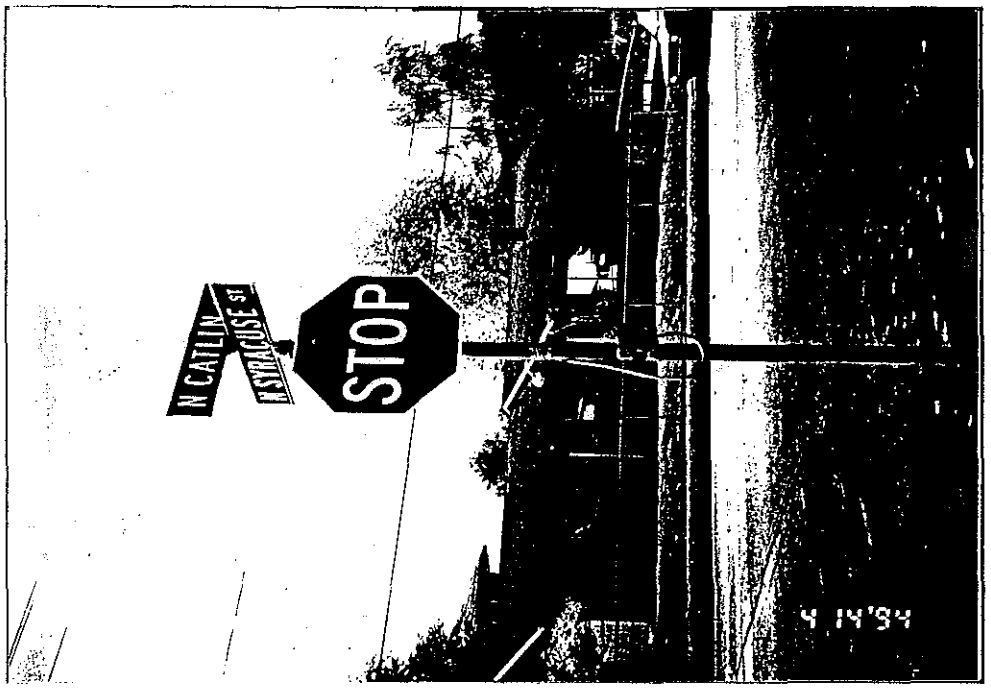


Photo #8
Description: Sample Location #4, Catlin and Syracuse

PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #9
Description: Sample Location #5, Catlin and Kellog

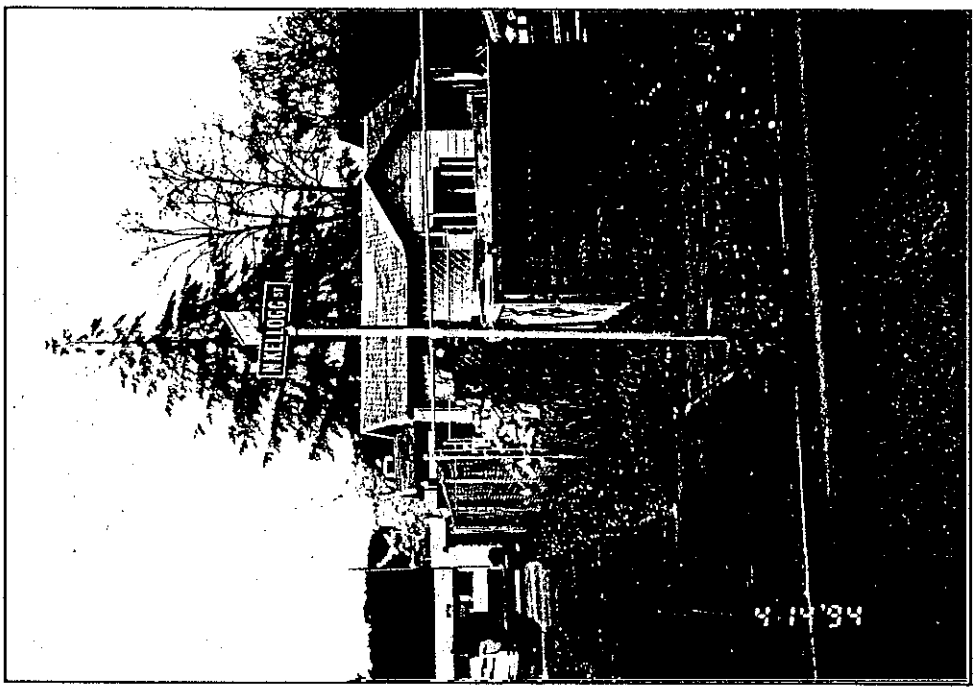


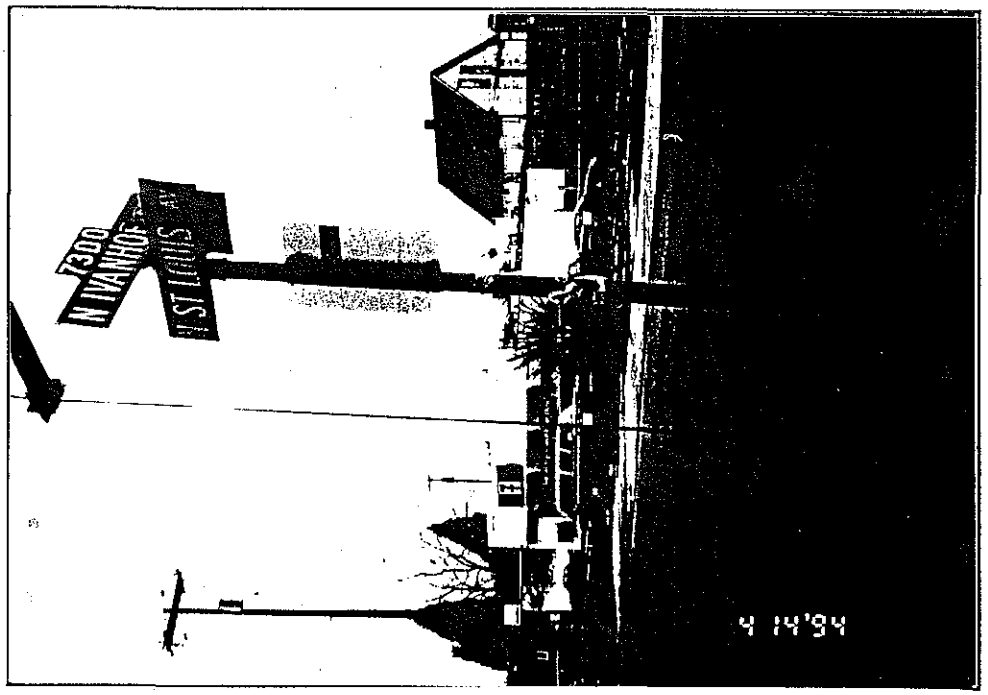
Photo #10
Description: Sample Location #5, Catlin and Kellog

PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #11
Description: Sample Location #6, Ivanhoe and St. Louis

Photo #12
Description: Sample Location #6, Ivanhoe and St. Louis



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #13
Description: Sample Location #7, Ivanhoe and Alta

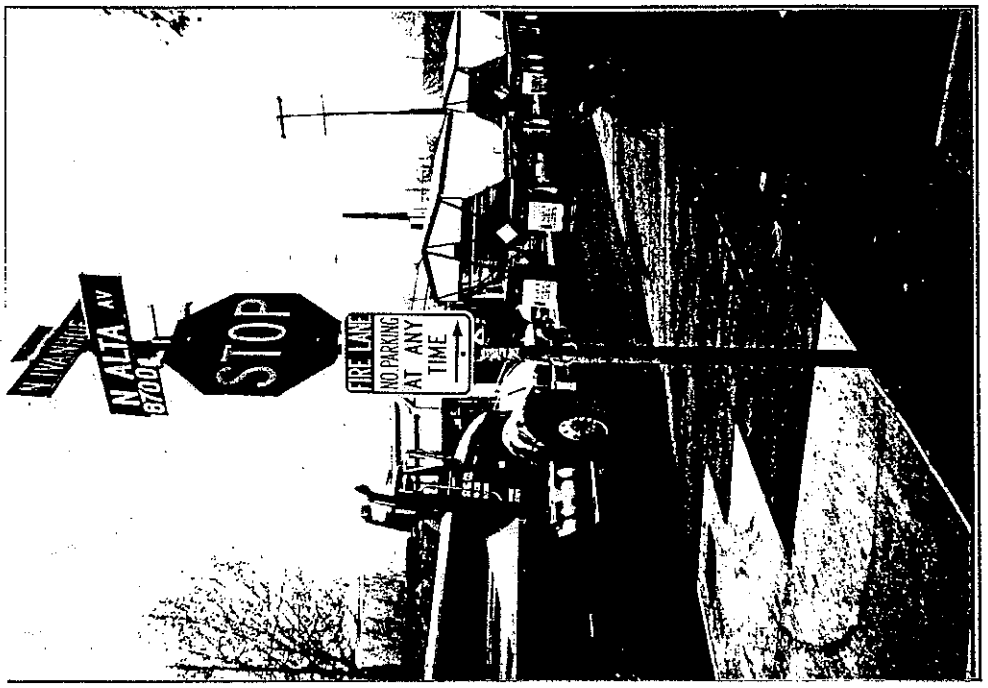
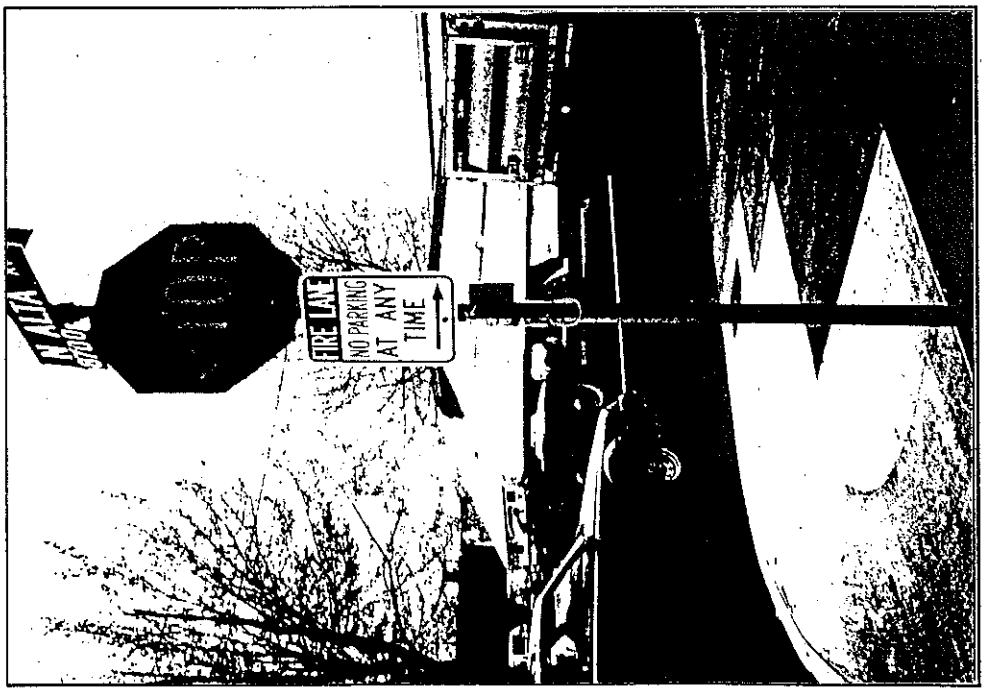


Photo #14
Description: Sample Location #7, Ivanhoe and Alta



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #15
Description: Sample Location #8, Philadelphia and Syracuse

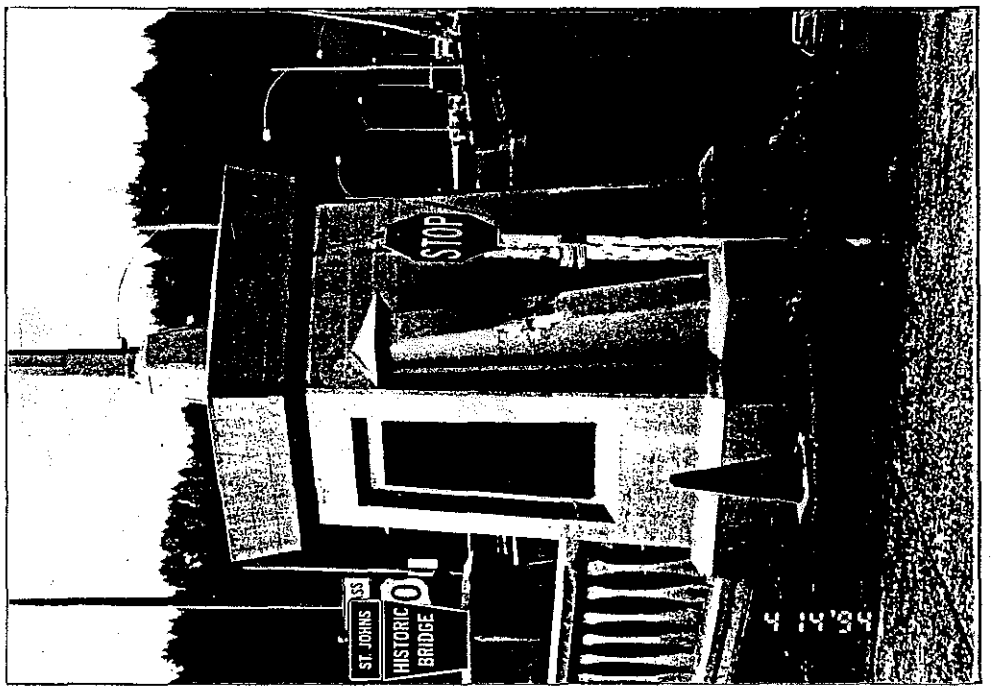
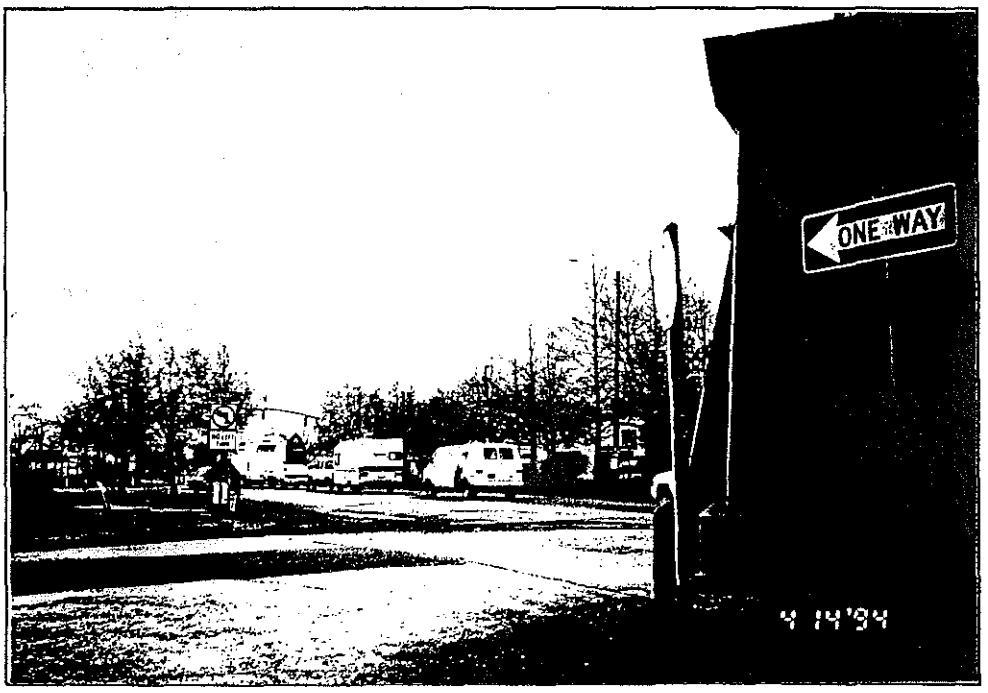


Photo #16
Description: Sample Location #8, Philadelphia and Syracuse

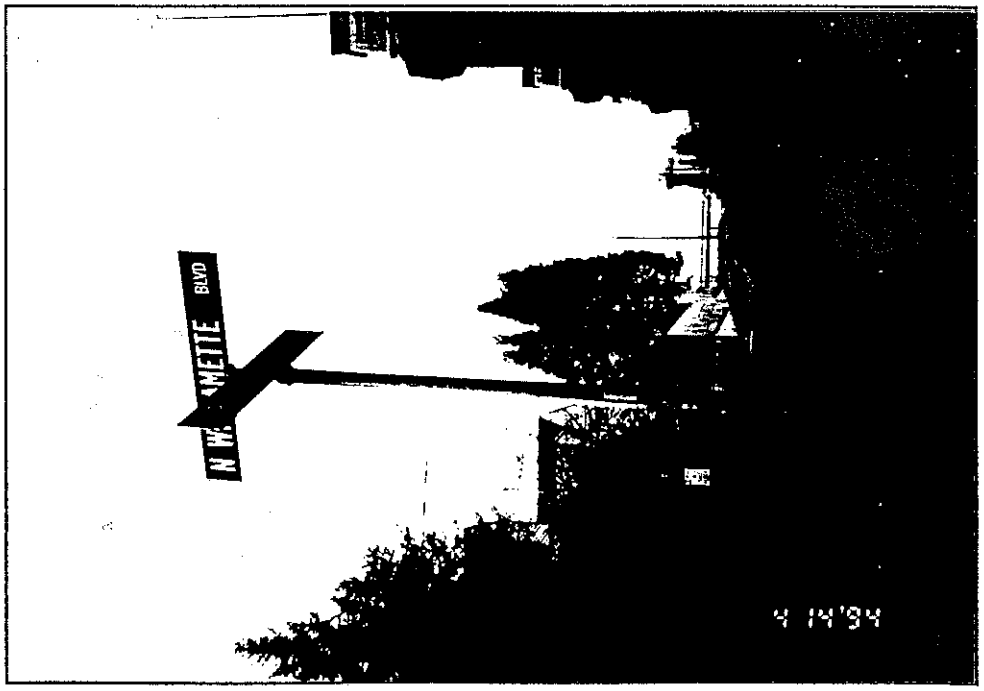


PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #17
Description: Sample Location #9, Philadelphia and Willamette

Photo #18
Description: Sample Location #9, Philadelphia and Willamette



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #19
Description: Sample Location #10, Entrance Road to Koppers

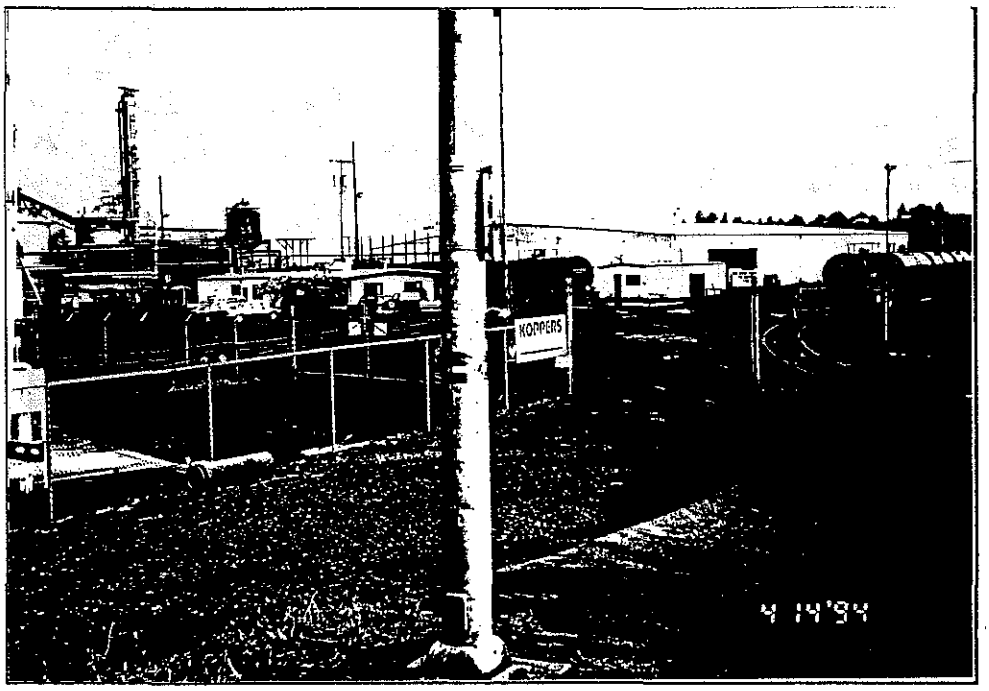
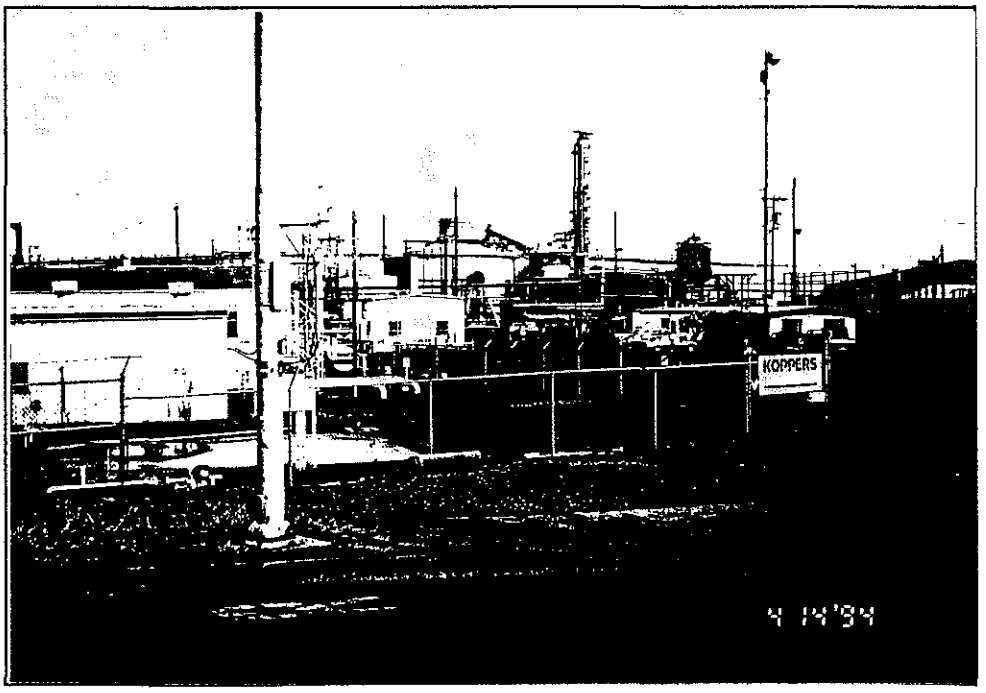


Photo #20
Description: Sample Location #10, Entrance Road to Koppers



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #21
Description: Pencil Pitch Spilled on Entrance Road to Koppers

Photo #22
Description: Pencil Pitch Spilled on Entrance Road to Koppers

PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #23
Description: Pencil Pitch Spilled on Entrance Road to Koppers

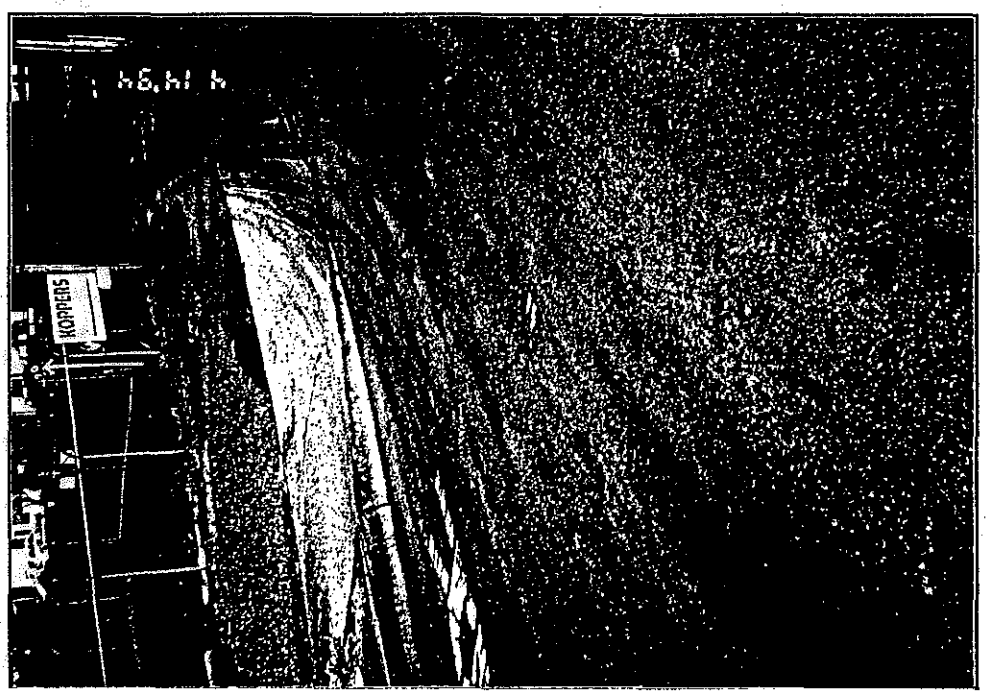
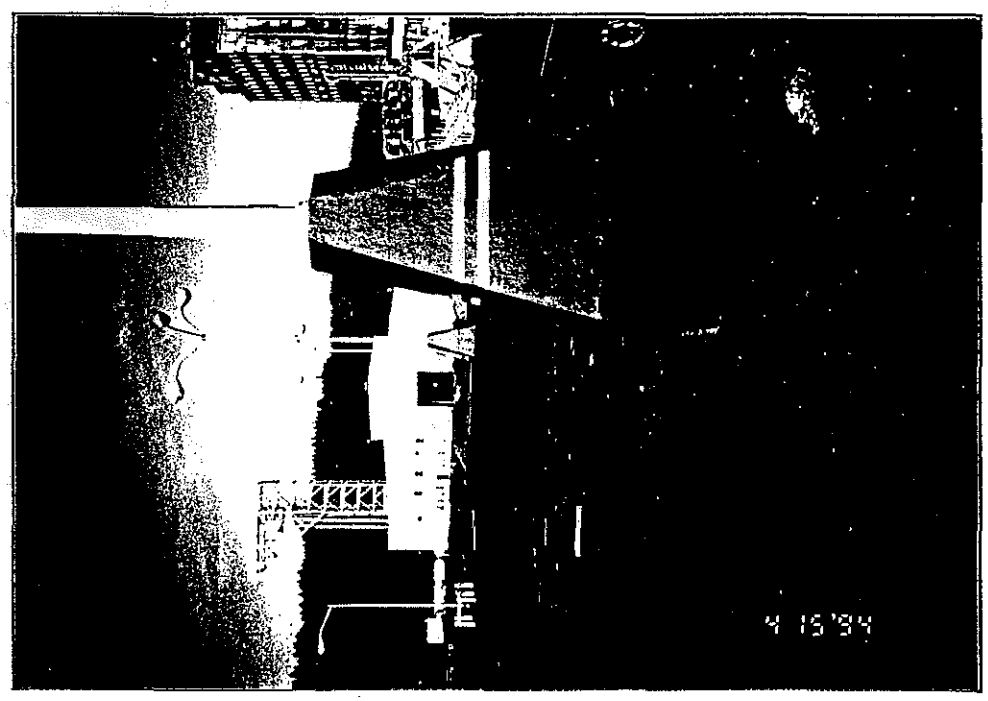


Photo #24
Description: Row of Light Post for Sample Location #11 & #12

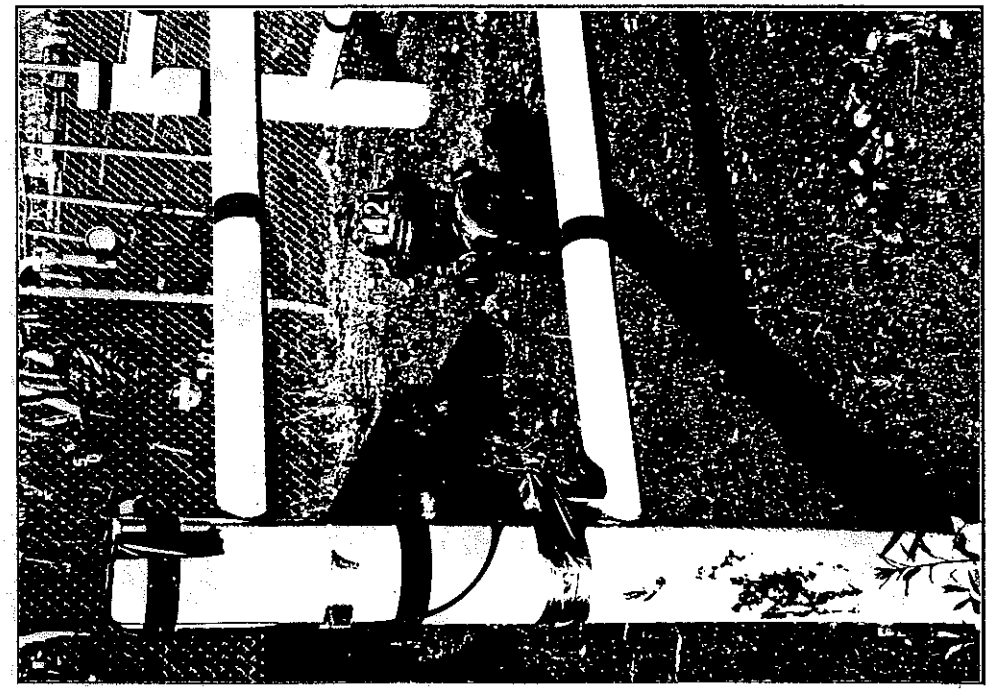


PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #25
Description: Sample Location #13, Stevedors Shop on T-4

Photo #26
Description: Sample Location #13, Stevedors Shop on T-4



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #27
Description: Crane, T-4

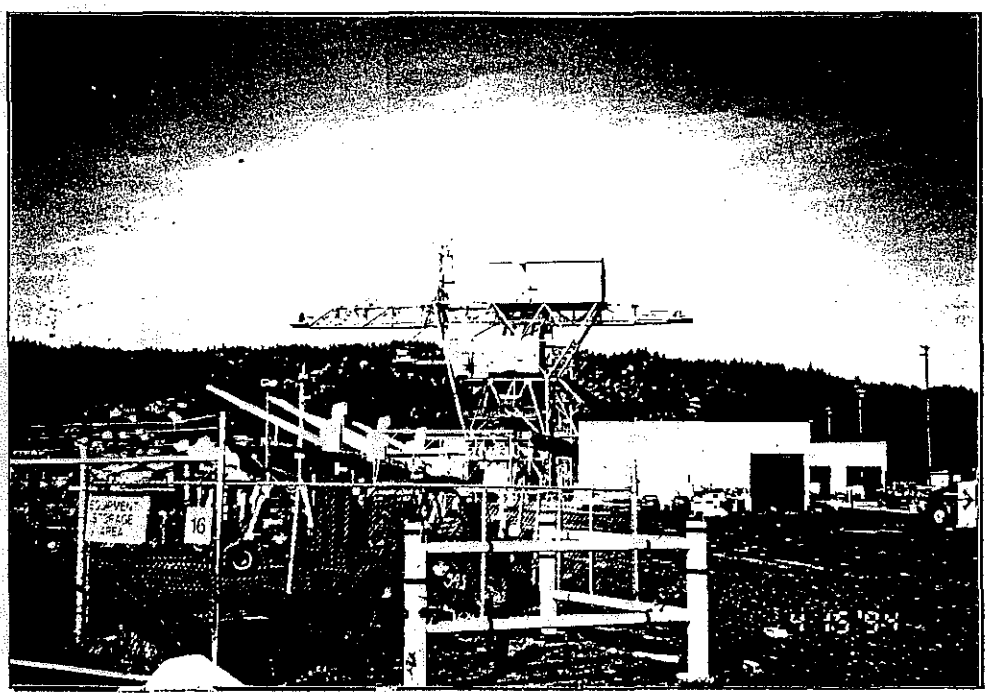


Photo #28
Description: Empty Truck Returning for Load, T-4

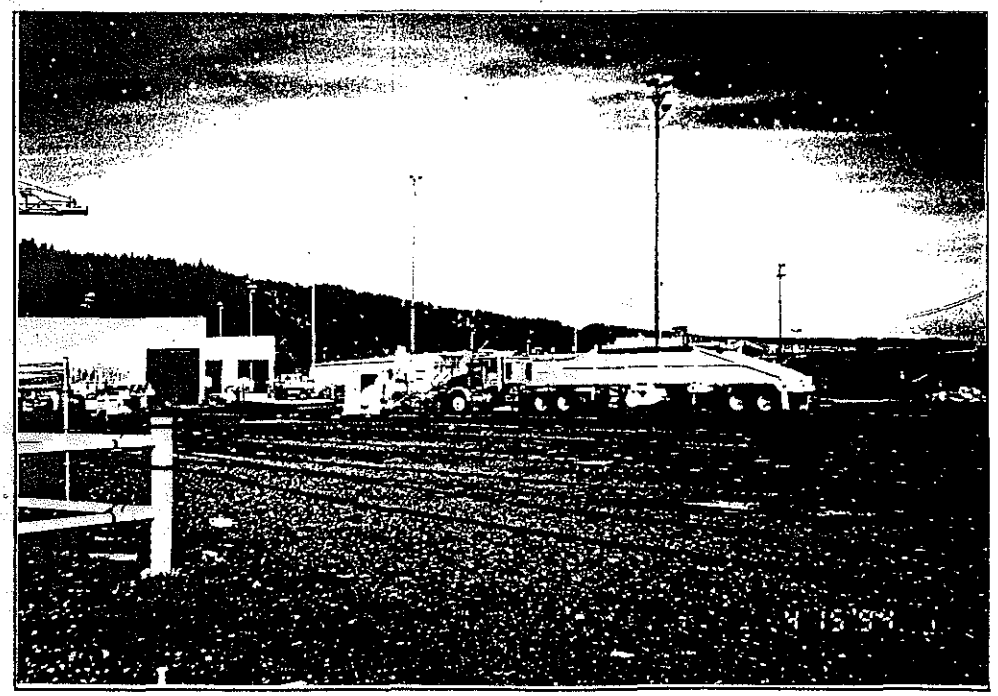


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Photo #29
Description: Empty Truck Returning for Load, T-4

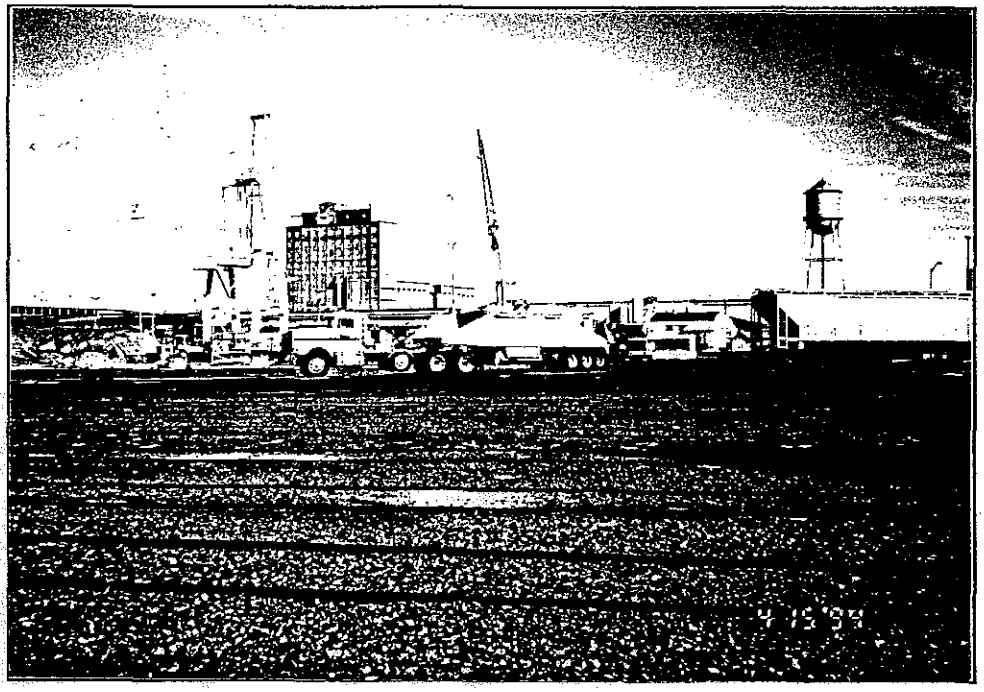

Photo #30
Description: Empty Truck Returning for Load, Tarp Removal

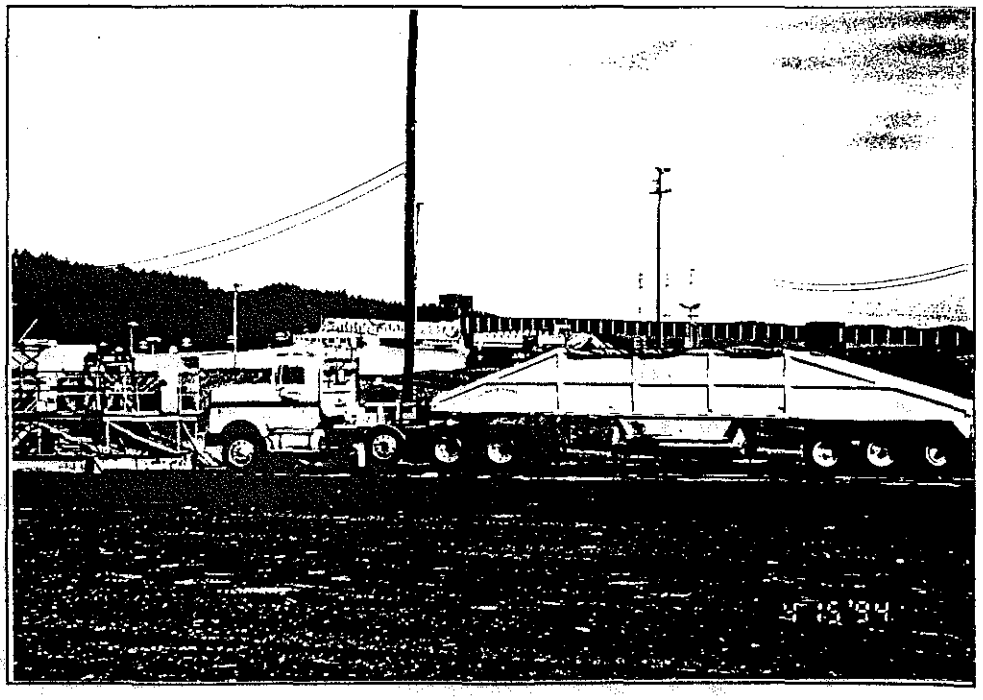

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Photo #31
Description: Loaded Truck, Tarp is Placed over Load

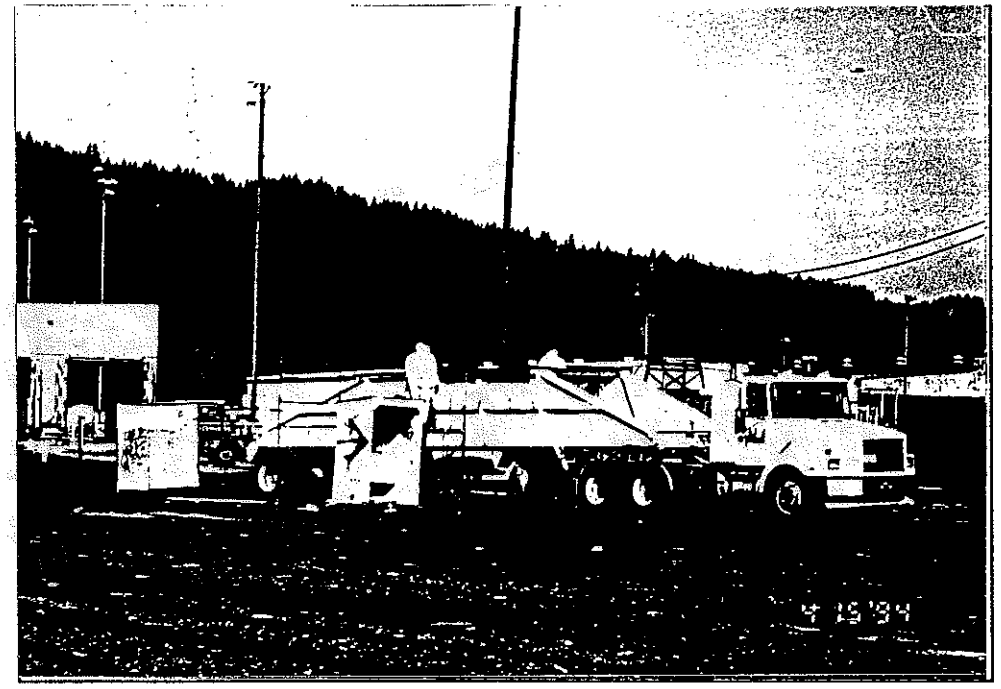

Photo #32
Description: Loaded Truck Leaving T-4

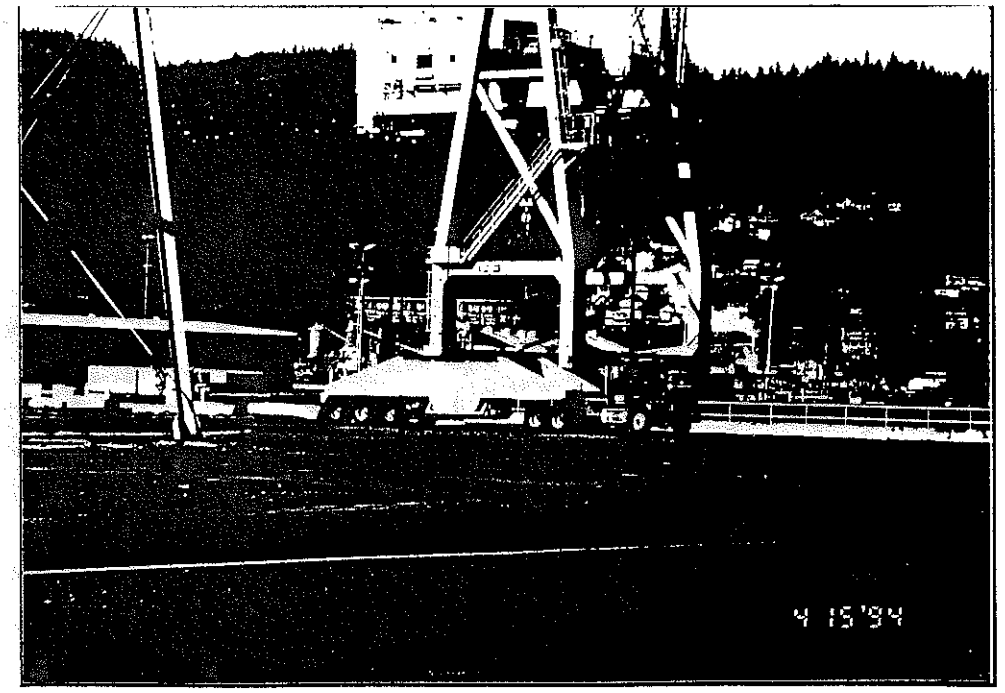

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Photo #33
Description: Loaded Truck Leaving T-4

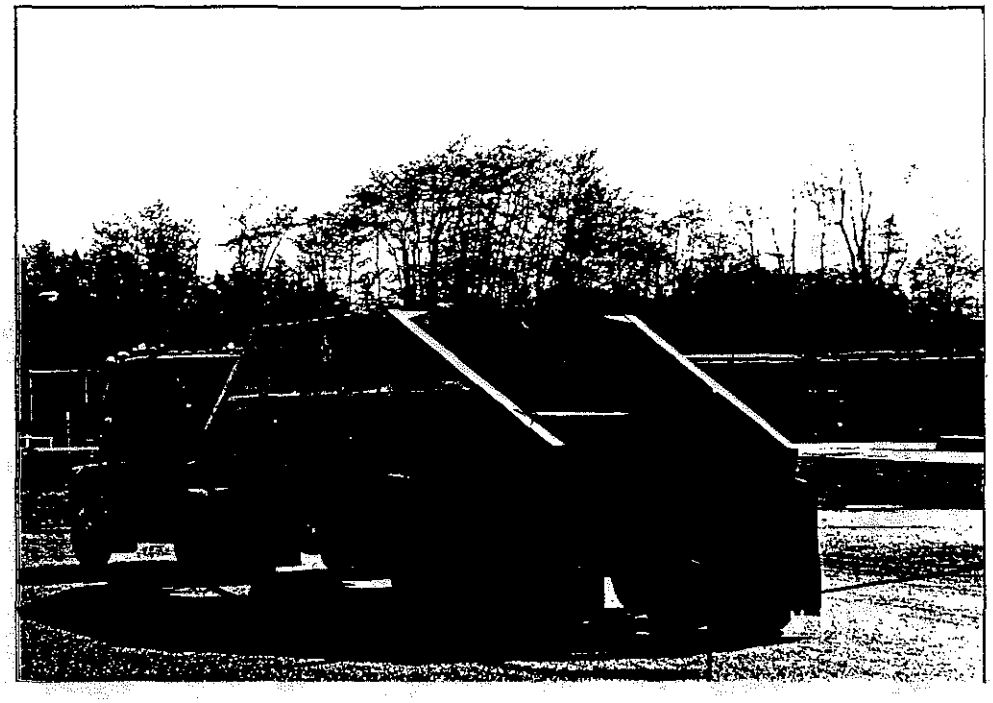
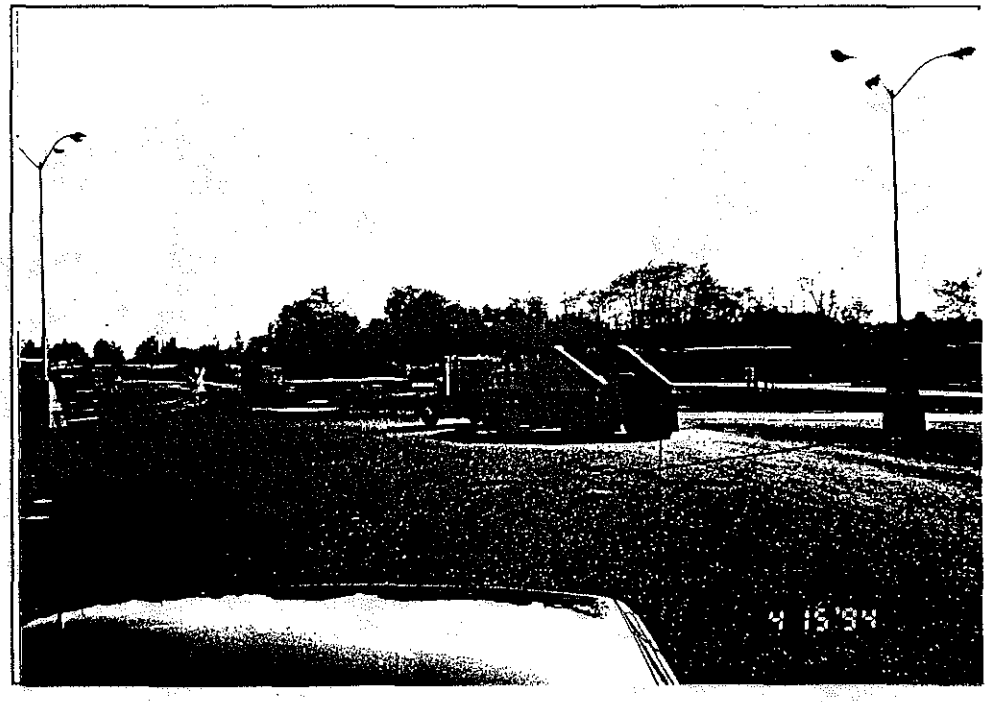


Photo #34
Description: Loaded Truck Leaving T-4



PROJECT SUMMARY PHOTO SHEETS

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Project # 6270

Photo #35
Description: Loaded Trucks Leaving T-4

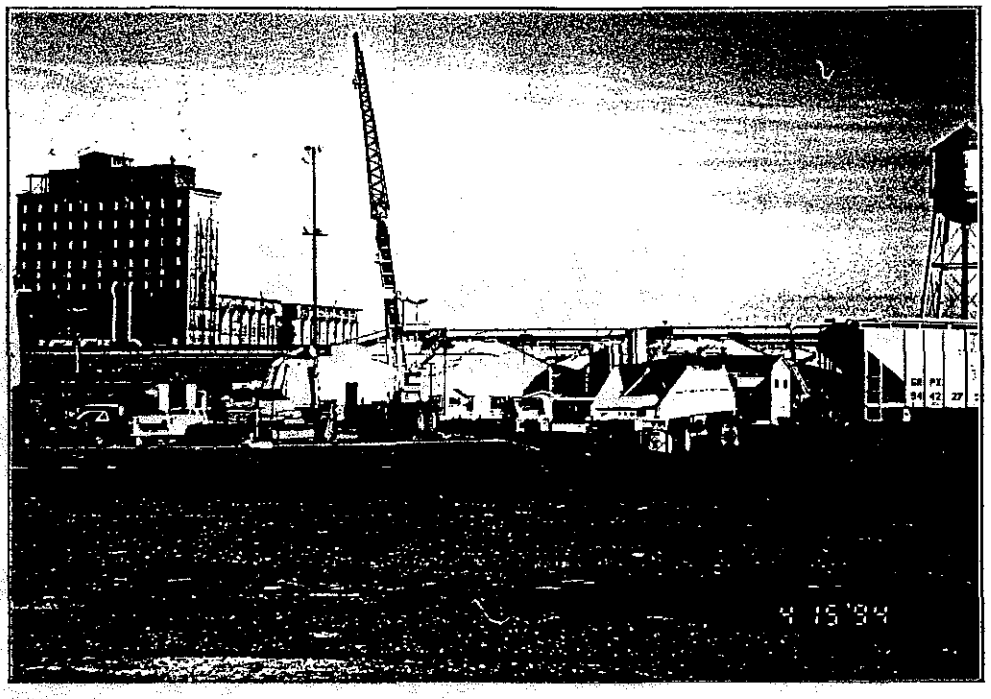
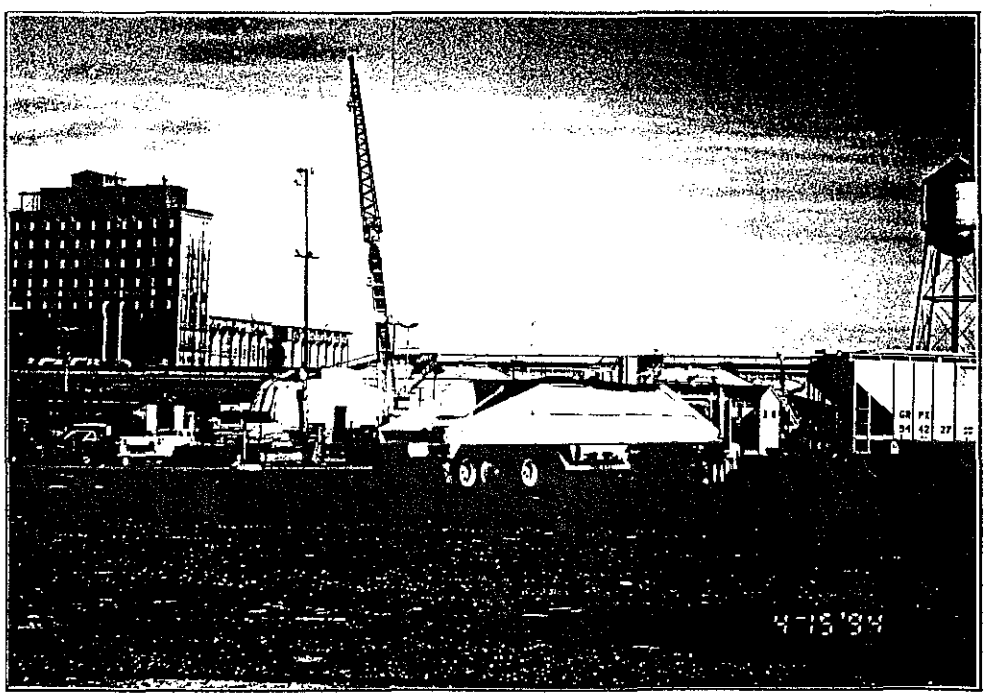


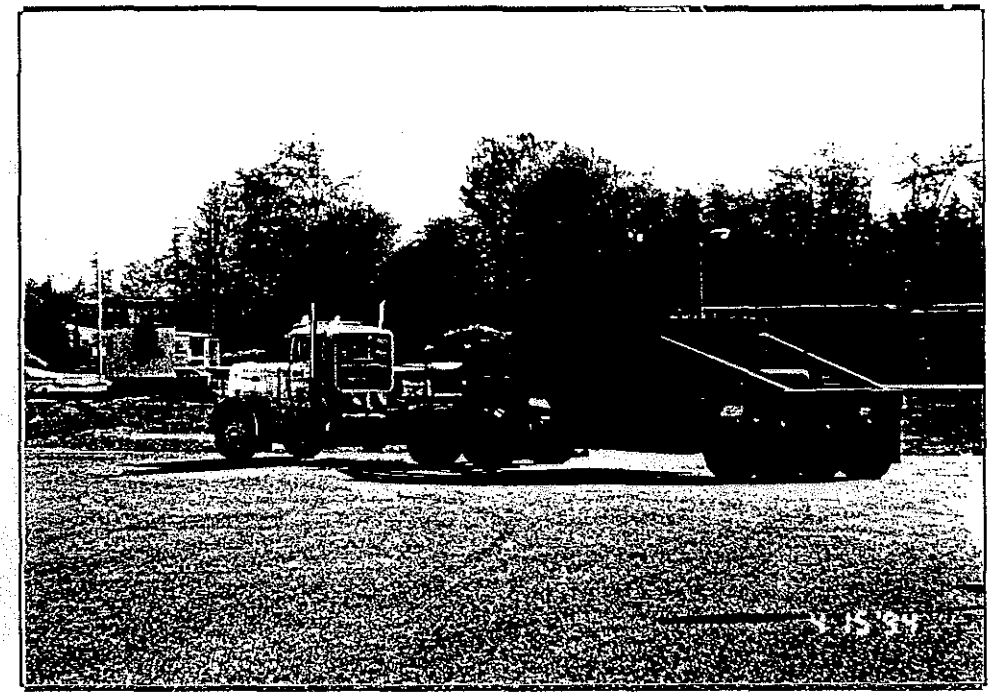
Photo #36
Description: Loaded Truck Leaving T-4



PROJECT SUMMARY PHOTO SHEETS

Port of Portland
Project # 6270

Photo #37
Description: Loaded Truck Leaving T-4



OLUMBIA RIVER - OREGON COAST
(503) 228-6601

UGET SOUND - WASHINGTON COAST
(206) 763-1130

DO NOT SAY IT - WRITE IT

ROUTE NOTED
☐ PNB
☐ C3
☐ BT
☐ GMc
☐ HAM
☐ JW
☐ INV
☐ JK
☐ REG
☐
☐ EC
☐ CPLR
☑ DB cc done
☐ [illegible]
☑ [illegible] 4/28
☐ PA
☐ SAFETY
☐ CLAIMS
☑ RRM cc done
☐ CC LV
☐ CC CB
☐
☐

SENT BY FAX TO POP
DATE 4/27/89 TIME 11:43 Am KMB

04/27/89

TO: PORT OF PORTLAND
ATTN: MR. MYRON SALO
FAX: 231-5493

FROM: JONES OREGON STEVEDORING COMPANY
GEORGE VASS

REGARDING ITEMS STILL PENDING:

1) ADDITIONAL LIGHTING AT BERTH 406, 407 AND 408 (02/24/89 FAX).

2) PROVIDE CAPACITIES OF FUEL TANKS AND INFORMATION REGARDING WHETHER THEY MEET EPA REGULATIONS (04/07/89 FAX).

3) A) OUTDOOR TELEPHONE RECEPTACLES.
B) CLEARING OF CEMEMT WALL AREA.
C) INCREASE SIZE OF SECURE AREA.
(04/12/89 FAX)

4) PUMP OIL STORAGE TANKS (04/17/89 FAX).

PLEASE PROVIDE ME WITH ESTIMATED COMPLETION DATES. IN TERMS OF PRIORITY, 2, 3B, AND 4, AFFECT OUR MAY 1, 1989 GEARLOCKER OPENING AND SHOULD BE EXPEDITED.

ON ANOTHER SUBJECT, WE WOULD LIKE TO POST LOAD CAPACITY SIGN ON BOTH MEZZANINES. COULD YOU PLEASE LET ME KNOW WHAT THE CAPACITIES ARE?

Thanks -
George

GDV/pag
cc: BOB MARACLE
cc: DOUG BEEBER