Oregon

February 2, 1998

DEPARTMENT OF ENVIRONMENTAL QUALITY

Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, OR 97210

Re: Diesel Fuel Spill
OERS No. 98-0227

Dear Mr. Kamerer:

On January 28, 1998, the Department of Environmental Quality (DEQ) received a report of a spill or release of coal tar pitch that occurred during a transfer at your company's facility. Therefore, you are requested to take and/or continue all containment and cleanup actions possible to prevent the spread of the spill to public waters, groundwater or soils beyond the original spill site.

In accordance with Oregon Administrative Rules (OAR) 340-108-040 (copy attached), you are required to submit a written report describing the spill. I have enclosed a spill report outline as a guideline so that all information that is necessary for the documentation and review of your spill report is received. We ask you to submit this information no later than February 22, 1998. Please submit the report to:

Loren Garner, DEQ, 2020 SW 4th, #400, Portland, Oregon, 97201-5884.

Responsible parties may be required to pay costs incurred by DEQ for oversight of the investigation and cleanup of the spill or release (Oregon Revised Statutes 465.255). DEQ oversight costs include direct and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ allocable to oversight of this cleanup and not charged as direct, site-specific costs.

If you have any questions about this request, please contact Loren Garner at (503) 229-5614.

RECEIVED
FEB 03
KOPPERS INDS., INC.
PORTLAND, OR

Sincerely,

Michael Greenburg
Spill Response Specialist
Spill Management Program

Enclosures: OAR 340-108
Spill Report Outline

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993
DEQ-1

DEPARTMENT OF ENVIRONMENTAL QUALITY

HAZARDOUS WASTE MANAGEMENT

DIVISION 108 - OIL AND HAZARDOUS MATERIAL SPILLS AND RELEASES

General

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Subpart A: General

340-108-001 - Purpose and Applicability

(1) The purpose of this division is to specify the reporting requirements, cleanup standards and liability that attaches to a spill or release or threatened spill or release involving oil or hazardous material.

(2) The rules of this division apply to any person owning or having control over any oil or hazardous material spilled or released or threatening to spill or release.

(3) Spills or releases or threatened spills or releases of hazardous waste occurring on the site of a generator shall be managed in accordance with the contingency plan and emergency procedures required by Subpart C and D of 40 CFR 265 and this division.

(4) Spills or releases or threatened spills or releases of hazardous waste on the site of a hazardous waste treatment, storage or disposal facility shall be managed in accordance with the contingency plan and emergency procedures required by Subparts C and D of 40 CFR Part 265, or a permit issued pursuant to OAR Chapter 340, Divisions 105 and 106, and this division.

(5) Oil spilled in an area that may allow it to reach any waters of the state shall be managed in accordance with ORS Chapter 468; OAR Chapter 340, Division 47; and this division.

Stat. Auth: ORS Ch. 183, 459, 466 & 468

340-108-002 - Definitions

As used in this division unless otherwise specified:

(1) "Barrel" means 42 U.S. gallons of oil at 60 degrees Fahrenheit.

(2) "Cleanup" includes, but is not limited to, the containment, collection, removal, treatment or disposal of oil or hazardous material; site restoration; and any investigation, monitoring, surveys, testing and other information gathering required or conducted by the Department.

(3) "Cleanup Costs" means all costs associated with the cleanup of a spill or release or threatened spill or release incurred by the state, its political subdivision or any person with written approval from the Department when implementing ORS 466.205, 466.605 to 466.690, 466.880 (3) and (4) and 466.995 (3) or 468.800.

(4) "Commission" means the Environmental Quality Commission.

(5) "Contingency Plan" means a document setting out an organized, planned and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment and is prepared pursuant to 40 CFR Part 264- Subpart D or Part 265- Subpart D.

(6) "Department" means the Department of Environmental Quality.

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(7) "Director" means the Director of the Department of Environmental Quality.

(8) "Having Control Over Any Oil or Hazardous Material" includes, but is not limited to, persons using, handling, processing, manufacturing, storing, treating, disposing or transporting oil or hazardous material.

(9) "Hazardous Material" means:

(a) Radioactive Waste and material as defined in ORS 469.300 and 469.530;

(b) Substances and wastes listed in 40 CFR Part 302 -- Table 302.4 (List of Hazardous Substances and Reportable Quantities) and amendments, adopted prior to May 1, 1987.

(10) "Modified Spill Prevention Control and Countermeasure (SPCC) Plan" means the plan to prevent the spill of oil from a non-transportation related facility that has been modified to include those hazardous substances and hazardous wastes handled at the facility.

(11) "Oil" includes gasoline, crude oil, fuel oil, diesel oil, lubricating oil, sludge, oil refuse and any other petroleum related product.

(12) "Person" includes, but is not limited to, an individual, trust, firm, joint stock company, corporation, partnership, association, municipal corporation, political subdivision, interstate body, the state and any agency or commission thereof and the Federal Government and any agency thereof.

(13) "Reportable Quantity" is an amount of oil or hazardous material which if spilled or released, or threatens to spill or release, in quantities equal to or greater than those specified in OAR 340-108-010 must be reported pursuant to OAR 340-108-020.

(14) "SPCC" means Spill Prevention, Control and Countermeasures Plan prepared in accordance with Title 40 Code of Federal Regulations - Part 112 or Part 1510.

(15) "Spill or Release" means the discharge, deposit, injection, dumping, spilling, emitting, releasing, leaking or placing of any oil or hazardous material into the air or into or on any land or waters of the state, as defined in ORS 468.700, except as authorized by a permit issued under ORS Chapter 454, 459, 468 or 469, ORS 466.005 to 466.385, 466.880 (1) and (2), 466.890 and 466.995 (1) and (2) or federal law or while being stored or used for its intended purpose.

(16) "Threatened Spill or Release" means circumstances or events exist that indicate a spill or release of oil or hazardous material is likely and iminent.

(17) "Waters of the State" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or undergound waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

Stat. Auth: ORS Ch. 183, 459, 466 & 468

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Subdivision B: Reportable Quantities

340-108-010 - Reportable Quantities

(1) Reportable quantity means:

(a) Any quantity of radioactive material, or radioactive waste;

(b) If spilled into waters of the state, or escape into waters of the state is likely, any quantity of oil that would produce a visible oily slick, oily solids, or coat aquatic life, habitat or property with oil, but excluding normal discharges from properly operating marine engines;

(c) If spilled on the surface of the land, any quantity of oil over one barrel (42 gallons); and

(d) An amount equal to or greater than the quantity listed in 40 CFR Part 302 -- Table 302.4 (List of Hazardous Substances and Reportable Quantities) and amendments adopted prior to May 1, 1987.

(e) (A) One (1) pound of nerve agents (such as GB (Sarin) or VX) if spilled or released on-site;

(B) Any quantity of nerve agents such as GB (Sarin) or VX if spilled or released off-site;

(C) An ambient air concentration for nerve agents monitored at the chemical storage perimeter or depot perimeter which is equal to or greater than 3 X 10-6mg/m3 for GB and VX; or

(D) An ambient air concentration for nerve agents monitored at or near a point of release equal to or greater than 2 X 10-2 mg/m3 GB or 4 X 10-2 mg/m3 VX. (i.e igloo monitoring).

(f) One (1) pound (0.454 kg) of pesticide residue as defined by 340-101-033(5)(a).

(2) Spills or releases of mixtures or solutions containing any of the hazardous materials listed in 40 CFR Part 302 -- Table 302.4 (List of Hazardous Substances and Reportable Quantities) and amendments adopted prior to May 1, 1987 are subject to the reporting requirements of this rule if the total quantity of all the hazardous materials in the mixture or solution (in pounds) exceeds the lowest reportable quantity referenced in subsection (1)(d) of this rule for any one of the hazardous materials in the mixture or solution. A person may rely upon actual knowledge and readily available information such as material safety data sheets, shipping papers, hazardous waste manifests and container labels, to determine the presence and concentration of hazardous materials in a mixture or solution.

(3) The quantity determination required by section (1) of this rule shall be the quantity of oil or hazardous material spilled or released prior to contact or mixing with any other material or substance (i.e., with soil, water, sawdust, etc.). In the case of a threatened spill or release, it shall be the amount of oil or hazardous material in the container or tank from which a spill or release is likely and iminent.

Stat. Auth: ORS Ch. 183, 459, 466 & 468

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Sudivision C: Required Action

340-108-020 - Emergency Action, Reporting

In the event of a spill or release or threatened spill or release, the person owning or having or control over oil or hazardous material shall take the following actions, as appropriate.

(1) Immediately implement the site's SPCC plan, modified SPCC plan or other applicable contingency plan if such a plan is required.

COMMENT: Generators accumulating hazardous waste for less than 90 days are required to have a contingency plan prepared in accordance with 40 CFR 262.34

(2) If an SPCC plan, modified SPCC plan or contingency plan is not otherwise required, immediately take the following actions in the order listed:

(a) Activate alarms or otherwise warn persons in the immediate area; and

(b) Undertake every reasonable method to contain the oil or hazardous material.

(3) If a medical emergency or public safety hazard (i.e., potential fire or explosion) is determined by the responsible person to exist that requires the services of local emergency responders (fire, police, emergency medical technicians), call 911, where available, or local fire and/or police where 911 does not exist.

(4) If the amount of oil or hazardous material exceeds the reportable quantity listed in OAR 340-108-010 in any 24-hour period, report the spill or release or threatened spill or release to the Oregon Emergency Management Division.

COMMENT: The Oregon Emergency Management Division can be reached anytime by calling in-state 800-452-0311 or if calling from out-of-state (503) 378-4124.

(5) If the amount of hazardous material exceeds the quantity referenced in OAR 340-108-010(1)(d) report the spill or release to the National Response Center.

COMMENT: The National Response Center currently can be reached by calling 800-424-8802.

(6) The spill or release need not be reported if:

(a) It occurs on public or private property and is known to the person owning or having control over oil or hazardous material or their designated representative;

(b) It occurs on a surface impervious to the oil or hazardous material spilled or release and it is fully contained; and

(c) It is completely cleaned up without further incident, including fixing or repairing the cause of the spill or release.

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(7) Cleanup the spill or release or threatened spill or release of oil or hazardous material pursuant to OAR 340-108-030. The Department may, in any case, evaluate the action taken and may require additional action to complete the cleanup and disposal pursuant to OAR 340-108-030.

Stat. Auth: ORS Ch. 183, 459, 466 & 468

340-108-030 - Cleanup Standards

(1) Any person liable for a spill or release or threatened spill or release shall immediately cleanup the spill or release or threatened spill or release consistent with sections (2) and (3) of this rule. Cleanup of a threatened spill or release shall be by taking immediate repair, corrective or containment action.

(2) Spills and releases or threatened spills and releases of oil or hazardous material shall be cleaned up by employing the best available methods of cleanup to achieve the lowest practicable level of contamination. The Department shall determine the lowest practicable level of contamination by applying one or more of the following factors, as appropriate:

(a) Population at risk;

(b) Routes of exposure;

(c) Amount, concentration, hazardous and toxic properties, environmental fate and transport (e.g., ability and opportunities to bioaccumulate, persistence, mobility, etc.), and form of the oil or hazardous material present;

(d) Hydrogeological factors (e.g., soil permeability, depth to saturated zone, hydrologic gradients, proximity to a drinking water aquifer, floodplains and wetlands proximity);

(e) Current and potential ground water use;

(f) Climate (rainfall, etc.);

(g) The extent to which the oil or hazardous material can be adequately identified and characterized;

(h) Whether oil or hazardous material at the site may be reused or recycled;

(i) The likelihood of future releases if the oil or hazardous material remain on-site;

(j) The extent to which natural or manmade barriers currently contain the oil or hazardous material and the adequacy of the barriers;

(k) The extent to which the oil or hazardous materials have migrated or are expected to migrate from the area of their original location, or new location if relocated; and whether future migration may pose a threat to public health, safety, welfare or the environment;

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(l) The extent to which State or Federal environmental and public health requirements are applicable or relevant and appropriate to the specific site and the extent to which other State or Federal criteria, advisories, and guidance should be considered in developing the cleanup remedy;

(m) The extent to which contamination levels exceed applicable or relevant and appropriate State or Federal requirements or other State or Federal criteria, advisories, and guidance;

(n) Contribution of the oil or hazardous material to an air, land, water, and/or food chain contamination problem;

(o) The pre-existing background level of the oil or hazardous material present at the cleanup site;

(p) Other appropriate matters may be considered.

(3) In addition to considering the cleanup factors in section (2) of this rule, cleanup of hazardous waste, or material which as waste is defined as hazardous, shall also be consistent with the following requirements:

(a) If it is a mixture of a solid waste and a hazardous waste that exhibits a characteristic identified in 40 CFR Part 261- Subpart C, or is a hazardous waste that is listed in 40 CFR Part 261- Subpart D solely because it exhibits one or more characteristics identified in Subpart C, the resultant mixture must be cleaned up to the extent that any remaining waste no longer exhibits any characteristics of hazardous waste identified in Subpart C. Any removed characteristic hazardous waste must be shipped to an authorized hazardous waste treatment or disposal facility.

(b) If it is a mixture of solid waste and one or more hazardous waste listed in 40 CFR Part 261- Subpart D, contamination at the site must be cleaned up to background levels and the removed hazardous waste mixture shipped to an authorized hazardous waste treatment or disposal facility. Any hazardous waste remaining at the site is subject to regulation under OAR 340- division 100 to 109 unless it is delisted pursuant to OAR 340-100-020 and 022.

Stat. Auth: ORS Ch. 466

340-108-040 - Cleanup Report

The Department may require the person responsible for a spill or other incident to submit a written report within 15 days of the spill or other incident describing all aspects of the spill and steps taken to prevent a recurrence.

(Comment: Transporters are also required by the Public Utility Commissioner to file a Hazardous Materials Incident Report (DOT Form F5800.0) within 15 days after a spill. A copy of this report may be sent to the Department in lieu of the report required by this rule.)

Stat. Auth: ORS Ch. 183, 459 & 468

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340-108-050 - Sampling/Testing Procedures

The representative sampling procedures and analytical testing protocols referenced in 40 CFR 260.11 shall be used when conducting sampling or testing of hazardous materials to comply with this division. For testing of oil spills, the analytical testing protocols for "Oil and Grease (spectro photometric, infra-red)" in Standard Methods (16 ed., #503) and EPA Methods for Chemical Analysis (600-4-79-020, #413.2 or #418.1) shall be used.

Stat. Auth: ORS Ch. 466

340-108-060 - References

See 340-100-011 for incorporation by reference of Code of Federal Regulations cited in this division.

Stat. Auth: ORS Ch. 466

Subdivision D: Liability and Inspections

340-108-070 - Liability

(1) Any person owning or having control over any oil or hazardous material spilled or released or threatening to spill or release shall be strictly liable without regard to fault for the spill or release or threatened spill or release. However, in any action to recover damages, the person shall be relieved from strict liability without regard to fault if the person can prove the spill or release of oil or hazardous material was caused by:

(a) An act of war or sabotage or an act of God.

(b) Negligence on the part of the United States Government or the State of Oregon.

(c) An act or omission of a third party without regard to whether any such act or omission was or was not negligent.

(2) Any person liable for a spill or release or threatened spill or release under ORS 466.640 shall immediately cleanup the spill or release pursuant to this division. Cleanup of a threatened spill or release shall be by taking immediate repair, corrective or containment action so that an actual spill or release does not occur. In addition to cleanup, the Department may require the responsible person to undertake such investigations, monitoring, surveys, testing and other information gathering as the Department considers necessary or appropriate to:

(a) Identify the existence and extent of the spill or release or threatened spill or release;

(b) Identify the source and nature of oil or hazardous material involved; and

(c) Evaluate the extent of danger to the public health, safety, welfare or the environment.

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(Comment: 40 CFR 264.1(g) states that a hazardous waste management facility permit is not required for treatment or containment activities taken during immediate response to a spill or release of a hazardous waste.)

(3) If any person liable under ORS 466.640 does not immediately commence and promptly and adequately complete the cleanup, the Department may cleanup or contract for the cleanup of the spill or release or the threatened spill or release of oil or hazardous material. Whenever the Department undertakes a cleanup, the Department directly or by contract may undertake such investigations, monitoring, survey, testing and other information gathering as it may deem appropriate to identify the existence and extent of the spill or release, the source and nature of oil or hazardous material involved and the extent of danger to the public health, safety, welfare or environment. In addition, the Department directly or by contract may undertake such planning, fiscal, economic, engineering and other studies and investigation it may deem appropriate to plan and direct cleanup actions, to recover costs thereof and legal costs.

(4) The Department shall keep a record of all expenses incurred in carrying out any cleanup projects or activities authorized under section (3) of this rule, including charges for services performed and the state's equipment and materials utilized.

(5) Any person who fails to cleanup oil or hazardous material immediately, when under an obligation to do so, shall be responsible for the reasonable expenses incurred by the Department in carrying out a cleanup project or activity authorized in section (3) of this rule.

(6) Any person who does not make a good faith effort to clean up oil or hazardous material when obligated to do so under ORS 466.645 shall be liable to the Department for damages not to exceed three times the amount of all expenses incurred by the Department.

(7) If the amount of state-incurred expenses and damages under this rule are not paid by the responsible person to the Department within 15 days after receipt of notice that such expenses and damages are due and owing, or if an appeal is filed within 15 days after the court renders its decision if the decision affirms the order, the Attorney General, at the request of the Director, shall bring an action in the name of the State of Oregon in a court of competent jurisdiction to recover the amount specified in the notice of the Director.

(8) If the spill or release involves a hazardous waste or substance covered by ORS 466.205, the expenditures covered by this rule shall constitute a general lien upon the real and personal property of the person under an obligation to collect, remove or treat the hazardous waste or substance.

(9) Within seven days after the Department begins any cleanup activities under section (3) of this rule, the Department shall file a notice of potential lien on real property to be charged with a lien under section (8) of this rule with the recording officer of each county in which the real property is located and shall file a notice of potential lien on personal property to be charged with a lien under section (8) of this rule with the Secretary of State. The lien shall attach and become enforceable on the day on which the state begins the clean up projects or activities authorized by section (3) of this rule if within 120 days after such date, the state files a notice of claim of lien on real property with the recording officer of each county in which the real property charged with the lien is located and files a notice of claim of lien on personal property with the Secretary of State. The notice of lien claim shall contain:

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(a) A true statement of the demand;

(b) The name of the parties against whom the lien attaches;

(c) A description of the property charged with the lien sufficient for identification; and

(d) A statement of the failure of the person to perform the cleanup or disposal as required.

(10) The lien created by this rule may be foreclosed by a suit in the circuit court in the manner provided by law for the foreclosure of other liens on real or personal property.

Stat. Auth: ORS Ch. 466

340-108-080 - Information Requests/Inspections

(1) In order to determine the need for response to a spill or release or threatened spill or release under ORS 401.025, 466.605 to 466.690, 466.880(3) and (4), 466.995 (3) and 468.070, and this division, or enforcing the provisions of ORS 401.025, 466.605 to 466.690, 466.880(3) and (4), 466.995 (3) and 468.070 and this division, any person who prepares, manufactures, processes, packages, stores, transports, handles, uses, applies, treats or disposes of oil or hazardous material shall, upon the request of the Department:

(a) Furnish information relating to the oil or hazardous material; and

(b) Permit the Department at all reasonable times to have access to and copy, records relating to the type, quantity, storage locations and hazards of the oil or hazardous material.

(2) In order to carry out section (1) of this rule, the Department may enter to inspect at reasonable times any establishment or other place where oil or hazardous material is present.

(3) ORS 192.500 provides that certain public records (i.e., trade secrets) are exempt from disclosure under ORS 192.410 to 192.500 unless the public interest requires disclosure in a particular instance. Persons required to provide information under section (1) of this rule who desire to have some of their information considered exempt from public disclosure shall:

(a) Make a determination that their information qualifies for exemption from public disclosure pursuant to the criteria in ORS 192.500.

(b) Make the claim in writing at the time of providing the requested information to the Department; and

(c) Provide in writing any documentation or analysis that supports the claim of exemption from public disclosure at the time of providing the information to the Department.

Stat. Auth: ORS Ch. 466

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SPILL/RELEASE REPORT

1 - GENERAL INFORMATION **OERS No. _____**

a. Company/Individual Name: _____

b. Address: _____

_____

c. Company Contact Person: _____

d. Phone Number(s): _____

e. Specific on-site location of the release (and address if different from above):

_____

_____

_____

Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.

2 - RELEASE INFORMATION

a. Date/Time Release started: _____ Date/Time stopped: _____

b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):

ODEQ _____

OERS _____

NRC _____

Other (describe): _____

c. Person(s) reporting release: _____

d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:

_____

_____

Please attach copies of material safety data sheets (MSDS) for released material(s).

e. The release affected: ___Air ___Groundwater ___Surface Water ___Soil ___Sediment

f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):

_____

Has the release reached the surface water identified above?: ____Yes ____No

Could the release potentially reach the surface water identified above? ____Yes ____No

Explain: _____

_____

g. Depth to nearest aquifer/groundwater: _____

Is nearest aquifer/groundwater potable (drinkable)? ____Yes ____No

Has the release reached the nearest aquifer/groundwater? ____Yes ____No

Explain: _____

_____

h. Release or potential release to the air occurred? ____Yes ____No
Explain:_____

_____

i. Was there a threat to public safety? ____Yes ____No
j. Is there potential for future releases? ____Yes ____No
Explain:_____

_____

k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):

_____

_____

_____

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:

_____

_____

_____

_____

_____

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_____

_____

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_____

_____

3 - SITE INFORMATION

a. Adjacent land uses include (check all that apply and depict on site maps):
____Residential ____Commercial ____Light Industrial ____Heavy Industrial
____Agricultural ____Other (describe):_____
b. What is the population density surrounding the site:_____
c. Is the site and/or release area secured by fencing or other means? ____Yes ____No
d. Soil types (check all that apply): ____alluvial ____ bedrock ____ clay ____sandy
____silt ____ silty loam ____artificial surface (cement/asphalt/etc.)
e. Describe site topography:_____

_____

_____

4 - CLEANUP INFORMATION

a. Was site cleanup performed? ____Yes ____No
If No, explain:_____

_____

b. Who performed the site cleanup?
Company Name: _____
Address: _____

_____
Cleanup Supervisor: _____
Phone Number(s): _____

c. Has all contamination been removed from the site? ____Yes ____No
If No, explain:_____

_____

d. Estimated volume of contaminated soil removed:_____

e. Estimated volume of contaminated soil left in place:_____

f. Was a hazardous waste determination made for cleanup materials? ____Yes ____No

g. Based on the determination, are the cleanup materials hazardous wastes?
____Yes ____No If Yes, list all waste codes:_____

h. Was contaminated soil or water disposed of at an off-site location? ____Yes ____No
If yes, attach copies of receipts/manifests/etc., and provide the following information:
Facility Name: _____
Address: _____

_____
Facility Contact:_____
Phone Number(s): _____

i. Is contaminated soil or water being stored and/or treated on-site? ____Yes ____No
If yes, please describe the material(s), storage and/or treatment area, and methods utilized (attach additional sheets if necessary):

_____

_____

_____

_____

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):

_____

_____

_____

_____

_____

5 - SAMPLING INFORMATION

Attach copies of all sample data and indicate locations of sample collection on maps.

a. Were samples of contaminated soil collected? ____Yes ____No ____N/A
b. Were samples of contaminated water collected? ____Yes ____No ____N/A
c. Were samples collected to show that all contamination had been removed?
____Yes ____No ____N/A
d. Describe sampling activities, results and discuss rationale for sampling methods:

6 - SPILL REPORT CHECKLIST

To ensure that you have gathered all the information requested by the Department in this Spill/Release Report, please complete the following checklist:

____ Map(s) of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.

____ Material Safety Data Sheet (MSDS) for released material(s) attached.

____ Sampling data/analytical results attached.

____ Receipts/manifests (if any) for disposal of cleanup materials attached.

____ Contractor reports (if any) attached.

Date: February 18, 1998

To: All Portland Terminal Employees

As you all know, we had a liquid pitch spill on January 28, 1998, and I would like to take this time to review with you my thoughts on the matter.

First, I believe that this could, and should, have been prevented. This was a needless economic waste to the company and an embarrassment for our operation. If all of us had done just a little better job of communicating with one another, working together as a team, this incident could have been avoided. And needless to say, this is something that we must all work together on to see that it never happens again.

Because something like this had never happened here before, it was not something that we had any experience in dealing with. Thus, after it was over, we took a good hard look at exactly what happened, to make sure that we understood how and why this incident occurred. Accordingly, and with your assistance, we have developed a new procedure that is attached. It is to be used effective immediately, when making transfers from the melter (T-65) to the shipping tank (T-68). As always, failure to do so will result in disciplinary action, up to and including termination.

However, we as a group have been talking about TQM and working together as a team for quite some time now. It's with that thought in mind that I want to challenge each of you, to take some responsibility on matters such as this and to see that things like this never happen again. Each of you has now been working here for quite some time, and most of you have prior work experience that you can draw upon. You're out there in the field every day. You're the experienced utility man. You see what is going on, you see the operations out there that could possibly present similar problems for us. I believe that it is incumbent on each of you to take on this responsibility. Ask questions, make suggestions, and in the process make this a better and a safer place to work. Do this as a TEAM, because **Together Everyone Achieves More.**

Thank You,

Amos Kamerer

JOB SAFETY ANALYSIS

INSTRUCTIONS ON REVERSE SIDE

JOB TITLE (and number if applicable): PUMPING TRANSFER T-65 TO T-68 PAGE 1 OF 3 JSA NO.____

DATE: 02/05/98

☒ NEW ☐ REVISED

TITLE OF PERSON WHO DOES JOB: UTILITY

SUPERVISOR: T.J. TURNER

ANALYSIS BY:

COMPANY/ORGANIZATION: KOPPERS INDUSTRIES, INC.

PLANT/LOCATION: NW TERMINAL

DEPARTMENT: PRODUCTION

REVIEWED BY:

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:

APPROVED BY:

SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE
TAKE TANK GAUGE AND TEMPERATURE MEASUREMENTS	INACCURATE GAUGE MEASUREMENT DUE TO STUCK OR FROZEN FLOAT - FLOAT GAUGE MECHANISM	PHYSICALLY PULL DOWN ON FLOAT GAUGE CHAIN AND ALLOW FLOAT TO RESETTLE TO ENSURE FREE MOVEMENT OF GAUGE MECHANISM AND ACCURATE MEASUREMENTS
		RECORD THAT YOU INITIATED THE PRODUCT TRANSFER IN THE LOG BOOK
CALCULATE THE AVAILABLE CAPACITY IN TANK T-68	RELYING ON A TIME FACTOR FOR PUMPING	PHYSICALLY TAKE A MEASUREMENT OF T-68 EVERY 30 MINUTES, AS DESCRIBED PREVIOUSLY, DURING THE PRODUCT TRANSFER
		RECORD AND CALCULATE REMAINING AVAILABLE CAPACITY EACH TIME ON A PUMP TRANSFER CARD
SET THE LINE UP FOR PUMPING	IMPROPER LINE-UP FOR PUMPING	WALK THE PIPE LINE, OPENING ONLY THE VALVES NEEDED FOR TRANSFER, CLOSING ALL OTHER VALVES THAT ARE NOT REQUIRED
	LEAVING VALVES THAT ARE NOT REQUIRED OPEN	RECHECK YOUR PIPE LINE-UP UNTIL YOU ARE SURE IT IS CORRECT

FROM :KOPPERS ENVIRO/LEGAL 412 227 2423 1998-02-04 12:17 #092 P.04/08

Koppers020051

JOB SAFETY ANALYSIS

INSTRUCTIONS ON REVERSE SIDE

JOB TITLE (and number if applicable): PAGE 2 OF 3 JSA NO.____

DATE: ☐ NEW ☐ REVISED

TITLE OF PERSON WHO DOES JOB:

SUPERVISOR:

ANALYSIS BY:

COMPANY/ORGANIZATION:

PLANT/LOCATION:

DEPARTMENT:

REVIEWED BY:

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:

APPROVED BY:

SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE
START THE PRODUCT PUMPING	LEAKS AND/OR MALFUNCTIONS	WALK AND MONITOR PRODUCT TRANSFER PROCESS
PROCESS		SYSTEM TO ENSURE SAFE ACCURATE TRANSFER OF
		PRODUCT TO T-68
		REMEMBER TO RECORD T-68 TANK MEASUREMENTS
		EVERY 30 MINUTES
		CALCULATE REMAINING FOOTAGE LEFT TO PUMP
		WHEN T-68 IS WITHIN 1 HOUR OF FILLING, YOU WILL
		MONITOR TANK T-68 CONSTSANTLY, TO ENSURE SAFE
		AND ACCURATE COMPLETION OF PUMP TRANSFER
COMPLETION OF PRODUCT TRANSFER	POSSIBLE CONTINUED PUMPING	CLOSE T-65 SUCTION VALVES
		EVACUATE LINES TO T-68
		SHUT DOWN PUMPS
		CLOSE DISCHARGE VALVES TO T-68
TAKE AND RECORD FINAL MEASURE-	MIS-COMMUNICATION	TAKE A PHYSICAL MEASUREMENT OF T-65 AND T-68,
MENTS		RECORD ALONG WITH THE TIME OF COMPLETION AND THE
		TEMPERATURE OF BOTH TANKS ON THE PUMP TRANSFER
		CARD
		RECORD COMPLETION OF PRODUCT TRANSFER IN THE
		LOG BOOK

FROM :KOPPERS ENVIRO/LEGAL 412 227 2423 1998-02-04 12:17 #092 P.04/08

Koppers020052

PRODUCT TRANSFER CARD

1) FILL IN:
   a. STARTED BY
   b. DATE
   c. TANK NO.
   d. PRODUCT
   e. MEASUREMENT
   f. SAFE FILL HEIGHT
   g. SPACE AVAILABLE

2) DURING PRODUCT TRANSFER (RECORD EACH 1/2 HOUR)
   a. TIME
   b. GAUGE READING
   c. TEMPERATURE

3) CALCULATE:
   a. FEET PER 1/2 HOUR TANK RISE
   b. TOTAL FEET RECEIVED
   c. SPACE REMAINING TO SAFE FILL HEIGHT

4) STAND BY AND CLOSELY WATCH THE TANK GAUGE WHEN PRODUCT LEVEL IS WITHIN 1 HOUR OF REACHING SAFE FILL HEIGHT

5) SIGN-DATE

6) WHEN COMPLETE, TURN INTO OFFICE

STARTED BY: DATE:

TANK NO.	PRODUCT	MEASURED BY (CIRCLE ONE)	INNAGE
			OUTAGE
SAFE FILL HEIGHT		SPACE AVAILABLE	

TIME	GAUGE READING	FEET PER 1/2 HOUR	TOTAL FEET RECEIVED	SPACE REMAINING	TEMPERATURE
	FEET INCHES	FEET-INCHES	FEET-INCHES	FEET	
	COMPLETED BY:				

1/28/98 PITCH SPILL
PORTLAND TERMINAL

PICTURE #	EXPLANATION	DIRECTION PICTURE WAS TAKEN FROM
1-	T-68 shipping tanks' gauge board	north
2-	T-68 shipping tanks' gauge board and base	north
3-	T-68 shipping tanks' gauge board and base	northwest
4-	T-68 shipping tanks south and southeast side	northeast
5-	T-68 shipping tanks south and southwest side	southwest
6-	T-68 shipping tanks south and west side	southwest
7-	T-68 shipping tanks south and west side	southwest
8-	Area between T-68 and T-20	south
9-	West side of T-68	northwest
10-	West side of T-68	north
11-	East side of T-20	south
12-	East side of T-20	east
13-	East side of T-20	southeast
14-	Area between T-20 and T-23	southeast
15-	Same as area above, this is a concrete drain That feeds into the sump (oil/water separator)	southeast
16-	Same as above, from the other end	northwest
17-	Same as above, a rock dam to stop the flow	north
18-27	Clean up in progress	various
28-37	Clean up completed	various
38	Pile of recovered pitch in the storage building	storage building

1/28/98 PITCH SPILL
PORTLAND TERMINAL

PICTURE #	EXPLANATION	DIRECTION PICTURE WAS TAKEN FROM
1-	T-68 shipping tanks' gauge board	north
2-	T-68 shipping tanks' gauge board and base	north
3-	T-68 shipping tanks' gauge board and base	northwest
4-	T-68 shipping tanks south and southeast side	northeast
5-	T-68 shipping tanks south and southwest side	southwest
6-	T-68 shipping tanks south and west side	southwest
7-	T-68 shipping tanks south and west side	southwest
8-	Area between T-68 and T-20	south
9-	West side of T-68	northwest
10-	West side of T-68	north
11-	East side of T-20	south
12-	East side of T-20	east
13-	East side of T-20	southeast
14-	Area between T-20 and T-23	southeast
15-	Same as area above, this is a concrete drain That feeds into the sump(oil/water separator)	southeast
16-	same as above, from the other end	northwest
17-	same as above, a rock dam to stop the flow	north

Author: Steve Smith at PITT
Date: 1/29/98 1:55 PM
Priority: Normal
TO: Amos Kamerer at PITT
TO: Walter Turner at PITT
TO: Kevin Fitzgerald at PITT
CC: Bill Swearingen at PITT
CC: Randy Collins at PITT
Subject: PITCH SPILL AND REPORTING

---------- Message Contents ----------

Following our coversation today, I confirmed the reportable quantity by checking with John Marcinowski, reviewing the RQ for benzo(a)pyrene (1 lb), the concentration of BaP per our data (0.6%), and the MSDS for pitch. The RQ for pitch is listed on the MSDS as 15 gal or 163 pounds.

Therefore, Bill and Amos were correct in making the "immediate" report to the National Response Center. As I mentioned, EPA is not very flexible in what they consider to be "immediate." They mean as soon as reasonable possible after it is known there was a spill that is likely to exceed the RQ, normally within an hour or so of the spill.

I hope this helps. Call if you have any questions.

Steve.

1:15 PM started
1:20 PM Shut down

BULK SERVICE
James J. Williams
TRANSPORT

A Trans-System, Inc. Company

P.O. Box 3347
Spokane, WA 99220
1-800-873-7002
TEL 509-928-8171
FAX 509-928-2592

Bill

5:40 NAT.
#421849
Miss EBNER

	Tons ~~Pounds~~
Total spill (est.)	7
contained	6.5
escaped (reportable)	.5

5:50 Occ.
#98-227
Tami / Betty
Me / Coast Guard

Nothing off site
" Sewers
" waste water system
" Streams & Rivers

Review open procedures
check mechanical functions of the float

Hazmat / EA Response
+ [illegible] been notified

1270 X 11 = 13,970 ÷ 2000 = 6.985 Tons
(over)

fire dept (local)
B. Henley
DEQ (Steve + John)

Author: AMOS KAMERER at PITT
Date: 1/28/98 6:25 PM
Priority: Normal
TO: Walter Turner at PITT
TO: Kevin Fitzgerald at PITT
TO: Randy Collins at PITT
TO: Bill Swearingen at PITT
TO: John Marcinowski at PITT
TO: JIM DIETZ at TECHCTR
Subject: PITCH REPORTABLE SPILL

---------- Message Contents ----------

At about 1:15PM this afternoon, we had a reportable spill of liquid pitch. While pumping liquid pitch from the melter tank to the shipping tank, apparently, the float gauge on the shipping tank became stuck and we over filled the tank. We have calculated that the loss was 1270 gallons, or 6.985 tons of material. And, that about 6.5 tons was contained, with about .5 tons escaping on to the ground, thus this was a reportable incident.

Two things accrued to bring this incident to our attention. First, an employee from our next door neighbor, Wacker Siltronics, was returning from lunch, saw the spill, and came into the office and told us. Second, someone (we think it happened to be someone from the Coast Guard, who is also a neighbor) saw the tank over flowing from the highway and called 911. The Fire Dept. responded about 3 minutes later. We shut off the pump at 1:20PM and immediately started the containment process. Based on the pumping capabilities of the pump, and the volume of material lost,we were able to establish the time of the incident.

The Hazmat coordinator for the Fire Dept. responded, as did 2 representatives from the ODEQ. They were all satisfied that we had the situation under control, and I told them that once I had all of the facts, I would be reporting the spill to the proper authorities. I ultimately called both the National and Oregon emergency response numbers at about 5:45PM. The Oregon responder said that they already had received an earlier report, from the Coast Guard, thus my assumption that it was someone from the Coast Guard who called 911.

The utility man that was performing the pumping said that he had just checked the gauge at 1:05PM and the reading was at 21' 6", in. We were planning to fill to 27' 6", in. Thus our assumption that the float gauge was stuck. However,after the incident, the reading indicator was stuck at the 28' 0" level. Again, however, a part of the pitch spill came through the opening that the float measuring cable passes through, thus the cable, the measure board, and the reading indicator were all covered with pitch, thus making difficult to determine what actually happened. We will get a full written statement from this employee

I took a full set of pictures, that will be developed tomorrow, I will then send them to Kevin and Bill, with the incident report.

Our major concern at this time, is the fact that the pitch over flowed into, and through, the fume recovery line; in addition to the float gauge cable opening and the pressure relief manhead. We estimate that we have plugged 60' of the 6" diameter fume recovery line, and 40' of the 12" diameter fume recovery line, that the 6" line it feeds into. We have contacted our local maintenance contractor, who will be in the plant tomorrow AM, to assess the repairs and the cleaning of these lines. We have also ordered a drop box for the clean up material, and we are already permitted for the disposal of this material with our local land fill facility.

Obviously, we will be reviewing the operating procedures for this kind of function. However,two things come to mind immediately. First, when checking the gauge reading, you also test the float gauge reading board indicator, and the cable, pull on it to make sure the it is free. Second, we will develop a pumping time chart, that will show what the estimated time that it should take to pump various volumes of pitch between the two tanks. So that the employee can have this as a time reference, before he starts the pumping process.

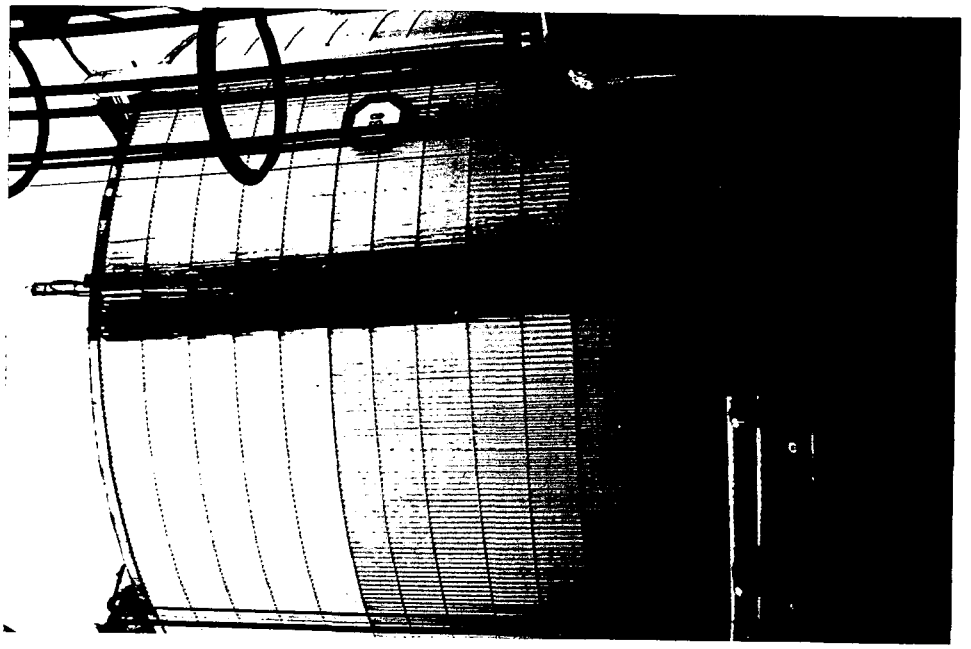
Amos

ON 1-28-98 I WAS instructed to transfer Pitch from tank 65 to tank 68. the rest of the crew was unloading trucks from the ship so it was my responsibility to do the transfer. I checked the line up, closed one valve that didn't need to be open took the tank gauges and started the pumps at about 8:30 AM or so. During the morning as I loaded trucks, blew out pipe systems and changed valve settings for the Pitch Truck loading Rack took samples and did my lab job I checked the pumping progress by the gauge on the side of tank 68. at a little after 1PM when I came back from lunch I checked the gauge and saw that it read 21'6" I thought it was good progress because the stop level was 27'6" for 68 I went back to the lab, started processing ship samples around 1:20 PM or so Evelin from the office came back and said that

Koppers020061

Someone from Wacker across the street said that one of our tanks was over flowing. I thought they were talking about the storm water holding tanks which do this quite often and are not a problem I went out back, when I got to the Stairs I saw T.J. who told me what had happened. he had started up C pump to transfer back from 68 to 65. the rest of the crew was called and we put emergency measures in place to protect the water drain sump and other equipment. Now all we could do was wait for the mess Id made to cool so we could clean it up.

Chris Bent



2

1883 N-2 N- 2L-1

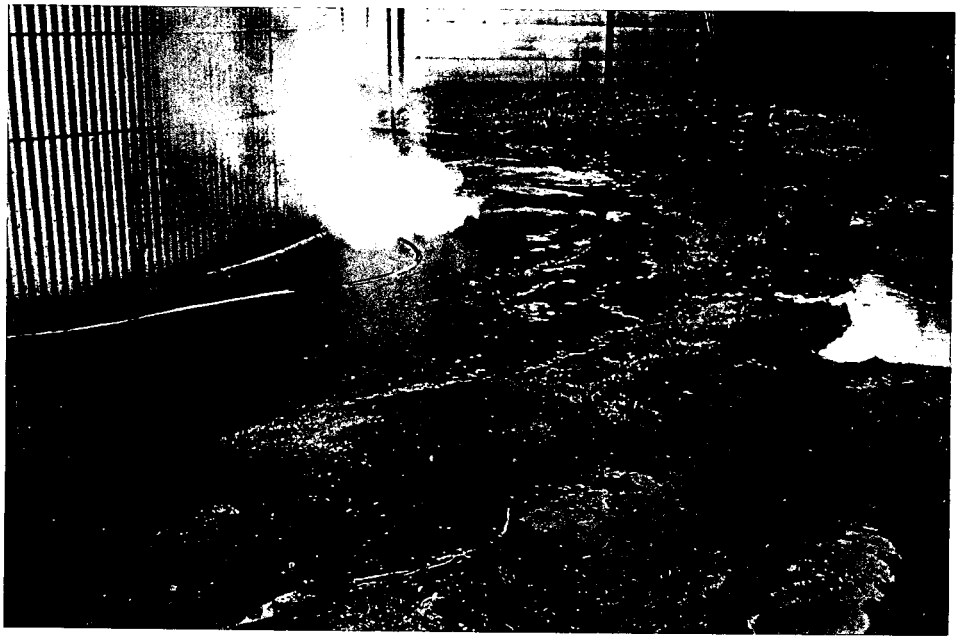
1

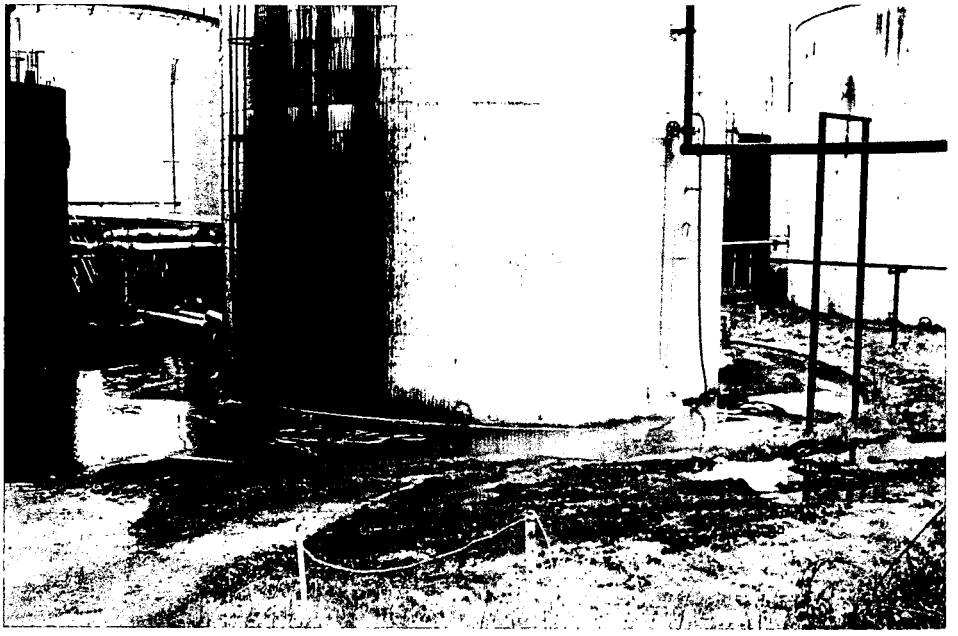
1883 N-2 N- 2L-1

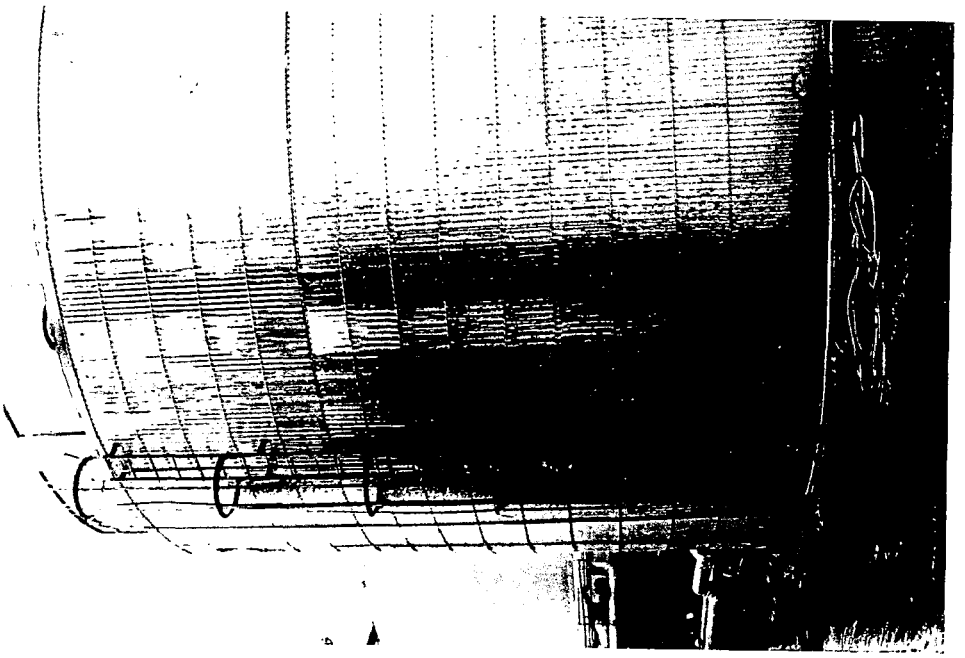
Koppers020064

3

4







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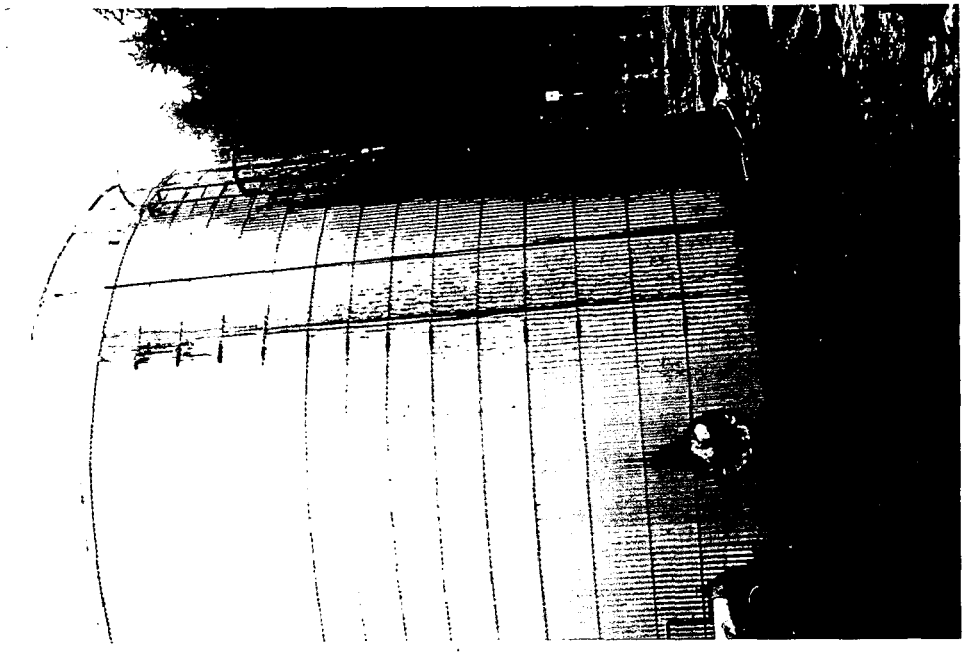

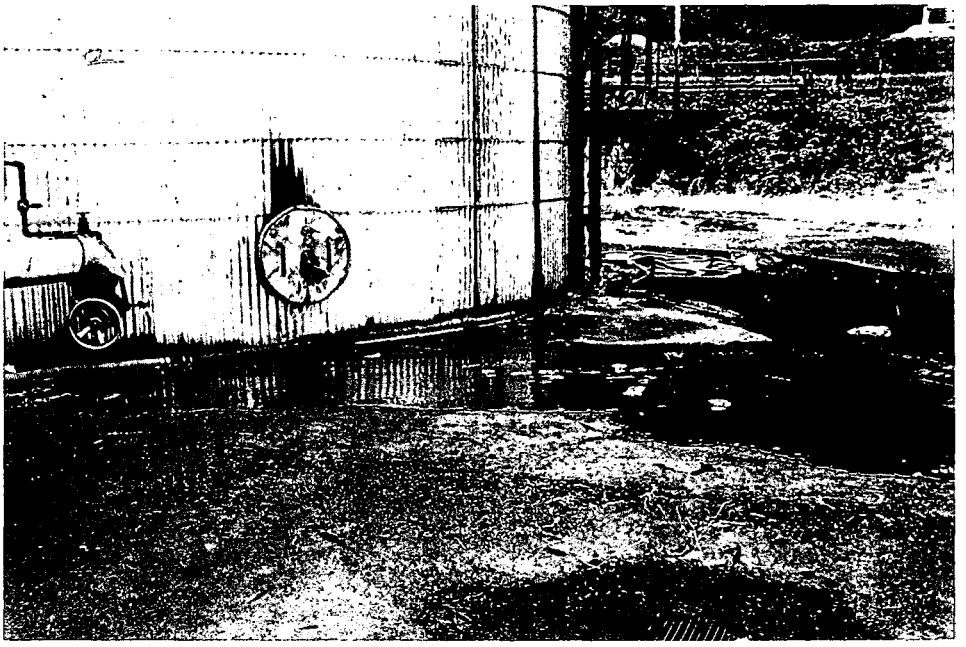

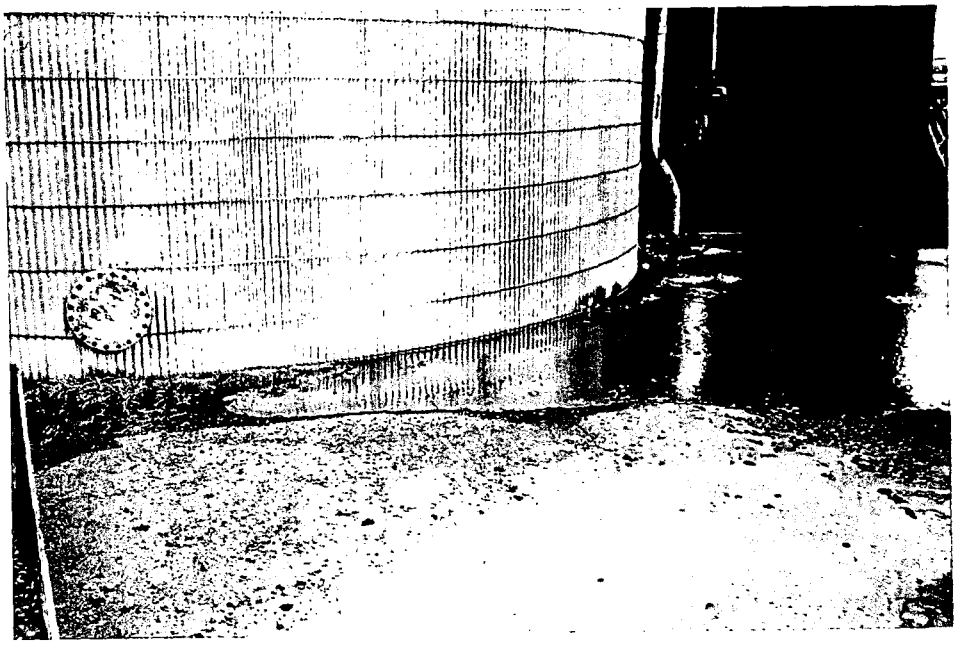

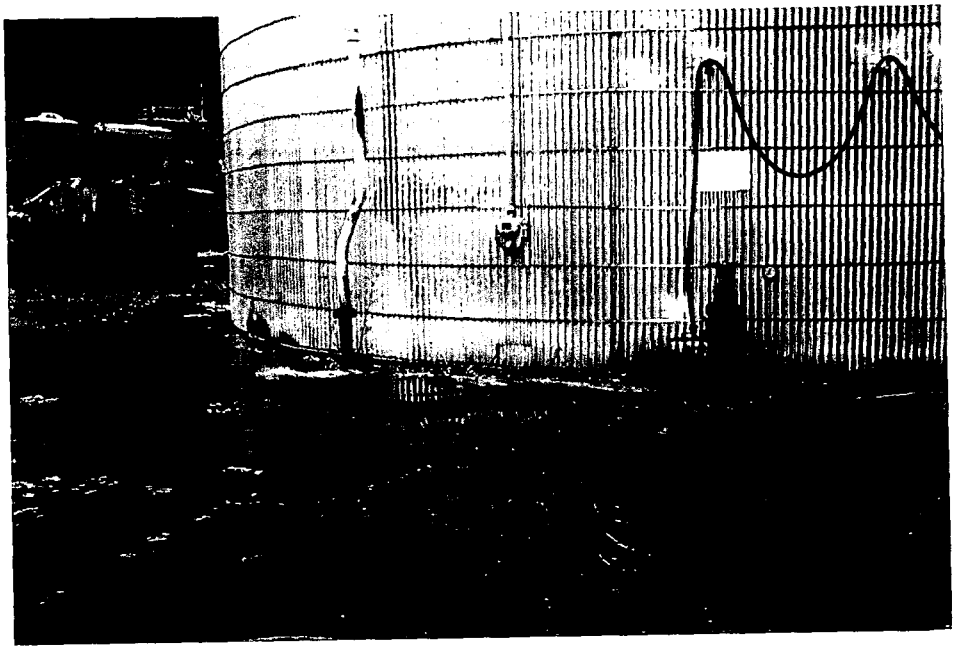

11

1883 N-2 N- 2L-1

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[illegible]

Koppers020073

13 [illegible]

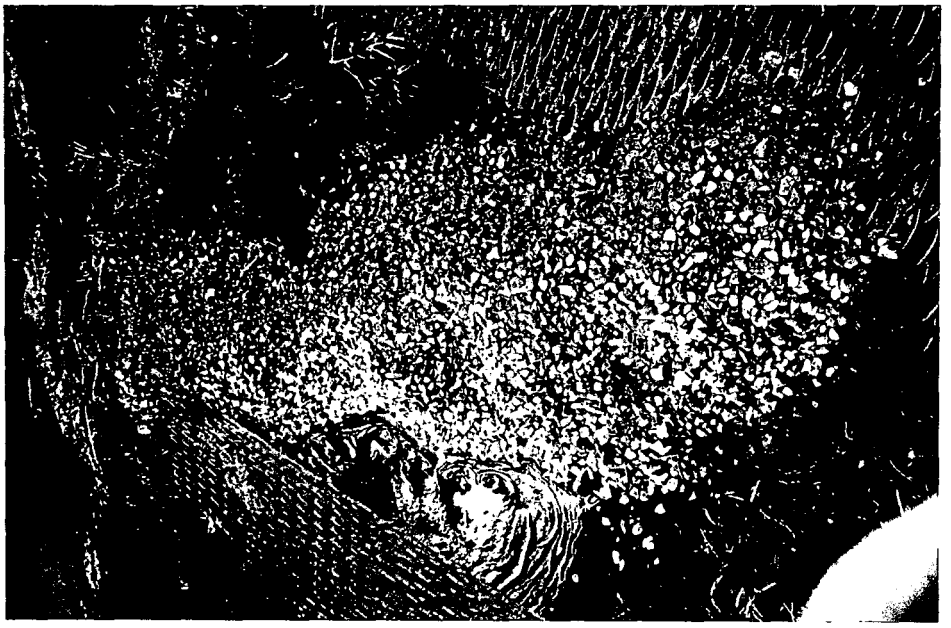
14 [illegible]

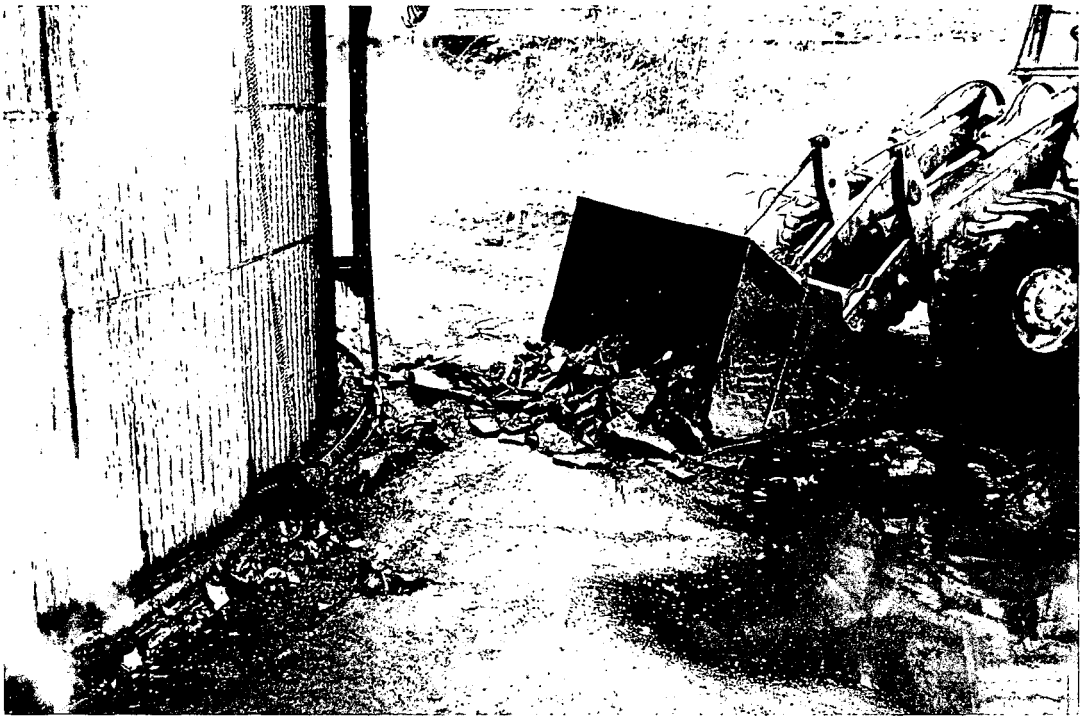
1883 M-2 M- 21-1

15

1883 M-2 M- 21-2

16





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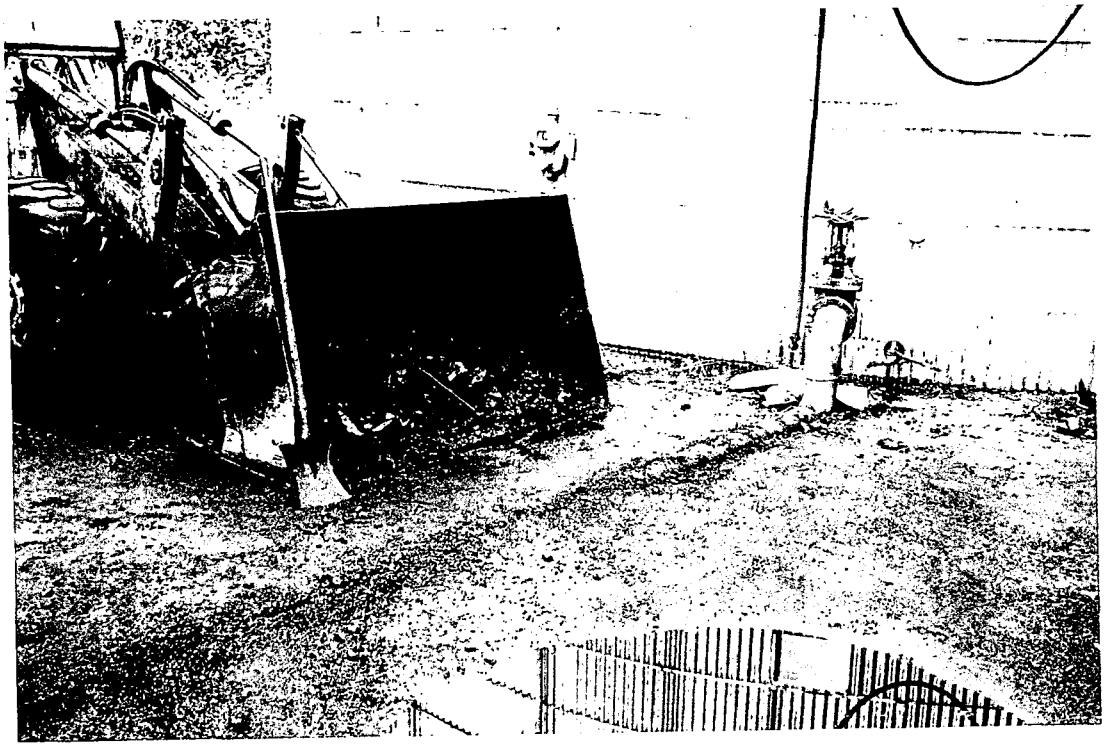

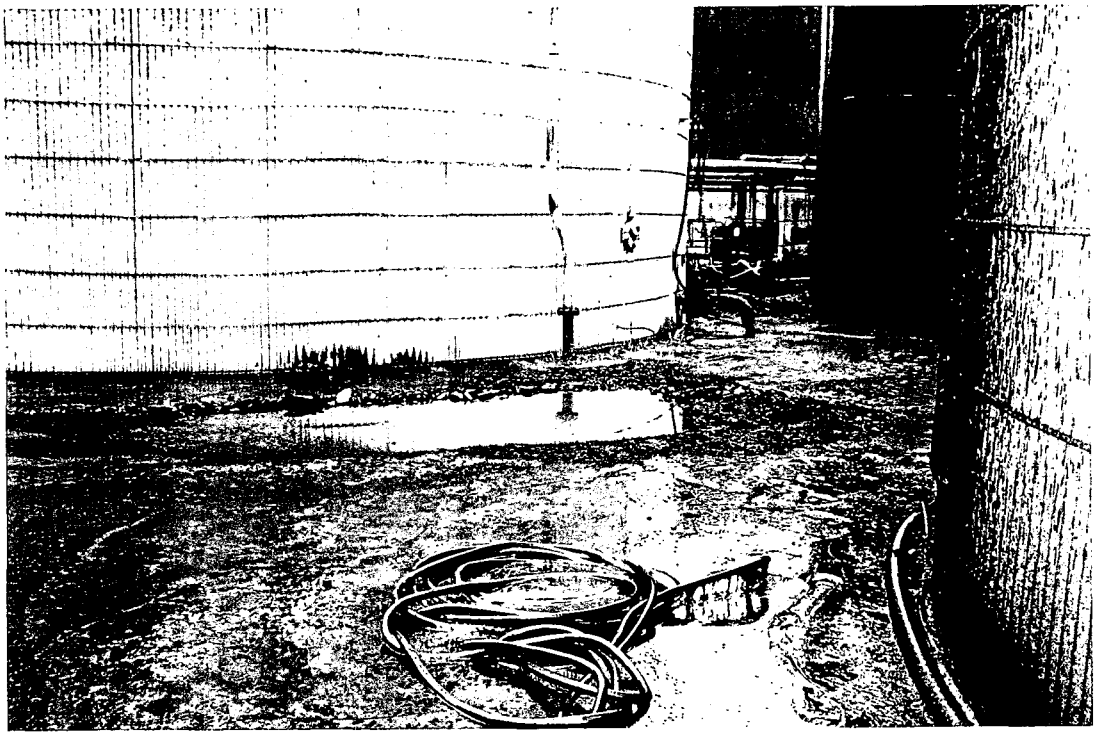

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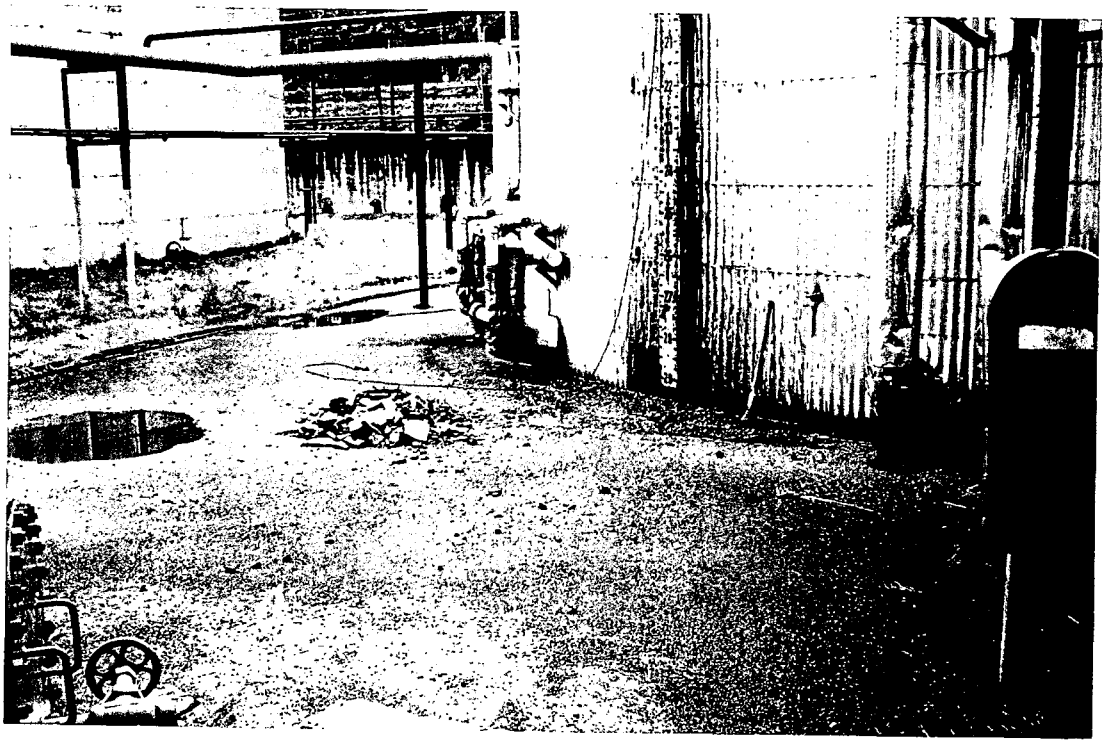
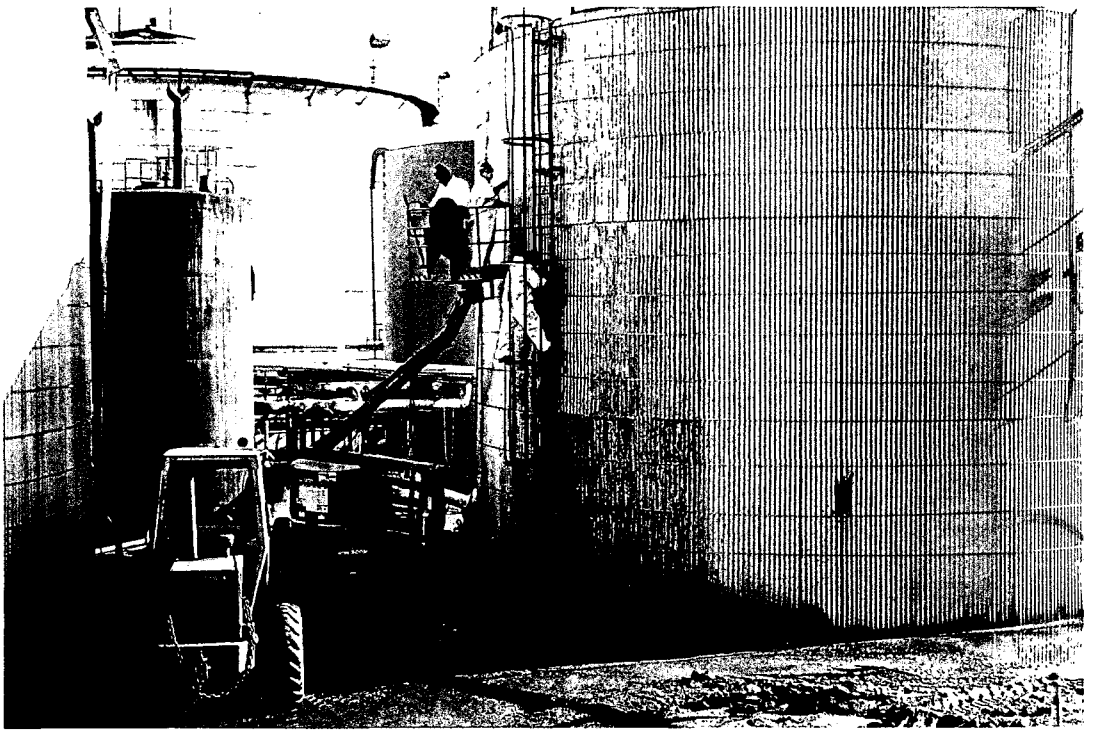


Genie BOOM



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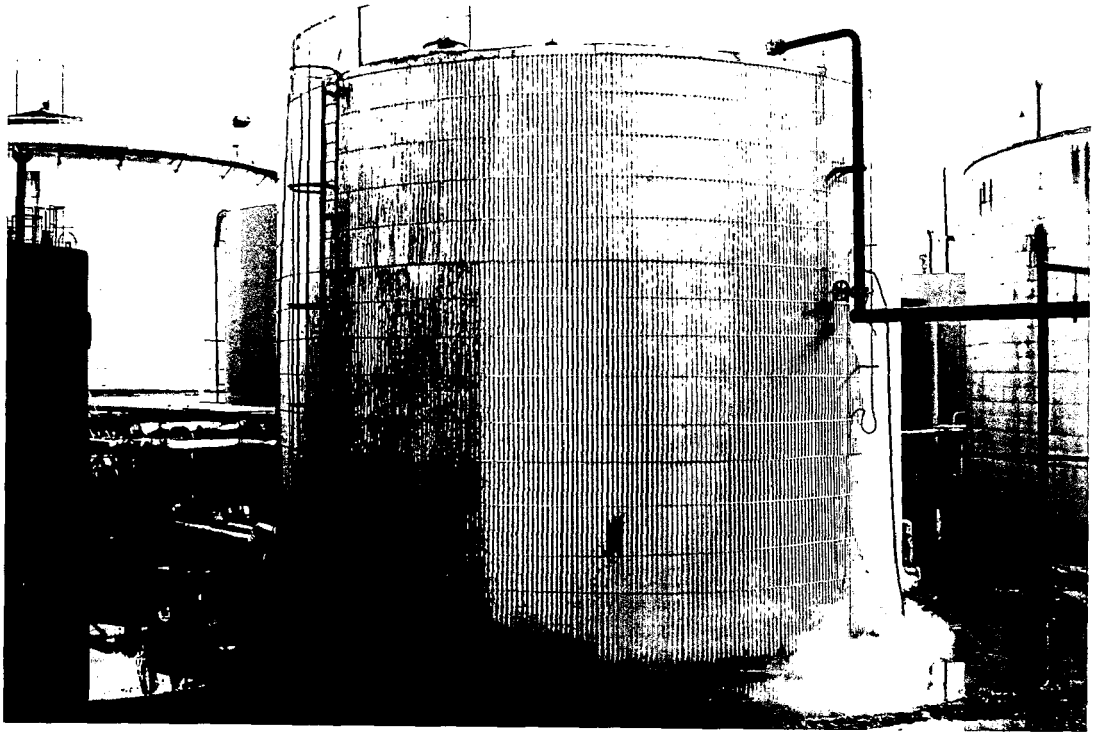

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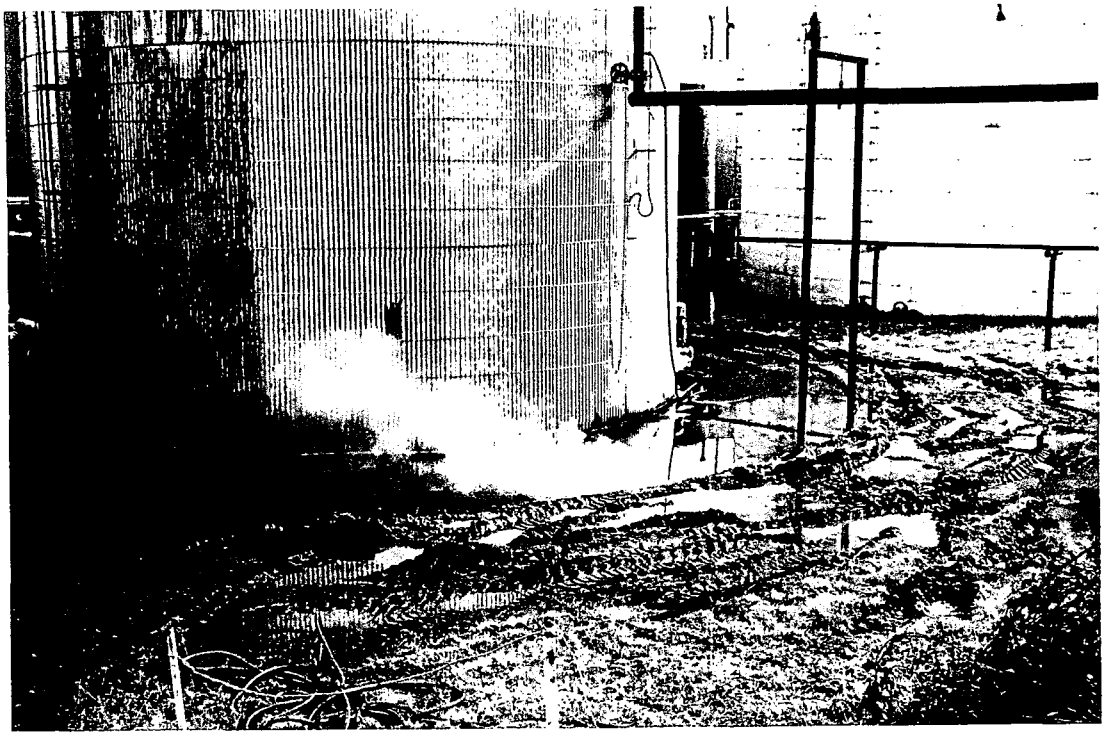

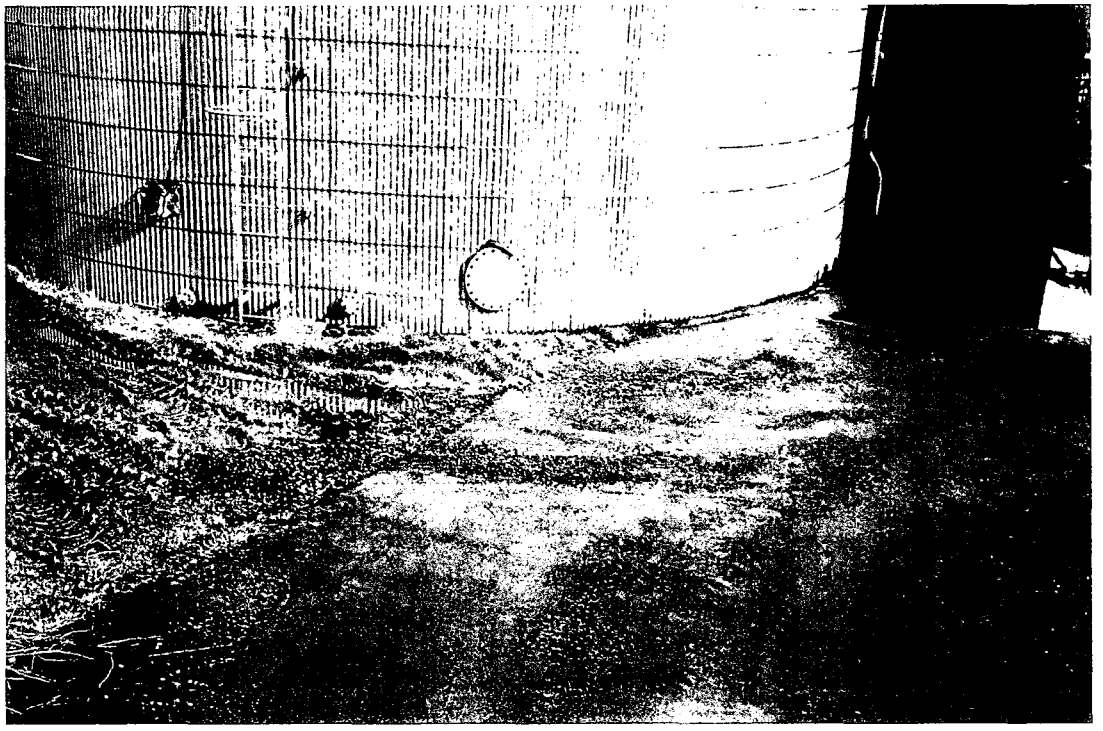

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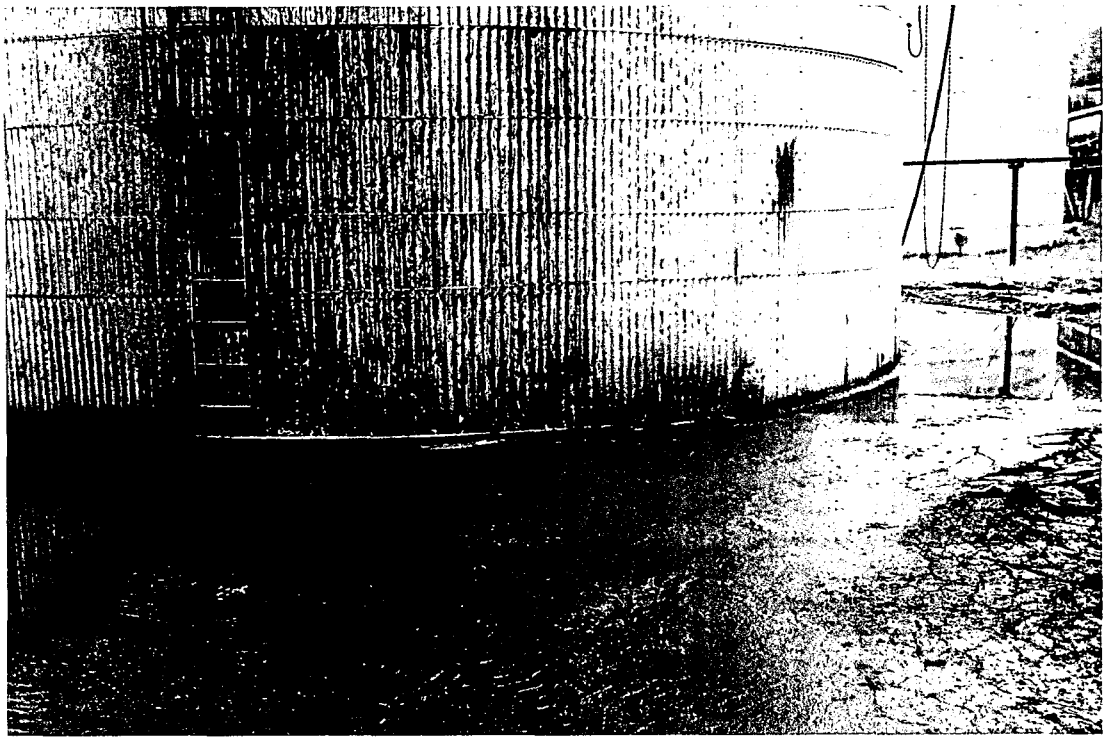

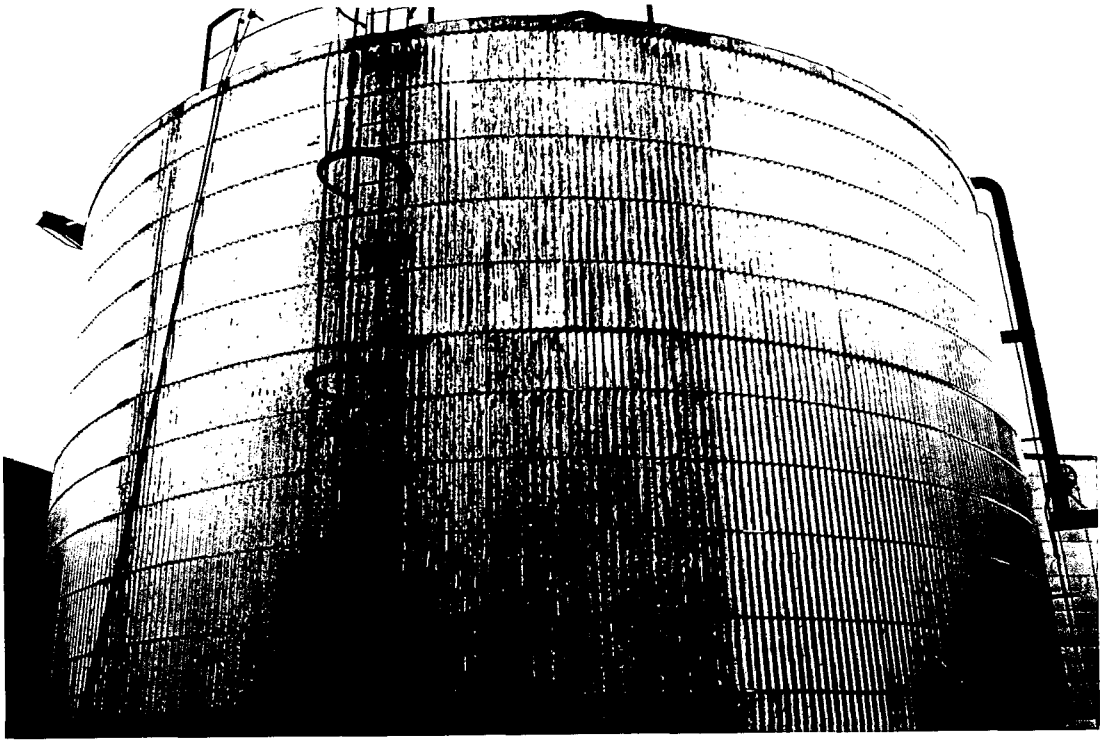

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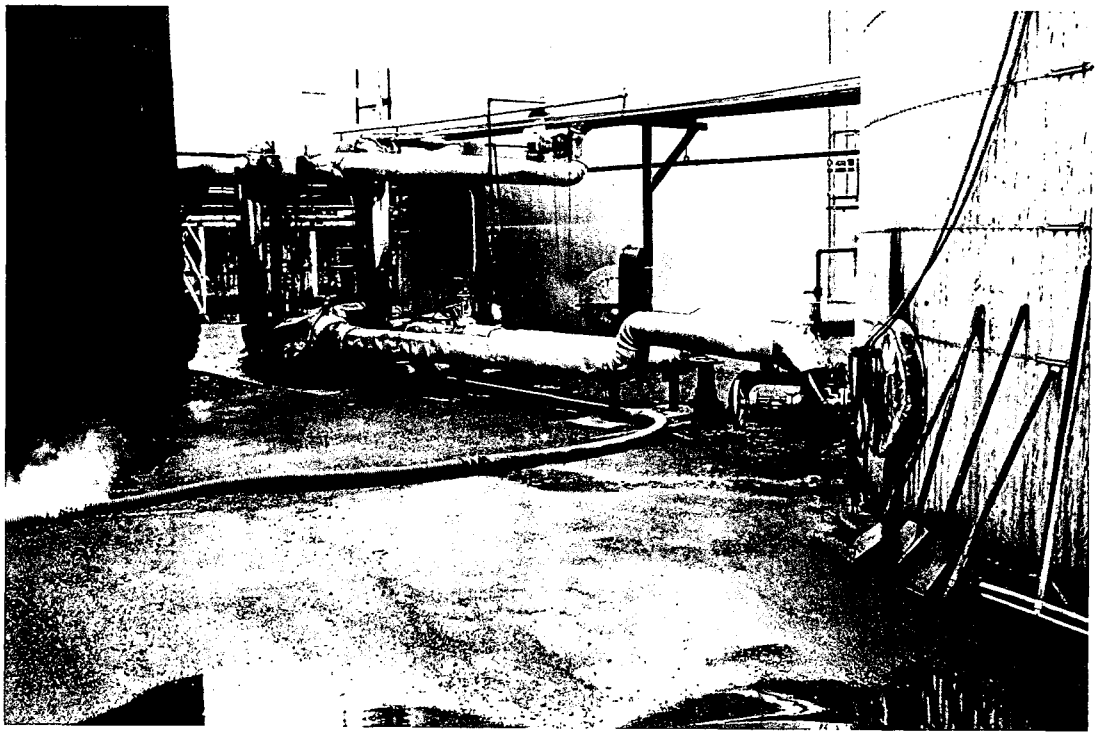
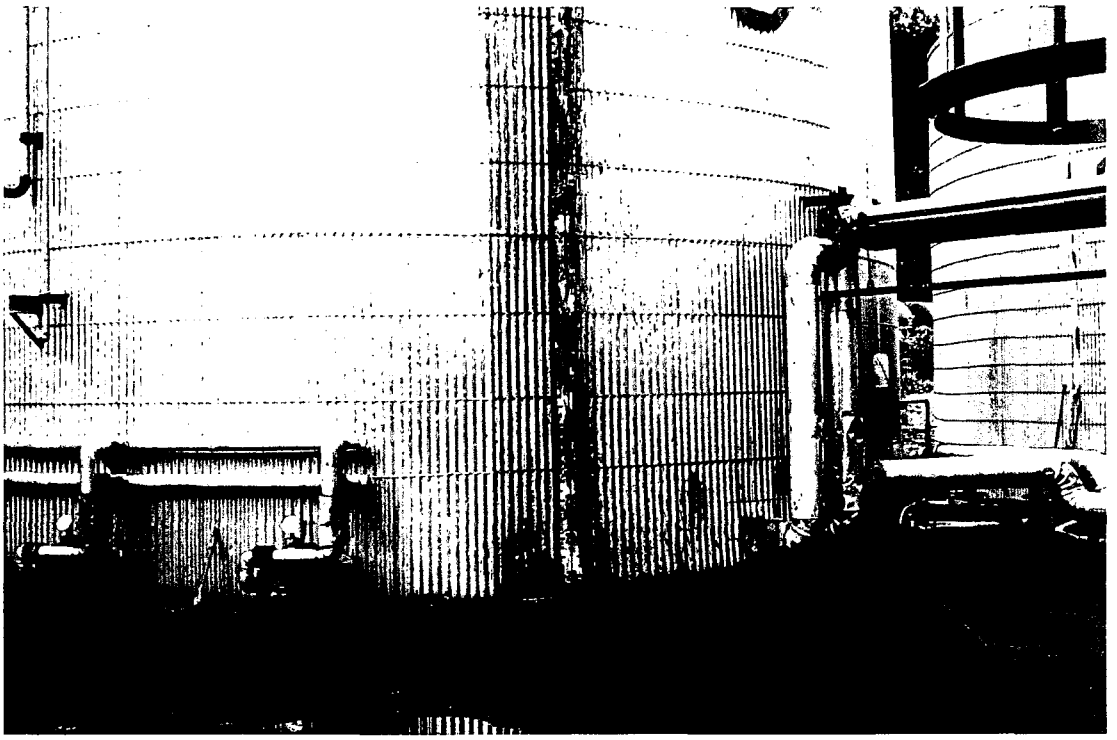


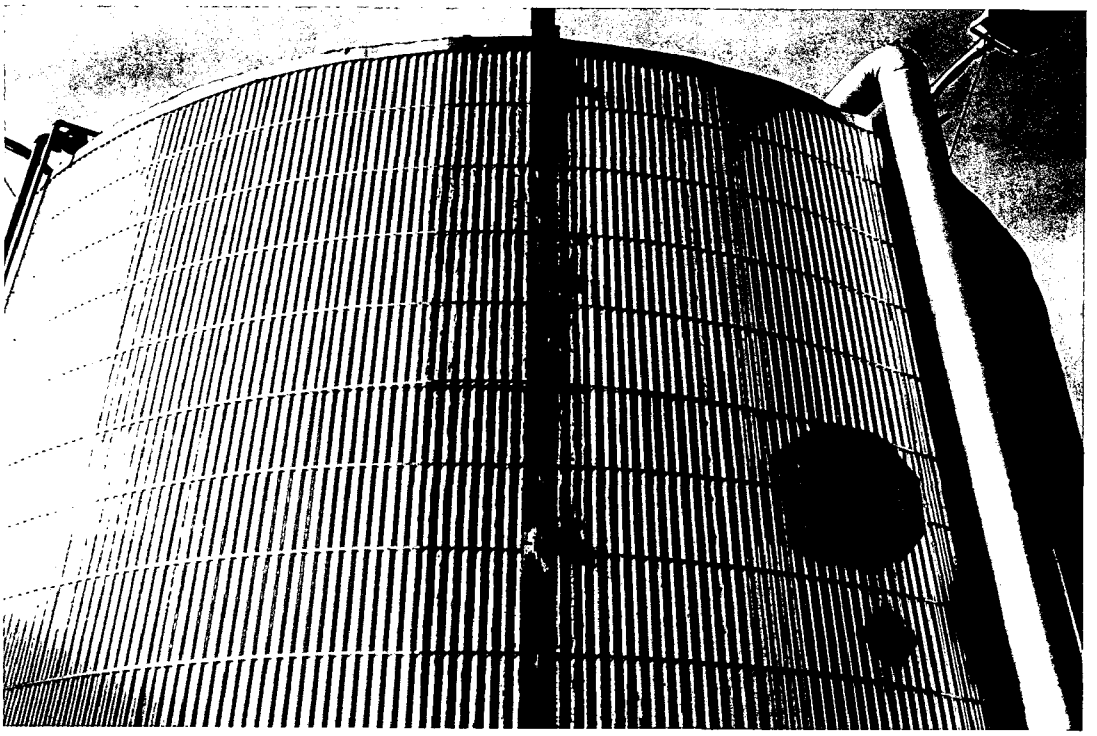
33

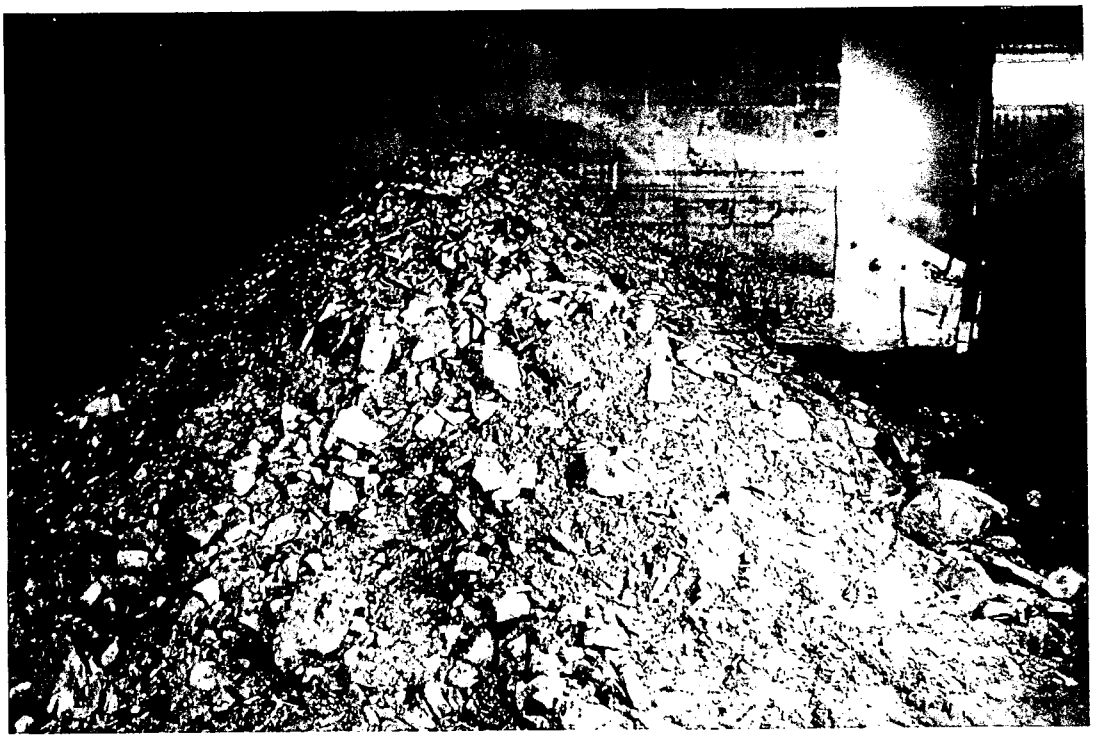
1313 N-2 N- 2L-1

34

1313 N-2 N- 2L-1





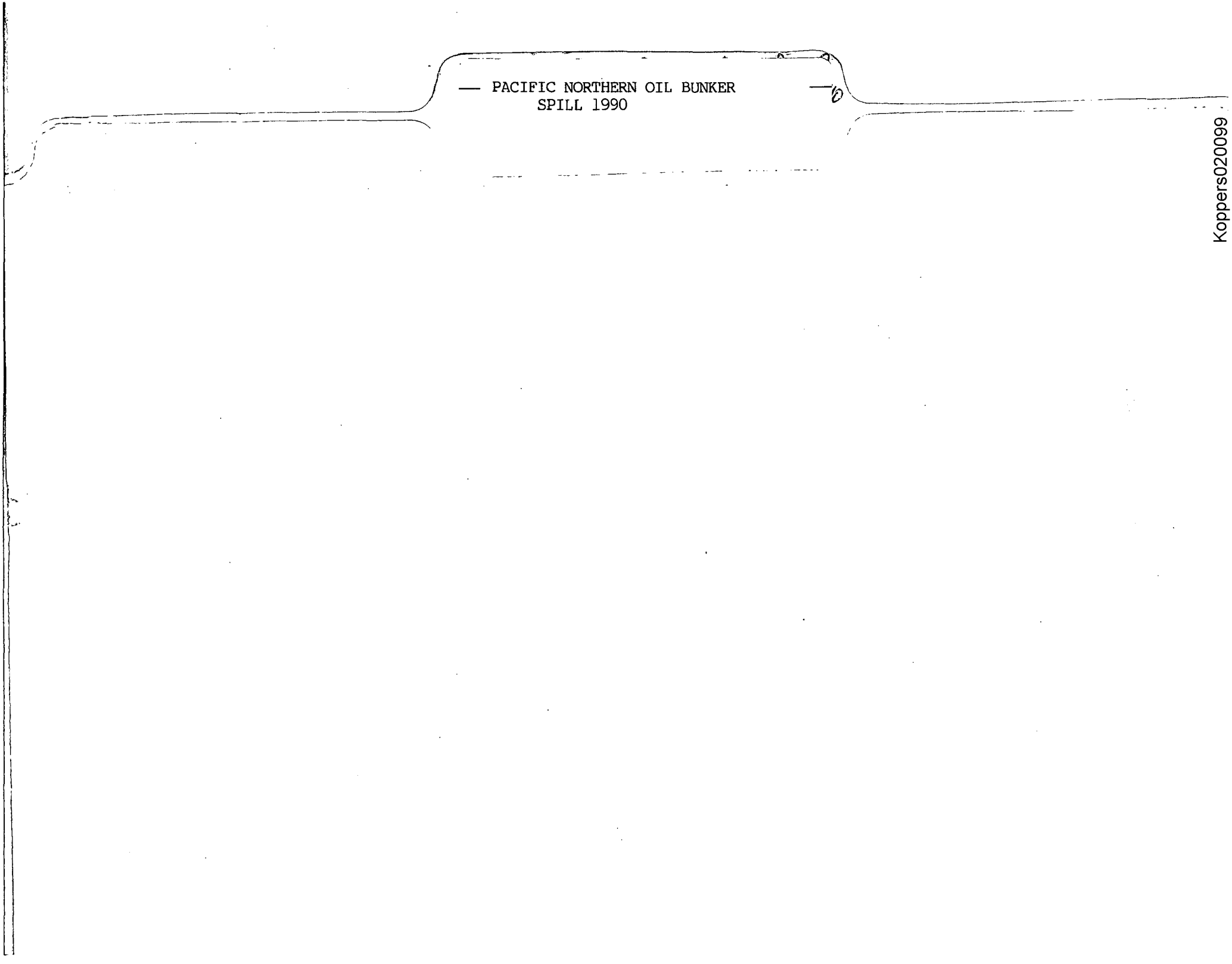


37

38

Pacific Northern Oil
Bunker: Spill 1990

Koppers020098



Koppers020099

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To: WM SWEARINGEN

From: JOHN A OXFORD

Location: K-1800

Location: N.W. PLANT

Subject: PACIFIC NORTHERN OIL SPILL ON TRK # 4 KOPPERS LEASED PROPERTY

Date: 8-3-90

EXPLANATIONS OF PHOTOS #1 THRU # 31 SEE BACK OF PHOTOS.

1.) TRACK #4 LEASED TO NORTHERN OIL FROM S.E. TO N.E.
2.) SECOND CAR IN STRING FROM S.E. TO N.E.
3.) CLOSEUP OF SPILLED #6 BUNKER FUEL OIL.
4.) THIRD CAR IN STRING FROM S.E. TO N.E.
5.) CLOSEUP OF OIL UNDERNEATH , 3RD CAR IN STRING.
6.) THIS IS THE CAR THAT LEAKED. Material LOADED IN THE CAR WITH PARTIALLY OPEN INSIDE VALVE AND NO OUTSIDE VALVE ONLY A SCREW ON CAP.
7.) SAME AS PHOTO # 6 DIFFERENT ANGLE.
8.) FENCE LINE AT N.E. CORNER OF PROPERTY FIFTH CAR IN STRING.
9.) EAST SIDE OF TRACK 5TH CAR IN STRING.
10.) DEPICTS OIL THAT RAN TO WEST SIDE OF CAR AND ON OLD KOPPERS LEACH FIELD.
11.) OIL RUNNING ON TO KOPPERS LEACH FIELD.
12.) EXTENT OF OIL RUN OFF ON EAST SIDE OF TRACK #4.
13.) OIL THAT ACTUALLY ENTERED KOPPERS LEACH FIELD.
14.) SAME AS #13
15.) PICTURE IN THIRD CAR IN STRING TAKEN FROM EASE SIDE OF TRACK.
16.) CLOSEUP OF #15.
17.) EAST SIDE OF TRACK SHOWING OIL RUN OFF AT VARIOUS SPOTS LOOKING N.E. TO S.E.
18.) EAST SIDE OF TRACK AT THIRD UNLOADING SPOT.
19.) CLOSEUP OF PHOTO 18 N.END OF CAR.
20.) EAST SIDE OF TRACK FIFTH UNLOADING SPOT AT N.E. END OF TRACK NOTE GREEN FIGURE UNDER LADDER OF TANK CAR.
21.) THIS IS THE GREEN FIGURE UNDER TANK CAR IN PREVIOUS PICTURE, YES IT IS A PERSON.
22.) EAST SIDE OF TRACK AT N.E. FENCE LINE NOTE GREEN FIGURE NOW UNDER WHEEL OF TANK CAR.
23.) WIDER ANGLE OF PHOTO #22.
24.) DIFFERENT ANGLE OF PHOTO #23.
25.) CLOSEUP OF PHOTO #23.
26.) PHOTO FROM FENCE LOOKING BACK AT FIFTH UNLOADING SPOT.
27.) TRACK #4 LOOKING NE. TO SE.
28.) EAST SIDE OF TRACK N.E. END 5TH UNLOADING SPOT.
29.) AREA UNDER TANK CAR WHERE DISCHARGE OCCURRED.
30.) SAME AS 29
31.) WEST SIDE OF TRACK LOOKING SE. TO N.E. RIEDEL VACUMN TRUCK.

DISTRIBUTATION:
2-SETS W. SWEARINGEN
1-SET L. FLAHERTY
1 SET PLANT FILE
1 SET R. WIXOM - OREGON DEQ

UTLX 650

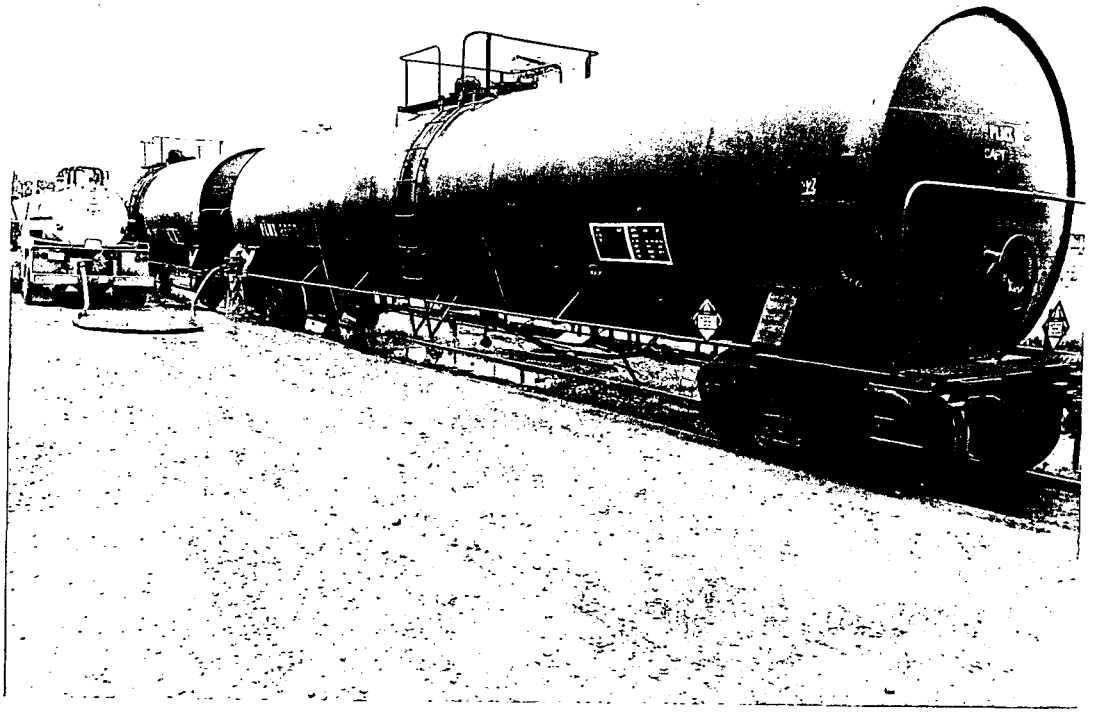


Photo Art
Commercial
Studios, Inc.
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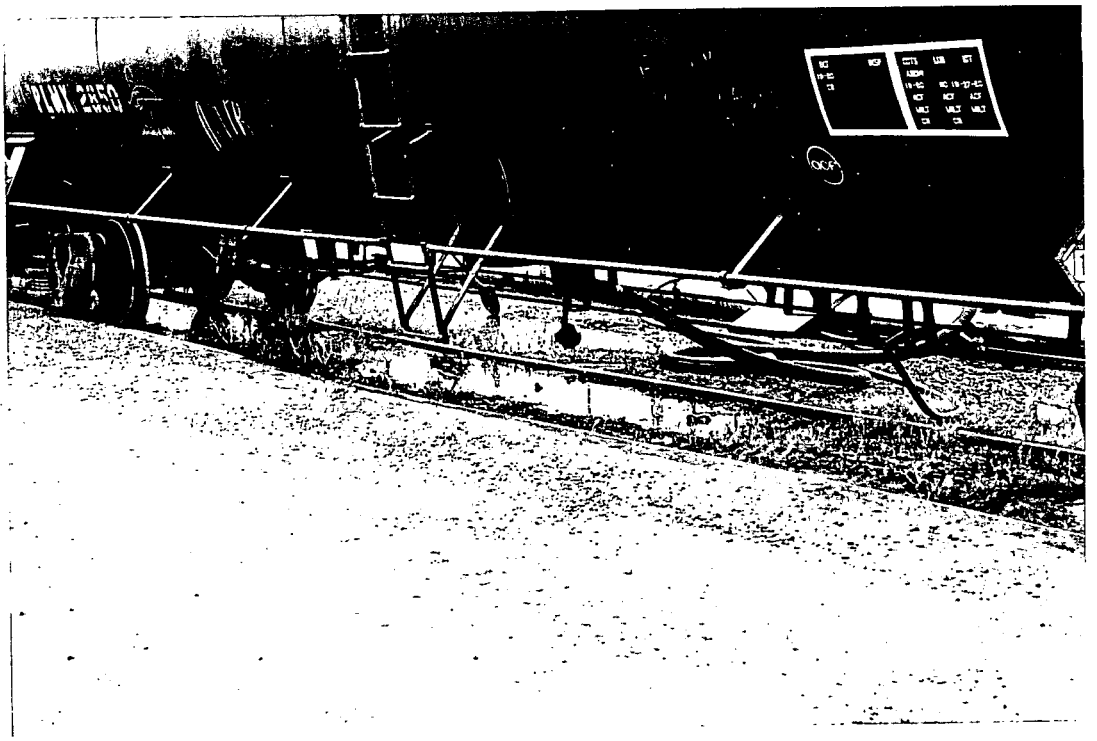

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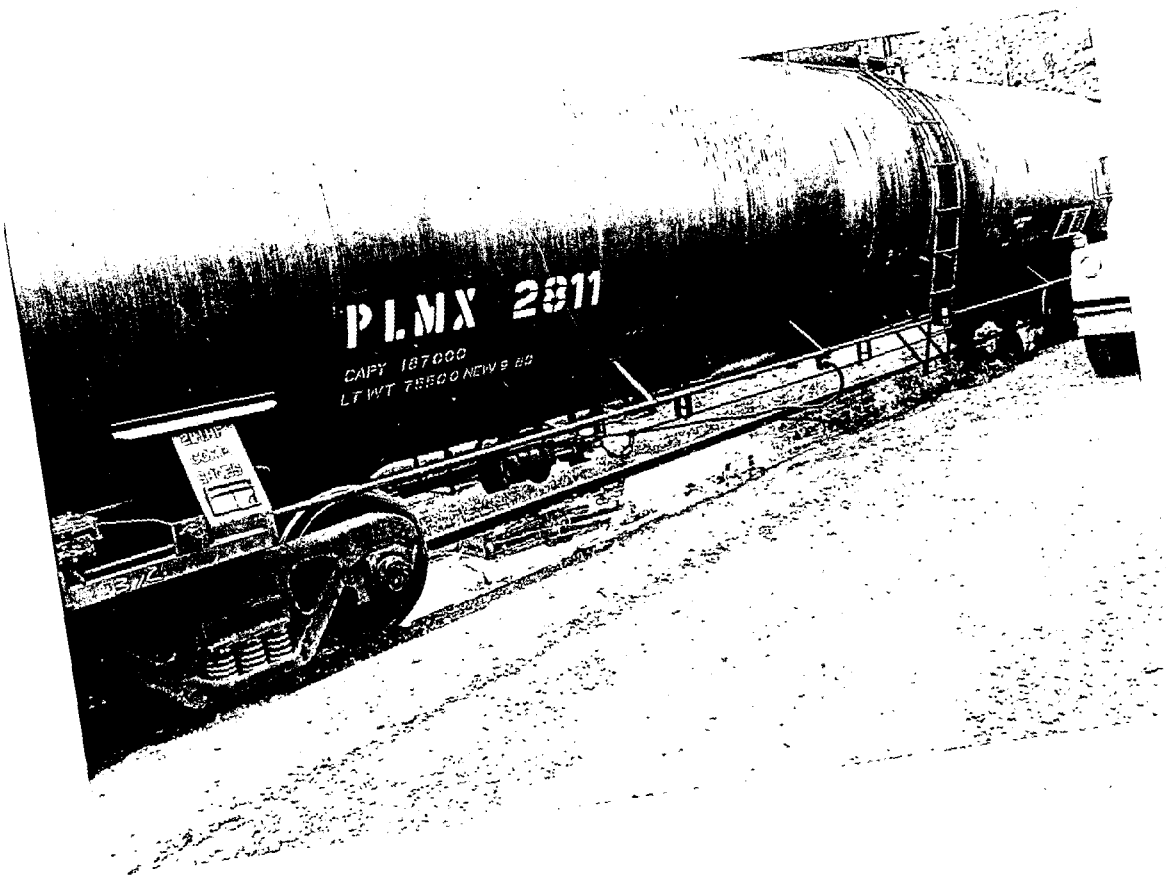

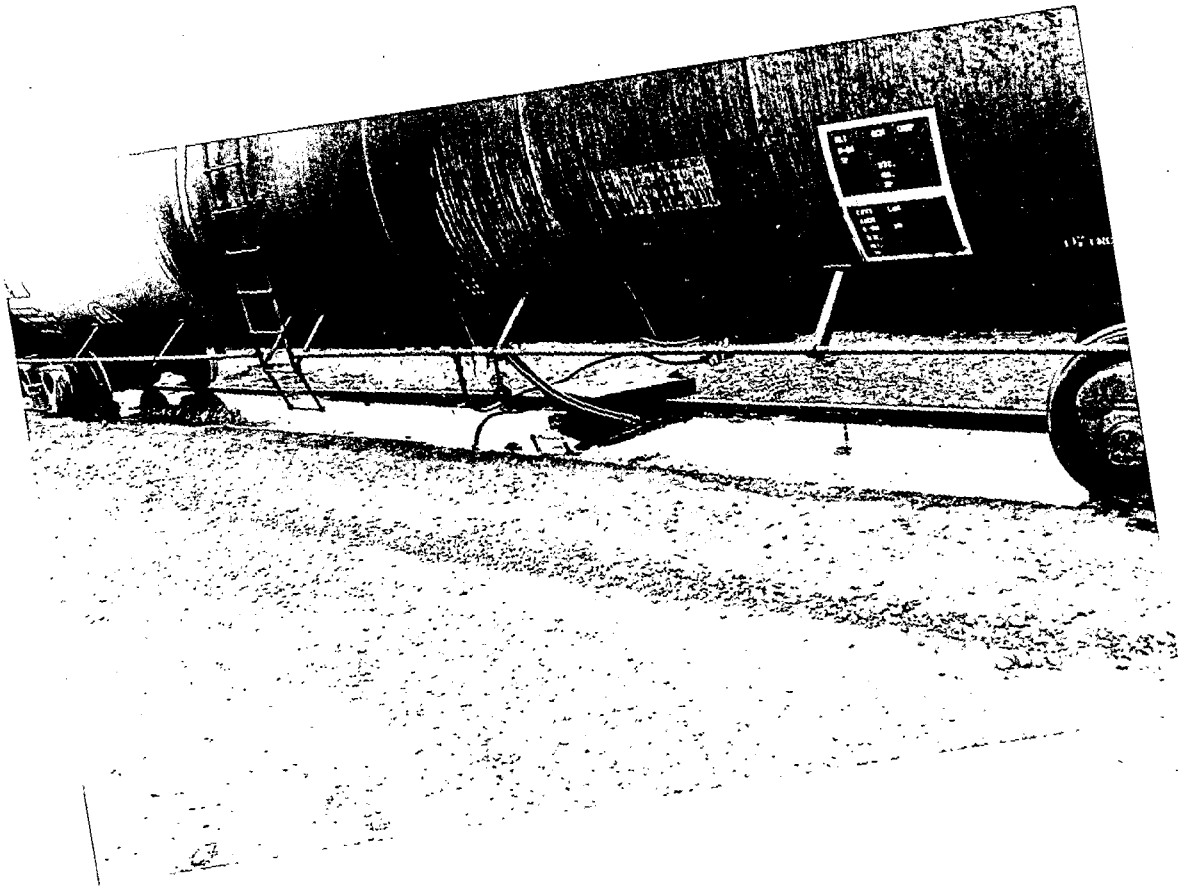

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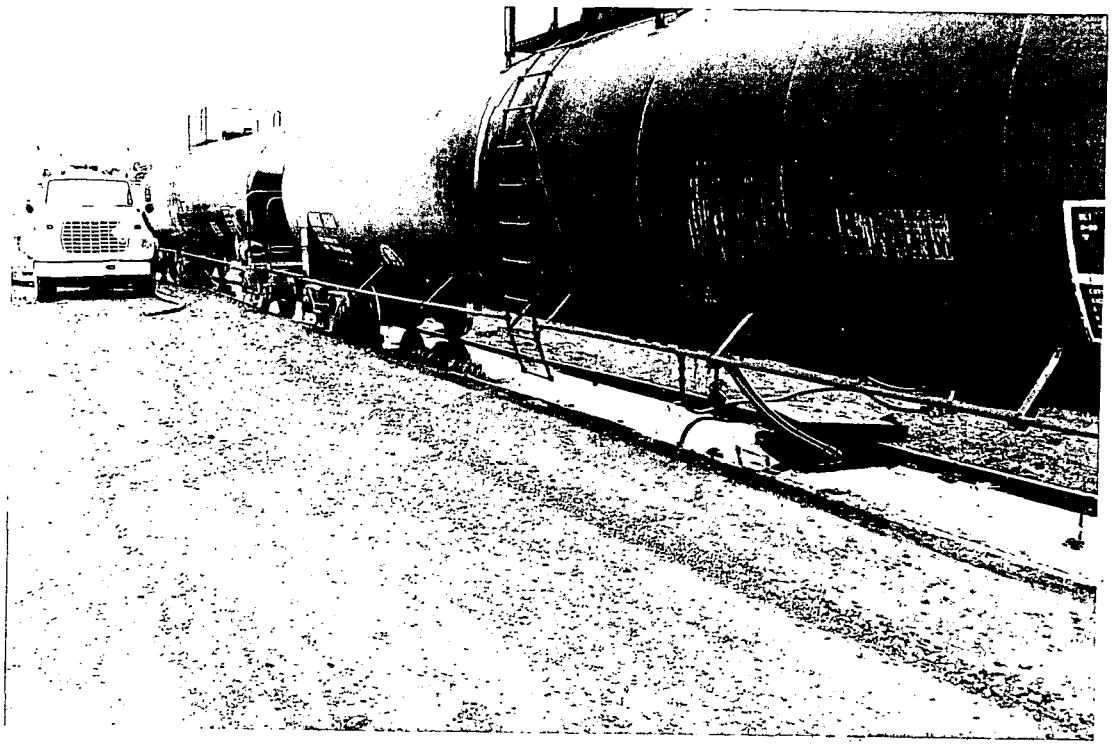

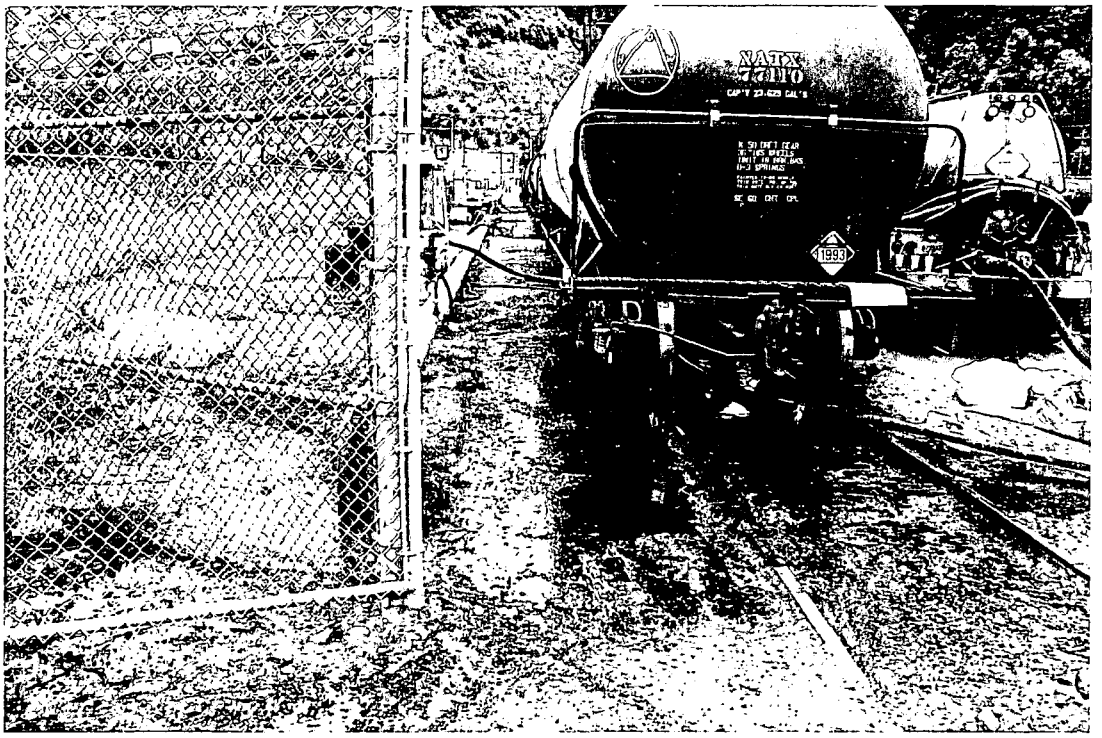
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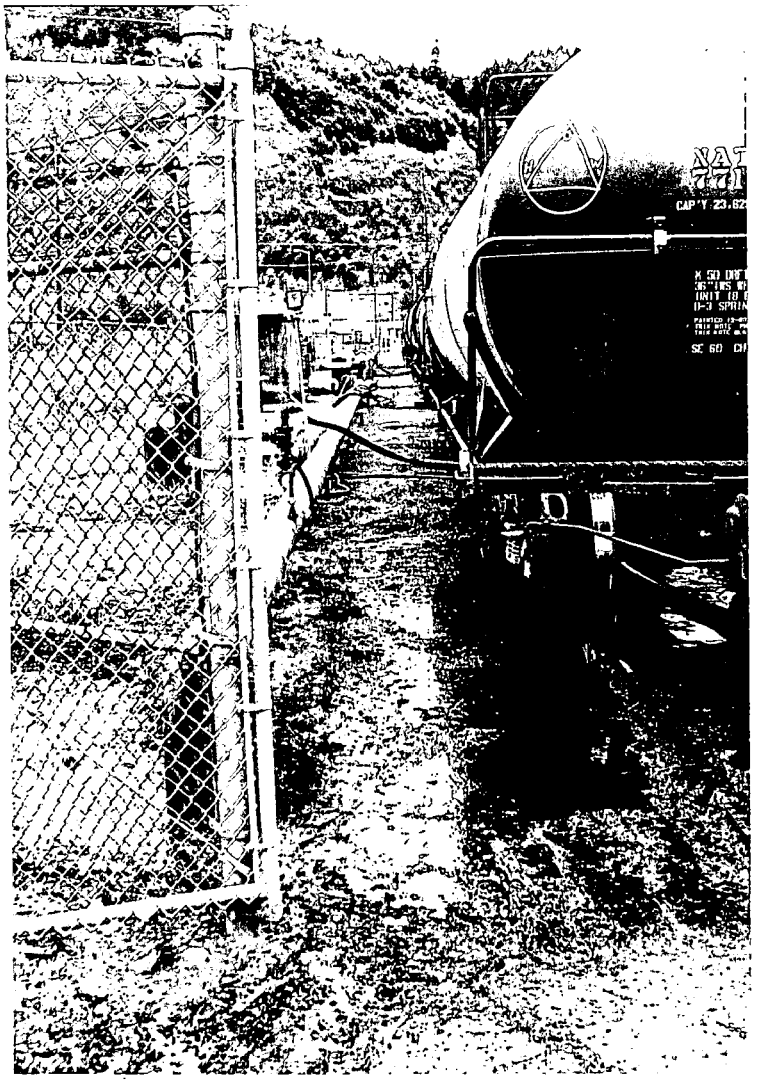

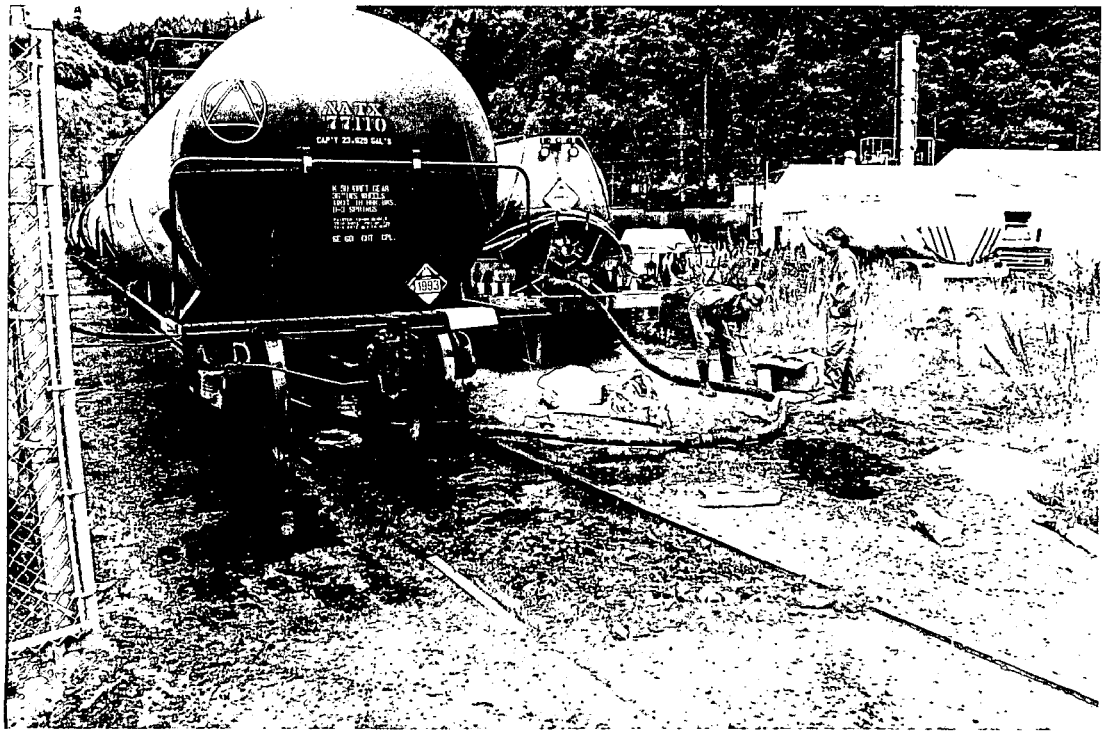
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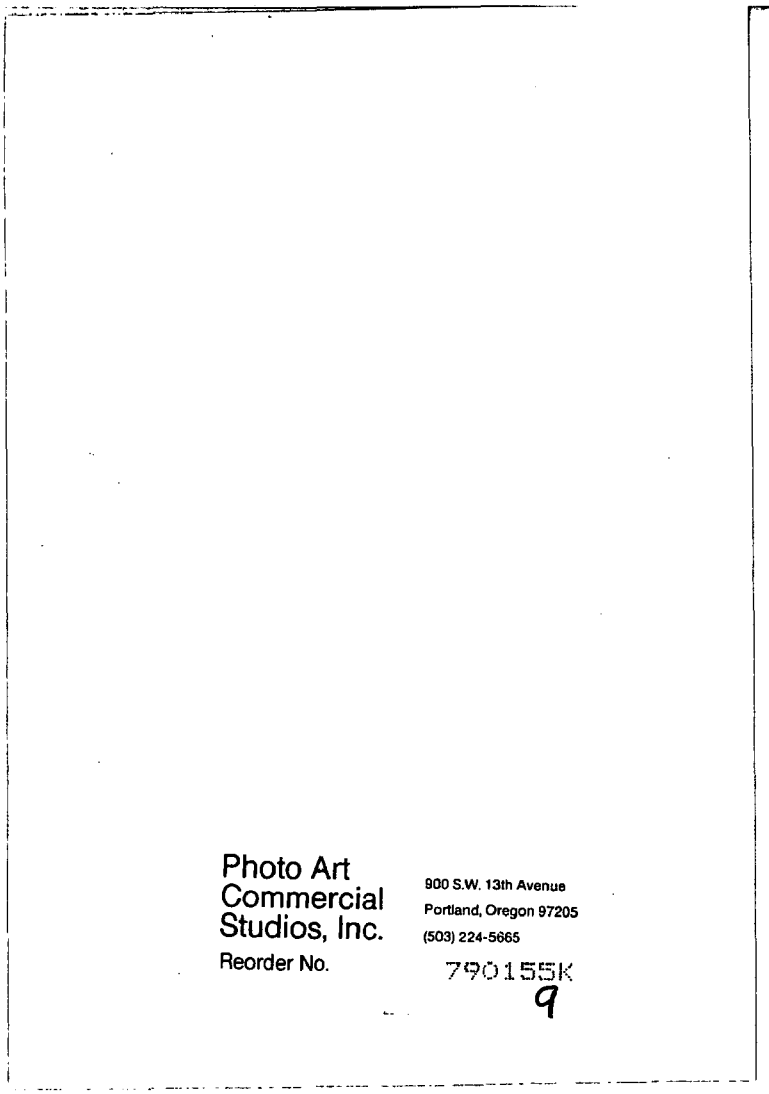

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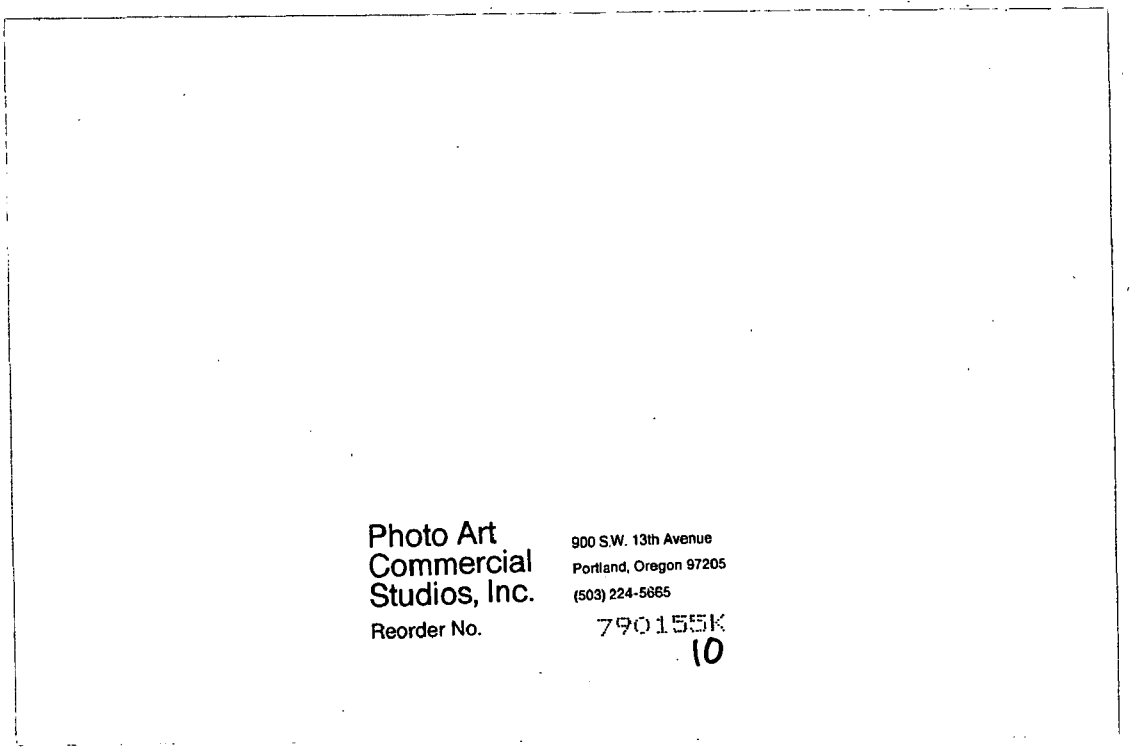

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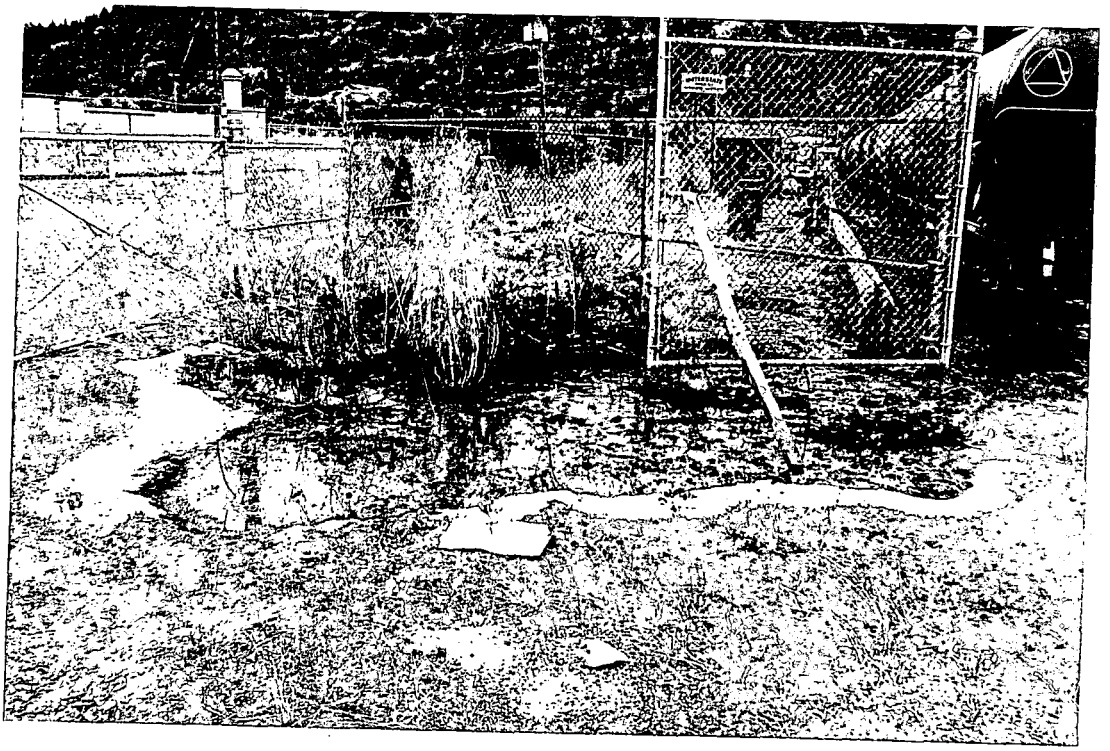

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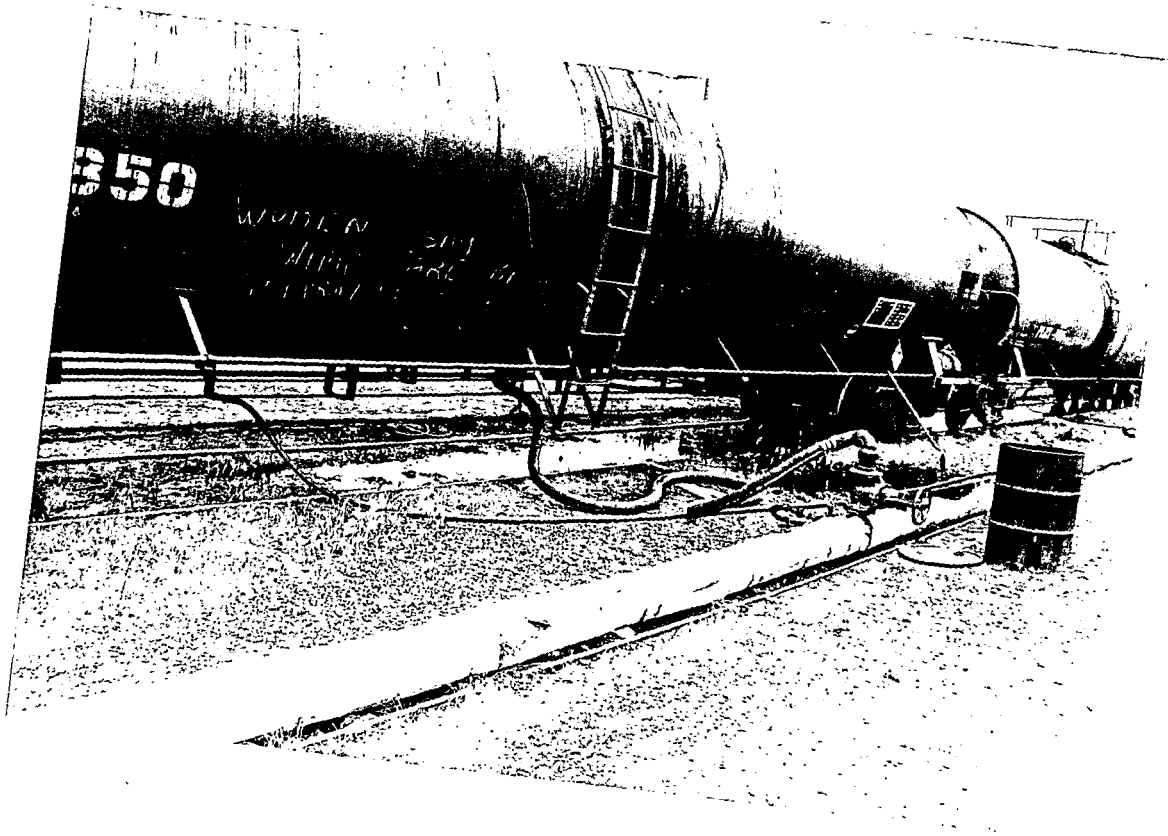
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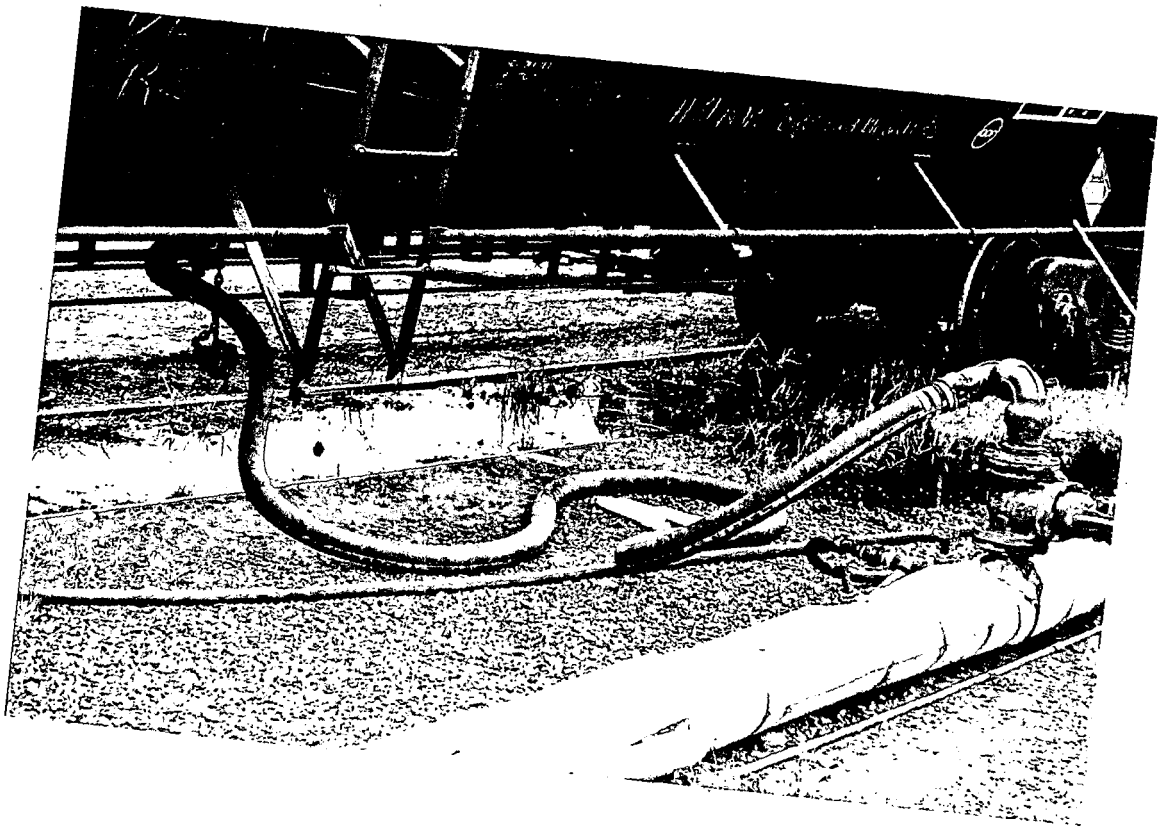

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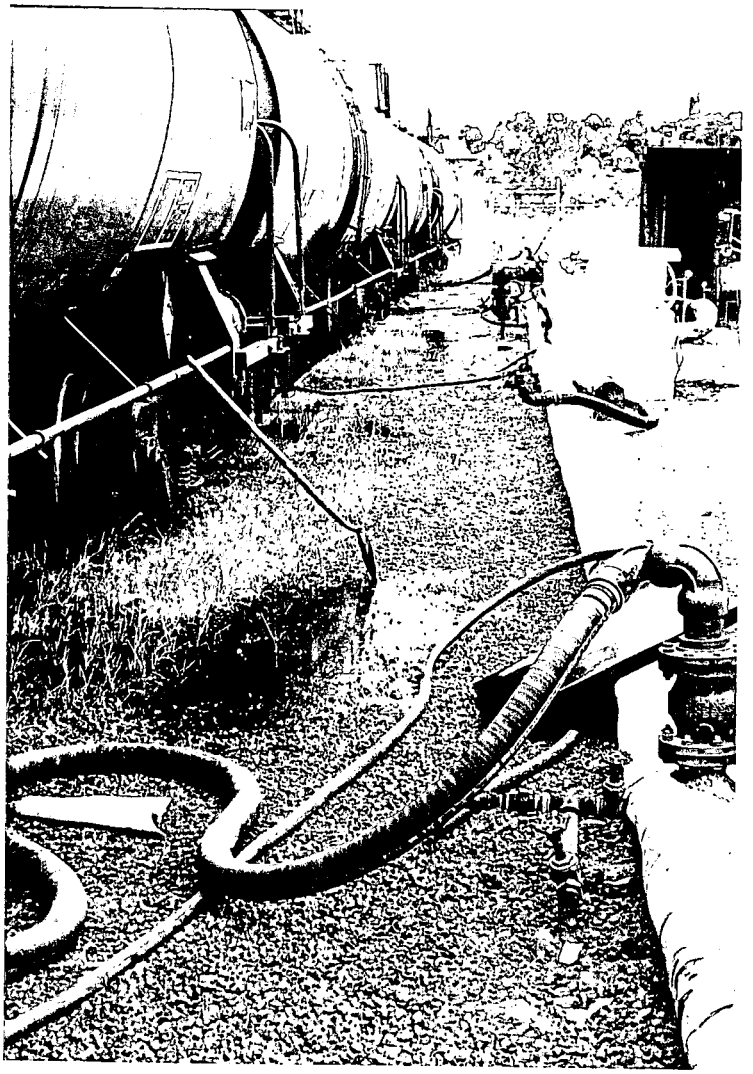

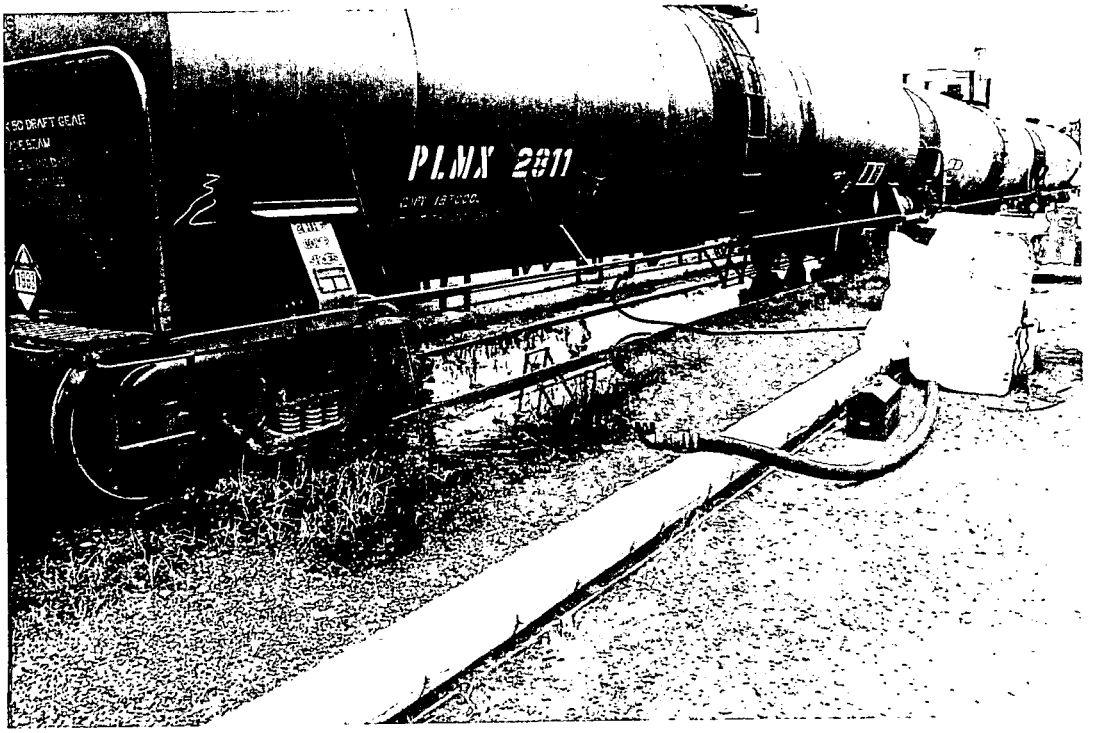
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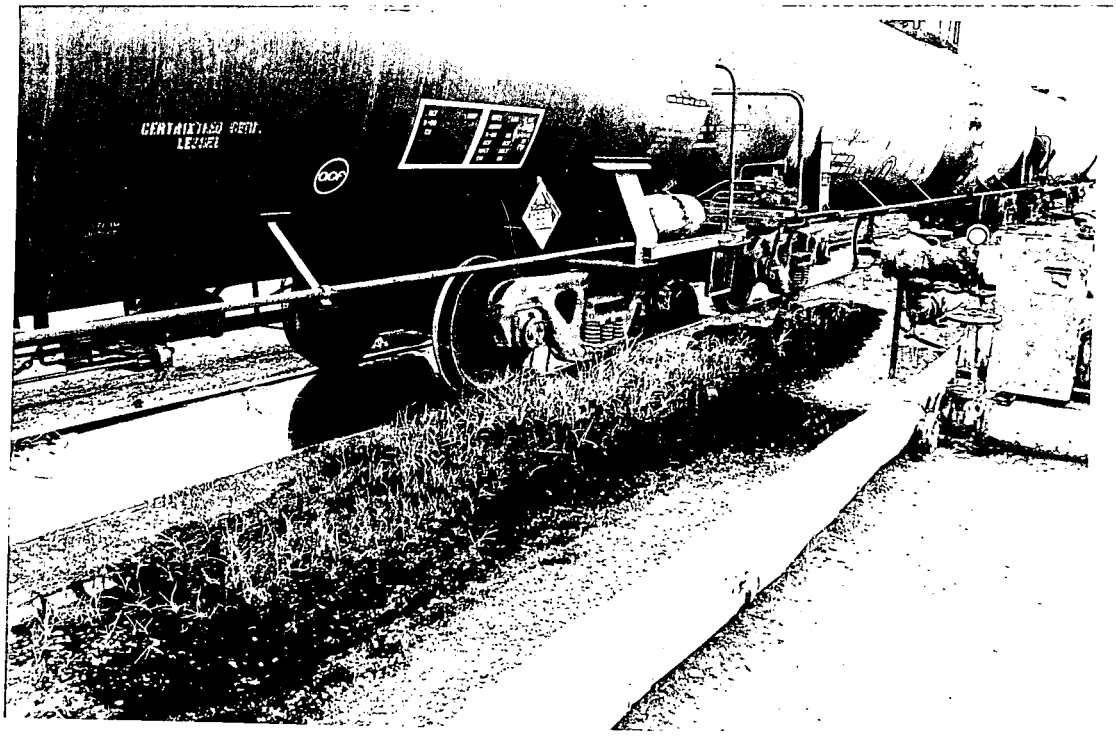

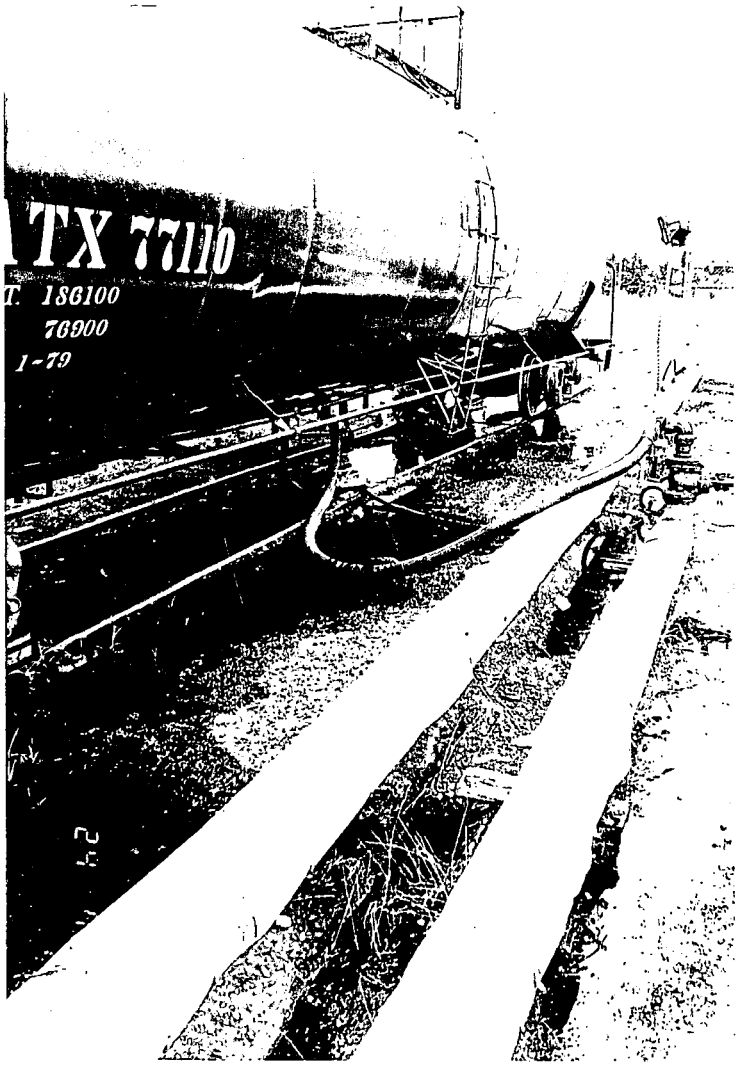
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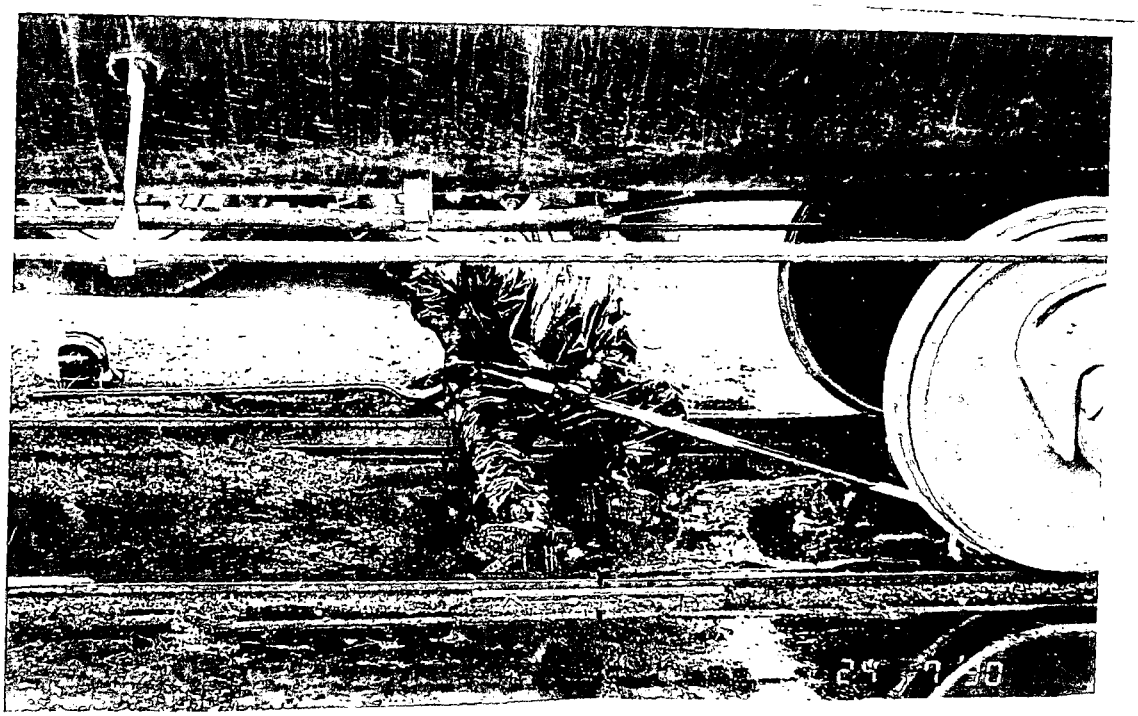

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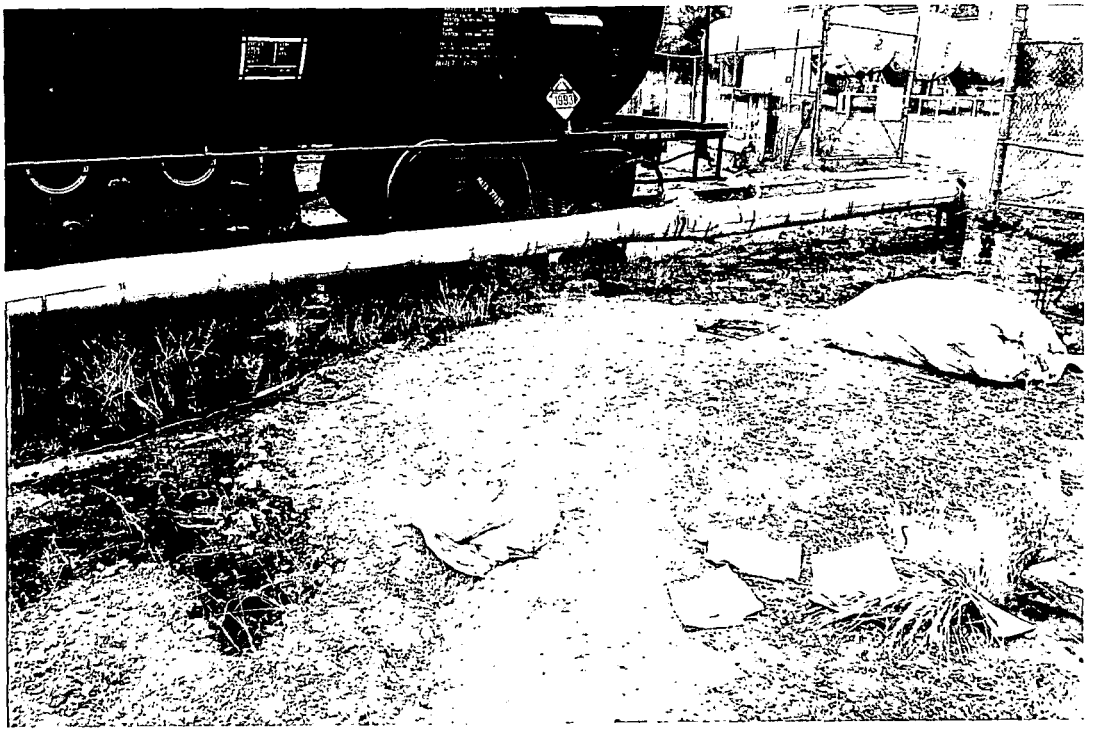

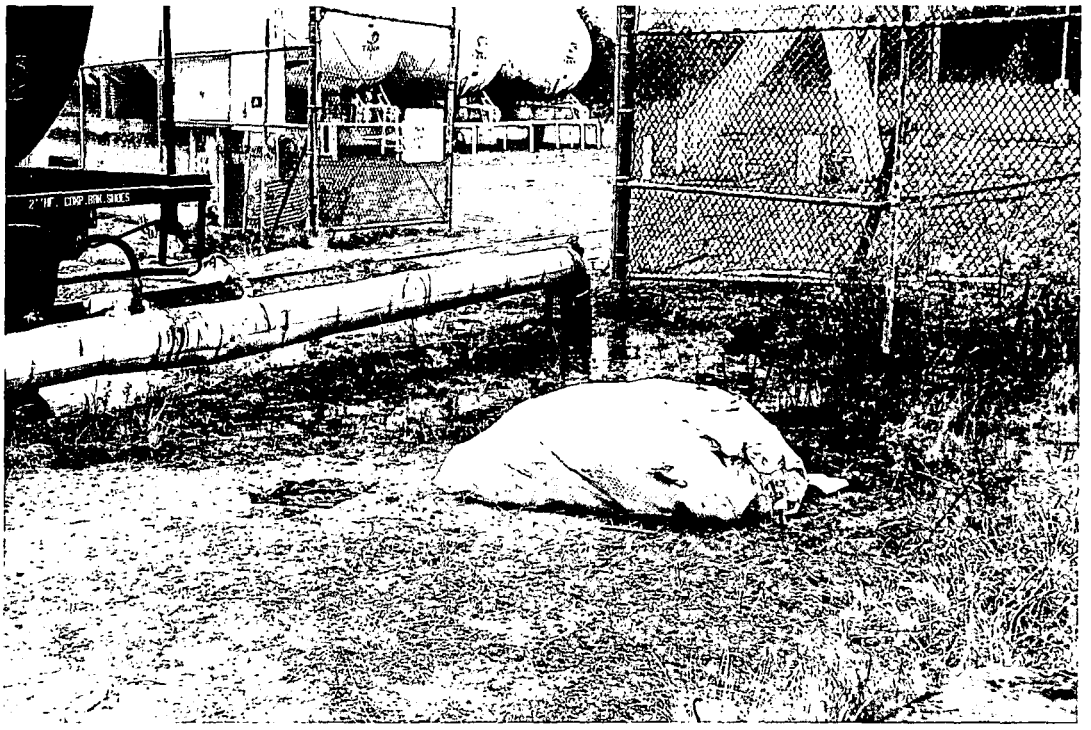

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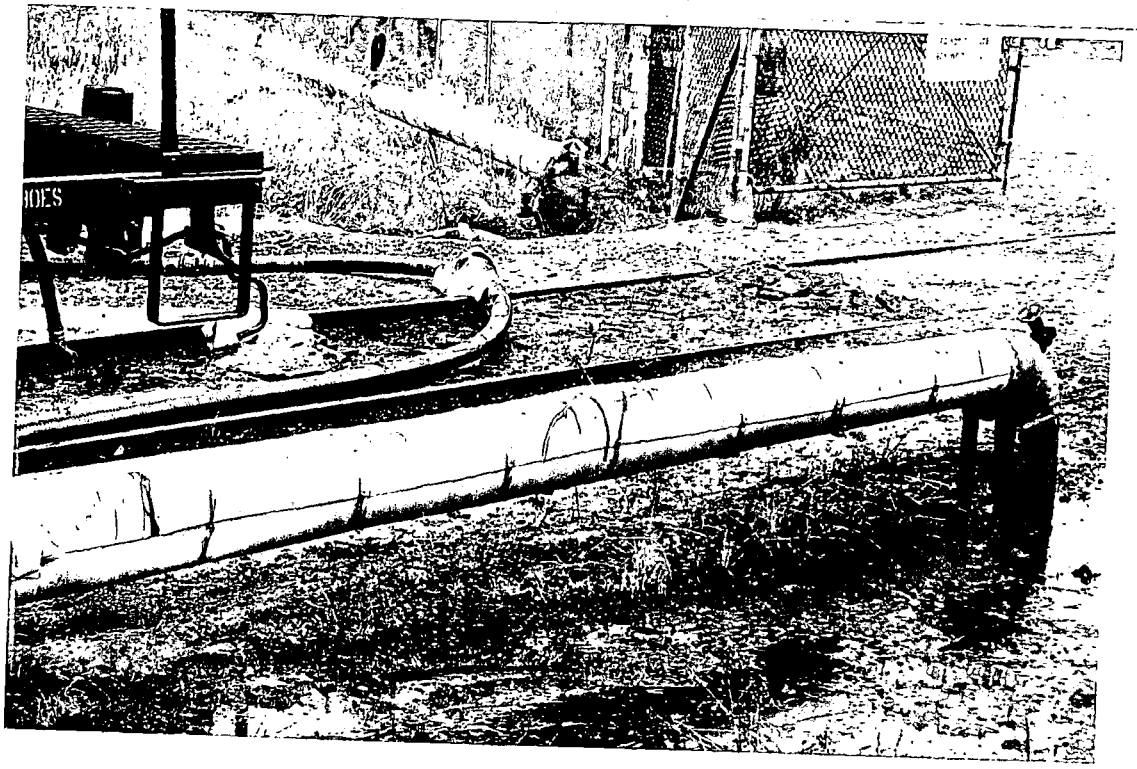

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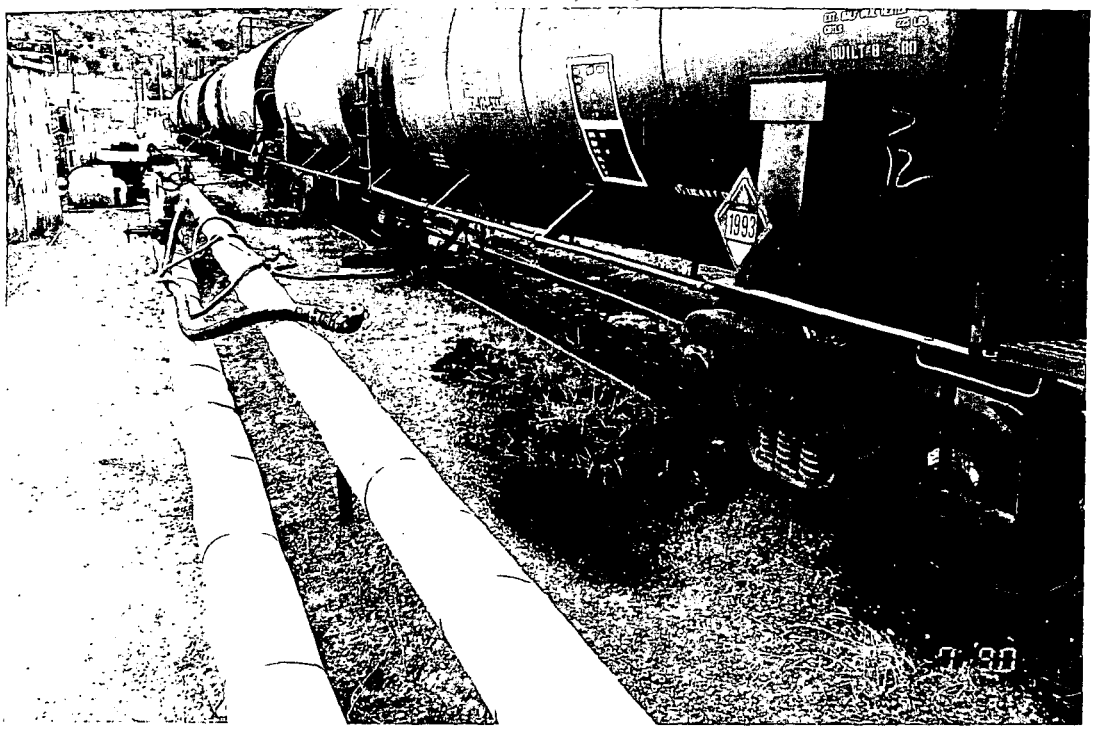
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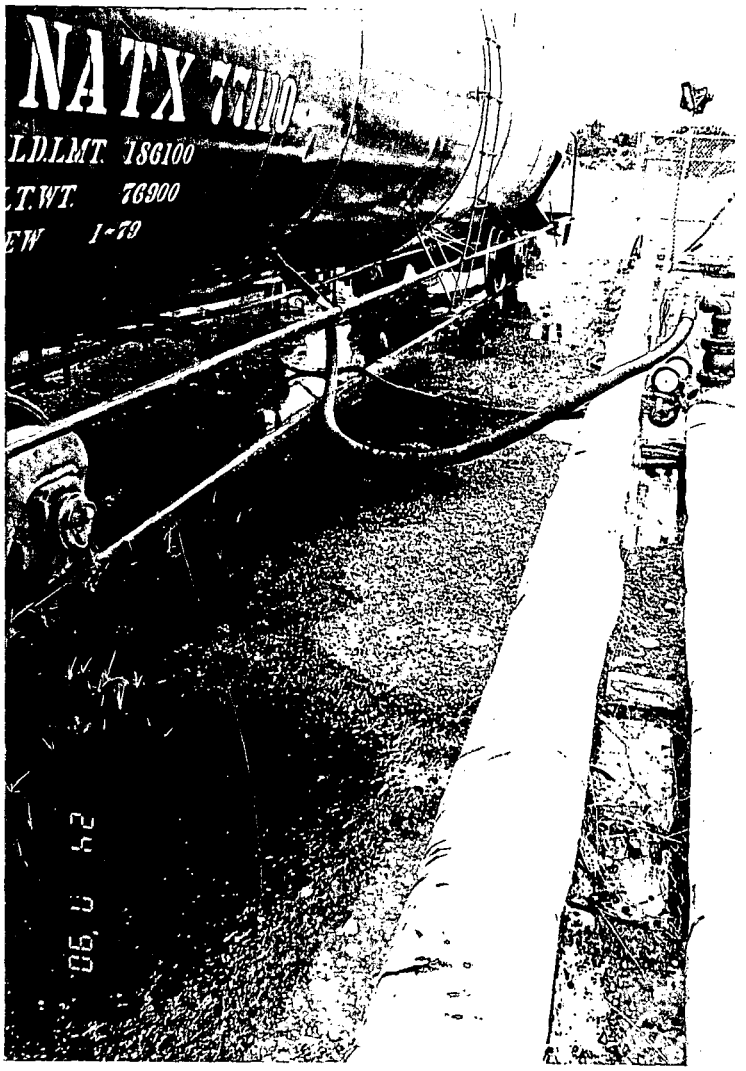
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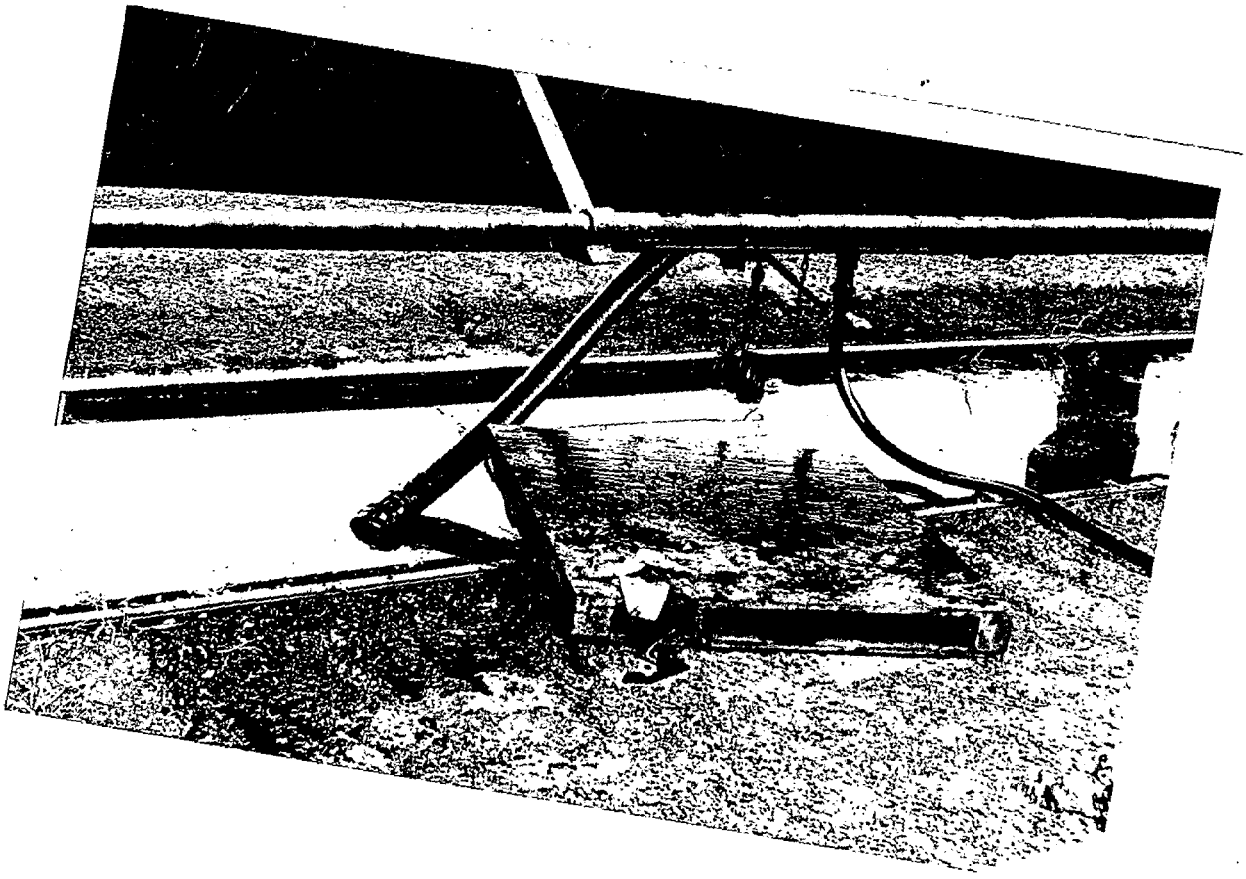

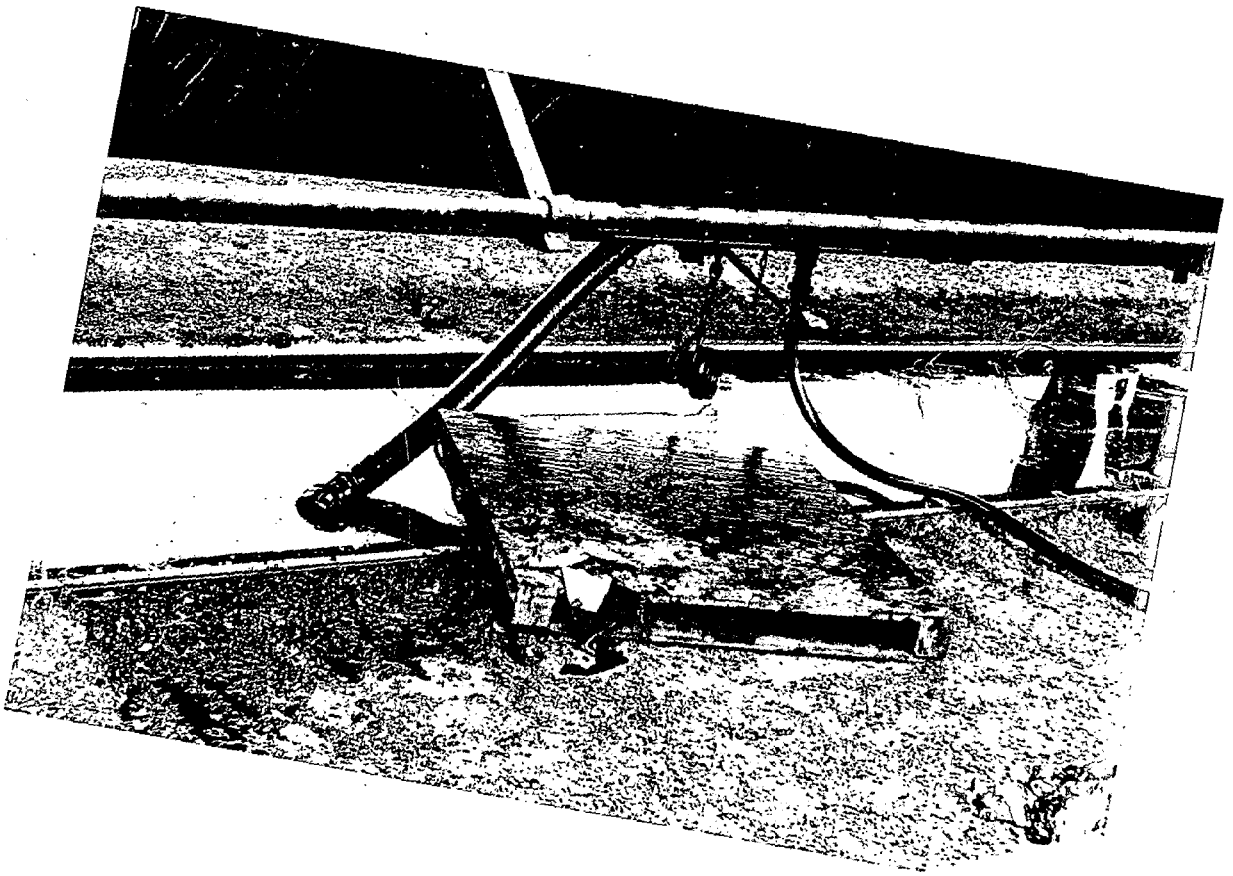

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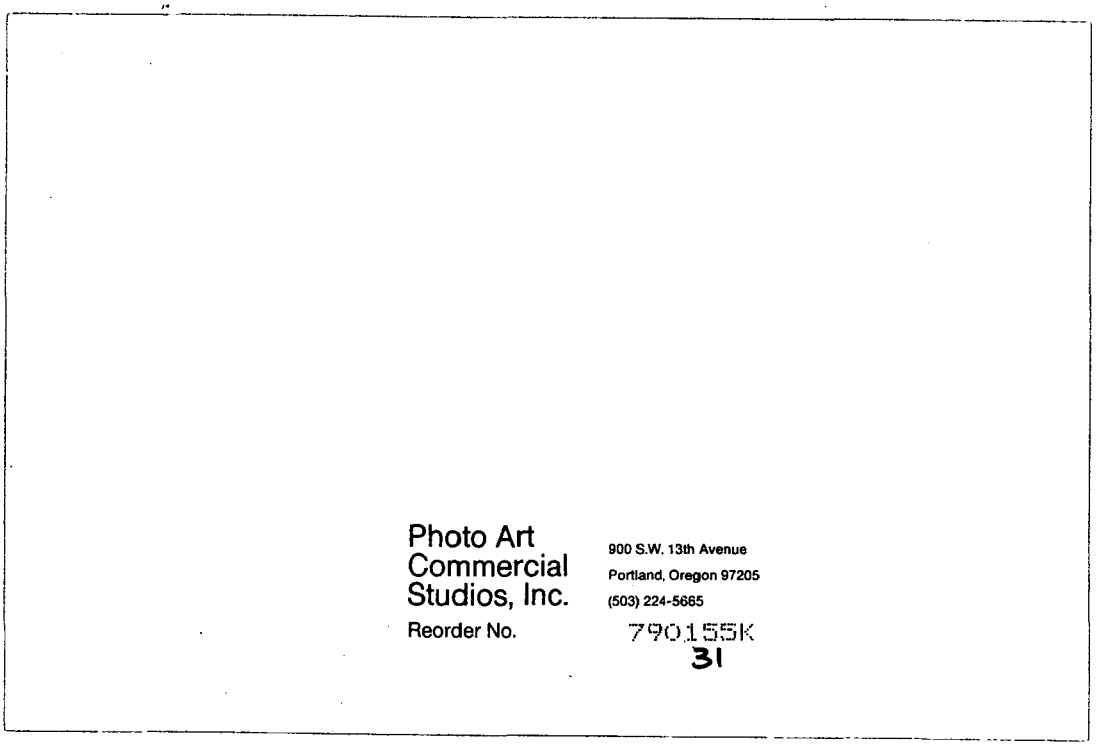
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Koppers020133

Date: 12/3/99 2:33 PM
Sender: Amos Kamerer
To: Jack Stephenson
cc: Gerald Dietrick; Steve Kifer; Traci Self; BILL MEISINGER
Priority: Normal
Subject: Pacific Northern Oil Spill

FYI.

I have received today ,and forwarded to McDowell Welding, copies of all of PNO's spill report's and related information that McDowell had requested.

Also, as you know, PNO has been sold to FAMM, LLC.. PNO called the other day to say that they had received the last invoice on this matter, from Associated Earth Sciences, Inc. for some $4,300, and would prefer just sending it to us or McDowell for direct payment, I said would be OK. Thus, this invoice and it's attachments, have also been forwarded to McDowell. McDowell now has every thing that it should need to resolve this matter.

I have copies of all of this in my file, if anyone would like a copy for their files, please let me know.

Amos

SPILL/RELEASE REPORT

1 - GENERAL INFORMATION OERS No. 99-1931

a. Company/Individual Name: PACIFIC NORTHERN OIL CORP.

b. Address: 7900 NW ST. HELENS RD
PORTLAND, OR 97210

c. Company Contact Person: MIKE SATRE

d. Phone Number(s): (503) 286-5321

e. Specific on-site location of the release (and address if different from above):
DECANT BOX NEAR TANK #4

Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.

2 - RELEASE INFORMATION

a. Date/Time Release started: 8/19/99 1110hrs Date/Time stopped: 8/19/99 1117

b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):
ODEQ 8/19/99 1400 hrs - MIKE GREENBURG
OERS 8/19/99 1200 hrs - BETTY COOK
NRC 8/19/99 1150 hrs - PENDLETON
Other (describe):

c. Person(s) reporting release: MIKE SATRE

d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:
LIQUID DIESEL AND BUNKER MIXTURE - APPROXIMATELY 200 GALLONS.

Please attach copies of material safety data sheets (MSDS) for released material(s).

e. The release affected: ___Air ___Groundwater ___Surface Water X Soil ___Sediment

f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):
WILLAMETTE RIVER - APPROXIMATELY 20 FEET
Has the release reached the surface water identified above?: ___Yes X No
Could the release potentially reach the surface water identified above? X Yes ___No
Explain: THIS WAS ONLY POSSIBLE IF THE OIL HAD FOUND A FLAW IN THE CONTAINMENT

g. Depth to nearest aquifer/groundwater: SEE ATTACHED
Is nearest aquifer/groundwater potable (drinkable)? ___Yes X No
Has the release reached the nearest aquifer/groundwater? ___Yes X No
Explain:

h. Release or potential release to the air occurred? ___Yes _X_No
Explain:

i. Was there a threat to public safety? ___Yes _X_No
j. Is there potential for future releases? _X_Yes ___No
Explain: THERE IS A SMALL POTENTIAL WHICH COULD BE REDUCED BY INSTALLING AN ALARM SYSTEM
k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):
NONE

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:
MCDOWELL WELDING WAS HYDROTESTING NEW STEAM PIPING AND DID NOT SHUT OFF THE WATER WHICH FLOWED INTO THE DOCK COLLECTION SYSTEM. THIS SYSTEM IS DESIGNED TO HANDLE SMALL AMOUNTS OF OIL AND RAINWATER AND COULD NOT HANDLE THE LARGER VOLUME. THE AUTOMATIC PUMP CAME ON AND KEPT PUMPING CAUSING THE 2000 GALLON COLLECTION TANK TO OVERFLOW. AT 1115 ON 8-19-99 I NOTICED THE SPILL IN PROGRESS AND SHUT OFF THE POWER TO THE DOCK TO STOP THE PUMP. I THEN WENT TO THE SOURCE OF THE WATER TO MAKE SURE NO MORE WAS GOING TO ENTER THE SYSTEM. BURT NYE AND I WENT TO THE SPILL AREA, ASSESSED THE DAMAGE AND STOPPED THE SPREAD OF THE OIL. I THEN MADE THE NOTIFICATIONS.

3 - SITE INFORMATION

a. Adjacent land uses include (check all that apply and depict on site maps):
___Residential ___Commercial ___Light Industrial _X_Heavy Industrial
___Agricultural ___Other (describe):
b. What is the population density surrounding the site: INDUSTRIAL / LOW DENSITY
c. Is the site and/or release area secured by fencing or other means? _X_Yes ___No
d. Soil types (check all that apply): ___alluvial ___bedrock _X_clay ___sandy
___silt ___silty loam _X_artificial surface (cement/asphalt/etc.)
e. Describe site topography: SLIGHTLY SLOPING FROM SOUTH TO NORTH TOWARD THE WILLAMETTE RIVER. THE TANK YARD IS FLAT.

4 - CLEANUP INFORMATION

a. Was site cleanup performed? X Yes ___ No

If No, explain: _____

b. Who performed the site cleanup?

Company Name: FOSS ENVIRONMENTAL

Address: 5420 N. LAGOON AVE
PORTLAND, OR

Cleanup Supervisor: TIM ARCHER

Phone Number(s): (503) 978-7272

c. Has all contamination been removed from the site? ___ Yes X No

If No, explain: PENDING TEST RESULTS AND DISPOSITION.

d. Estimated volume of contaminated soil removed: 20 TO 30 CU. YDS.

e. Estimated volume of contaminated soil left in place: UNKNOWN.

f. Was a hazardous waste determination made for cleanup materials? X Yes ___ No

g. Based on the determination, are the cleanup materials hazardous wastes?

___ Yes X No If Yes, list all waste codes: _____

h. Was contaminated soil or water disposed of at an off-site location? X Yes ___ No

If yes, attach copies of receipts/manifests/etc., and provide the following information:

Facility Name: OIL RE-REFINING

Address: 4150 N SUTTLE RD
PORTLAND, OR 97217

Facility Contact: JOHN OXFORD

Phone Number(s): (503) 286-8352

i. Is contaminated soil or water being stored and/or treated on-site? X Yes ___ No

If yes, please describe the material(s), storage and/or treatment area, and methods utilized (attach additional sheets if necessary):

CONTAMINATED SOIL IS BEING STORED PENDING DISPOSITION IN LINED, COVERED DUMPSTERS AND IN ONE COVERED PILE.

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):

SEE ATTACHED CONTRACTOR NOTES.

5 - SAMPLING INFORMATION

Attach copies of all sample data and indicate locations of sample collection on maps.

a. Were samples of contaminated soil collected? X Yes ___ No ___ N/A
b. Were samples of contaminated water collected? ___ Yes ___ No X N/A
c. Were samples collected to show that all contamination had been removed?
X Yes ___ No ___ N/A
d. Describe sampling activities, results and discuss rationale for sampling methods:

FIELD PERSONNEL COLLECTED CONFIRMATION SOIL SAMPLES FROM AREAS AFFECTED BY THE SPILL. CONTAMINATED SOIL WAS REMOVED WITH SHOVELS AND BACKHOE DOWN TO APPARENT NON-IMPACTED SURFACE. SAMPLES WERE ANALYZED FOR DIESEL AND HEAVY OIL by DEQ METHOD NWTPH-DX; ANALYTICAL RESULTS ARE ATTACHED.

SOIL SAMPLES WERE COLLECTED FROM AREAS THAT WERE OBVIOUSLY IMPACTED BY THE SPILL. HOWEVER, HISTORICAL ACTIVITIES AT THE PROPERTY DO NOT PRECLUDE THE POSSIBLE EXISTANCE OF OTHER PETROLEUM CONTAMINATED AREAS

6 - SPILL REPORT CHECKLIST

To ensure that you have gathered all the information requested by the Department in this Spill/Release Report, please complete the following checklist:

✓ Map(s) of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.

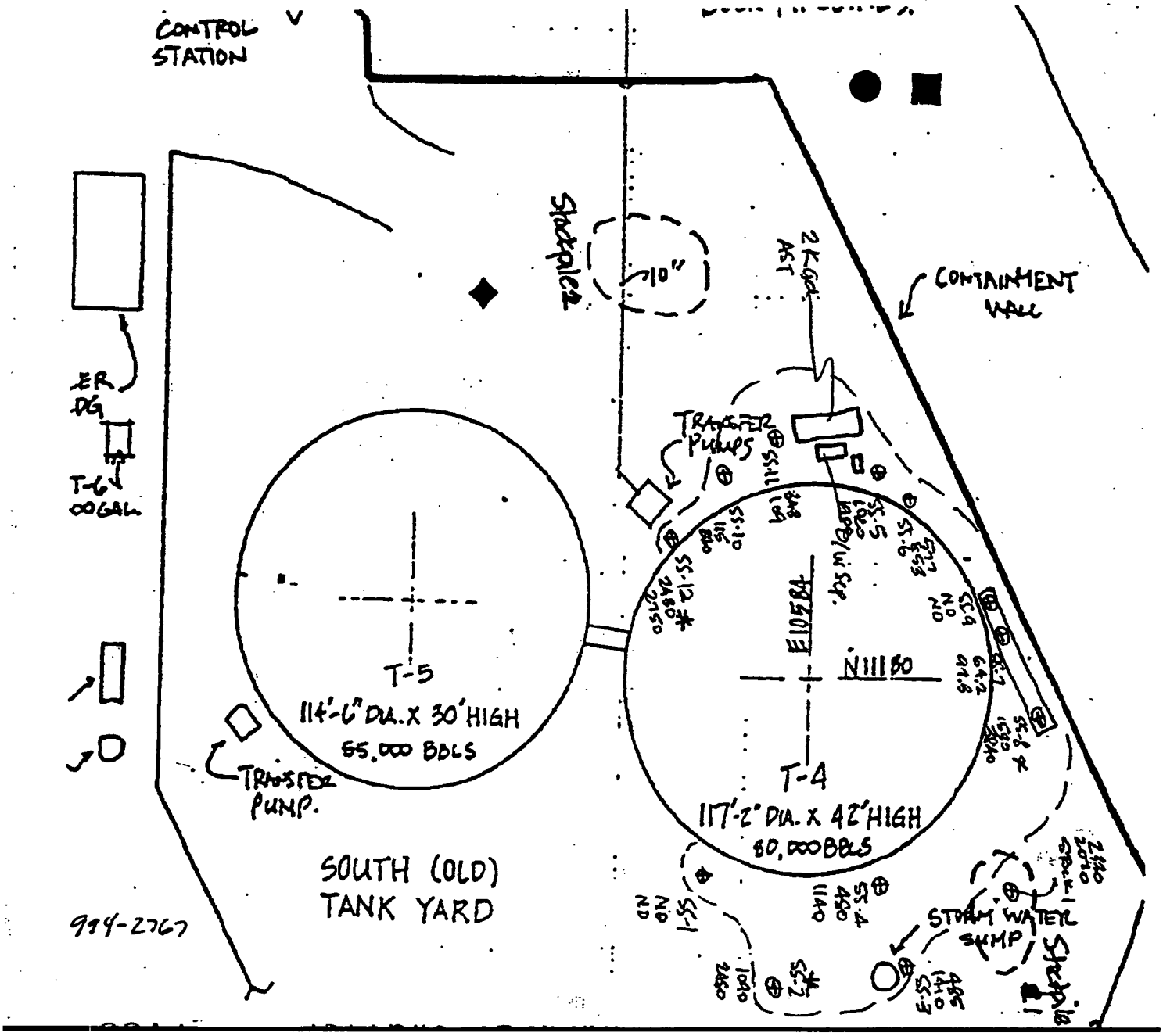
✓ Material Safety Data Sheet (MSDS) for released material(s) attached.

✓ Sampling data/analytical results attached.

✓ Receipts/manifests (if any) for disposal of cleanup materials attached.

✓ Contractor reports (if any) attached.

SS-1 = Soil Sample location



First occurring ground water in this area may be perched as shallow as five to ten feet below ground surface (bgs). The alluvial aquifer is expected to coincide with the elevation of the adjoining Willamette River, which is approximately ten to twenty feet bgs, north of Highway 30. Deeper aquifers located in the basalt units are more commonly used for high-volume water production.

MATERIAL SAFETY DATA SHEET

PACIFIC NORTHERN INDUSTRIAL FUELS INC.

SECTION I MATERIAL IDENTIFICATION

PRODUCT NAME **RESIDUAL FUEL OIL**

SUPPLIER PACIFIC NORTHERN INDUSTRIAL FUELS INC.
NORTH TOWER, SUITE 200
100 WEST HARRISON
SEATTLE, WASHINGTON 98119
(206) 282-4421

EMERGENCY PHONE NUMBER: (206) 282-4421

CHEMICAL NAME AND SYNONYMS:	BLEND OF HIGH BOILING POINT HYDROCARBONS INDUSTRIAL FUEL OIL #4, #5, #6, #4, LIGHT, #5 HEAVY, PS-300, PS-400, RESIDUAL OIL, BLACK OIL, MARINE DIESEL OIL, MARINE INTERMEDIATE
FUEL	OIL, BUNKER C.
DOT HAZARD CLASSIFICATION:	COMBUSTIBLE LIQUID
DOT HAZARD MATERIALS SHIPPING NAME:	FUEL OIL #4, #5, OR #6.
LABEL REQUIRED	NONE.

HAZARD COMMUNICATIONS STANDARDS: HAZARD MATERIAL IDENTIFICATION SYSTEM (HMIS)

HEALTH HAZARD RATING	#1 SLIGHT HAZARD
FLAMMABILITY HAZARD RATING	#2 MODERATE HAZARD
REACTIVE HAZARD RATING	#0 MINIMAL HAZARD

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

HEALTH HAZARD RATING	#1 SLIGHT HAZARD
FLAMMABILITY HAZARD RATING	#2 MODERATE HAZARD
REACTIVE HAZARD RATING	#0 INSIGNIFICANT HAZARD

SECTION II MATERIAL IDENTIFICATION

DESCRIPTION: A MIXTURE OF HIGH MOLECULAR WEIGHT PARAFFINIC, NAPTHENIC AND AROMATIC HYDROCARBONS PRODUCED AS THE RESIDUAL FRACTION FROM DISTILATION AND THE CATALYTIC CRACKING PROCESS OF PETROLEUM.

SECTION III HAZARDOUS INGREDIENTS

COMPLEX MIXTURE OF PETROLEUM HYDROCARBONS BOILING ABOVE 400 DEG F/204 DEG C (APPROX.), 100 PERCENT.

SECTION IV HEALTH INFORMATION

THE PETROLEUM HYDROCARBONS IN THIS PRODUCT ARE A MIXTURE OF PARAFFINIC, NAPTHENIC AND AROMATIC HYDROCARBON'S. THE AROMATICS CONTAIN POLYCYCLIC COMPOUNDS OF VARIOUS CONCENTRATIONS. SOME OF THESE COMPOUNDS MAY BE THOSE WHICH HAVE BEEN SHOWN TO INDUCE CANCER IN ANIMALS UNDER LABORATORY CONDITIONS. TESTS SUGGEST THAT REPEATED OR PROLONGED SKIN CONTACT MAY CAUSE SKIN CANCER. INHALATION OF MISTS FROM OILS CONTAINING THESE MATERIALS MAY ALSO PRESENT A CANCER HAZARD.

EXPOSURE TO VAPORS OR MIST FROM THESE PRODUCTS MAY CAUSE NAUSEA, DIZZINESS AND PULMONARY IRRITATION. PROLONGED OR REPEATED CONTACT MAY CAUSE SKIN IRRITATION, DERMATITIS OR OTHER SKIN DISORDERS.

HYDROGEN SULFIDE (H2S) D OTHER HAZARDOUS VAPORS MAY EVOLVE AND COLLECT IN CONFINED SPACES WHERE LIQUID IS PRESENT AND IN STORAGE TANKS. H 2 S IS AN EXTREMELY FLAMMABLE AND HIGHLY TOXIC GAS.

ASH PRODUCTS FROM COMBUSTION CONTAIN VANADIUM AND OTHER HEAVY METAL OXIDES. AVOID INHALATION OF DUST.

SECTION V PHYSICAL DATA

BOILING POINT: (DEG F/C)	ABOVE 400/204
VAPOR PRESSURE AT 68 DEG F/20 DEG C: (mmlig)	NEGLIGIBLE TO 1
DENSITY AT 68 DEG F/20 DEG C: (kg/liter)	.900 TO .995 (SOME BLEND COMPONENTS> 1.0)
VISCOSITY:	VARIABLE
POUR POINT: (DEG F/C)	0/-18 TO 75/24
VAPOR DENSITY: (AIR =1)	SLOWER
PERCENT VOLATILE AT 100 DEG F/38 DEG C:	NEGLIGIBLE
SOLUBILITY IN WATER:	NEGLIGIBLE
APPEARANCE AND ODOR:	BROWN TO BLACK LIQUID. CHARACTERISTIC PETROLEUM ODOR

Koppers020142

SECTION VI FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: (PMCC METHOD) (DEG F/C)	ABOVE 140/60
AUTO IGNITION TEMPERATURE: (DEG F/C)	ABOVE 725/385
FLAMMABLE LIMITS:	LOWER: NOT DETERMINED
	UPPER: NOT DETERMINED
ELECTRICAL CONDUCTIVITY: (PS/M - ASTM D 2624)	500 (APPROX.)

FIRE AND EXPLOSION HAZARDS: MODERATELY COMBUSTIBLE. WHEN HEATED ABOVE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH, IF EXPOSED TO SOURCE OF IGNITION, CAN BURN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAY MAY BE FLAMMABLE AT TEMPERATURES BELOW FLASH POINT. KEEP AWAY FROM HEAT OR OPEN FLAME.

EXTINGUISHING MEDIA: DRY CHEMICAL, FOAM, HALON AND CO2. WATER FAG MAY BE EFFECTIVE. DO NOT USE DIRECT HOSE STREAM OF WATER.

SPECIAL FIRE FIGHTING PRECAUTIONS: DO NOT ENTER ENCLOSED OR CONFINED SPACES WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE NIOSH APPROVED SELF CONTAINED BREATHING APPARATUS. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER. IMPROPER USE OF WATER OR EXTINGUISHERS MAY CAUSE FROTHING AND SPREAD FIRE OVER LARGER AREA. AVOID CONTAINERS EXPOSED TO EXTREME HEAT OR DIRECT FLAME BECAUSE OF POTENTIALS OF PRODUCT TO VAPORIZE AND DEVELOP BUILD-UP OF INTERNAL PRESSURES.

SECTION VII - HEALTH HAZARD DATA

OCCUPATIONAL EXPOSURE LIMITS:

OIL MIST:	POLYCYCLIC AROMATIC HYDROCARBONS AS BENZENE. SOLUBLE: ACGIH - TLV/TWA = 0.2 MG/CU M
OIL MIST:	MINERAL: ACGIH - TLV/TWA 5 MG/ CUM M
HYDROGEN SULFIDE:	ACGIH TWA/TLV - 10 PPM: STEL = 15 PPM

EMERGENCY FIRST AID

EYES:	FLUSH WITH COPIOUS WATER FOR 15 MINUTES HOLDING EYELIDS APART AND AWAY FROM EYEBALL. SEEK MEDICAL ADVISE IF PAIN OR REDNESS DEVELOPS AND PERSISTS.
SKIN:	WASH SKIN WITH MILD SOAP AND WATER AS SOON AS PRACTICABLE AFTER CONTACT. REMOVE HEAVILY CONTAMINATED CLOTHING AND WASH ANY CONTAMINATED UNDERLYING SKIN. LAUNDER CLOTHING BEFORE RE-USE.
INHALATION:	IF INHALATION OF MISTS OR VAPORS CAUSES IRRITATION OF NOSE OR THROAT, OR COUGHING, REMOVE PATIENT TO FRESH AIR. SEEK MEDICAL ADVICE IF SYMPTOMS PERSIST, OR IF DIFFICULTY IN BREATHING OCCURS.
SWALLOWING:	DO NOT INDUCE VOMITING BECAUSE OF RISK OF ASPIRATION. AFTER SPONTANEOUS VOMITING, MONITOR PATIENT FOR DIFFICULT BREATHING. **EFFECT OF LIQUID IN LUNGS MAY BE DELAYED ONE OR TWO DAYS. IF SYMPTOMS PERSIST OR EXPOSURE IS SEVERE, SEEK PROMPT MEDICAL HELP**

NOTE TO PHYSICIAN: PETROLEUM ASPIRATION MAY CAUSE SEVERE PNEUMONITIS ("OIL PNEUMONIA"). VOMITING SHOULD NOT BE INDUCED, AND GASTRIC LAVAGE SHOULD BE UNDERTAKEN WITH CONSIDERATION OF ENDOTRACHEAL INTUBATION, ESPECIALLY IN A UNCONSCIOUS PATIENT.

Koppers020143

SECTION VIII REACTIVITY DATA

STABILITY:	STABLE UNDER NORMAL CONDITIONS. NOT CHEMICALLY REACTIVE.
CONDITIONS TO AVOID	EXTREME HEAT AND OPEN FLAME.
MATERIALS TO AVOID:	STRONG OXIDIZERS, ALKALIS OR ACIDE.
HAZARDOUS DECOMPOSITION OF PRODUCT:	BURNING OR EXCESSIVE HEATING MAY PRODUCE CO, H_2S OR OTHER HARMFUL GASSES OR VAPORS INCLUDING OXIDES OF S, N, METALS AND OTHER ELEMENTS.
HAZARDOUS POLYMERZATION:	WILL NOT OCCUR.

SECTION IX ENVIRONMENTAL HAZARDS

THIS PRODUCT IS AND "OIL" UNDER THE CLEAN WATER ACT. KEEP OUT OF SURFACE WATERS OR ANY WATER COURSES OR SEWERS LEADING TO SURFACE WATERS. KEEP FROM ENTERING GROUND WATERS.

SECTION X SPILL, LEAK OR DISPOSAL PROCEDURES

STOP FLOW OF PRODUCT. CONTAIN SPILL. REMOVE ALL SOURCES OF IGNITION. EVACUATE ALL NON-ESSENTIAL PERSONNEL. CLEAN UP AS SOON AS POSSIBLE USING PROPER PROTECTIVE EQUIPMENT, BOOMS, SORBENTS AND CONTAINERS. NOTIFY LOCAL, STATE OR FEDERAL AGENCIES IF REQUIRED BY LAW AND COMPLY WITH ALL APPLICABLE LAWS. NOTIFY NATIONAL RESPONSE CENTER IF SPILL ENTERS OR THREATENS TO ENTER SURFACE WATERS - (800) 424-8802.

MAXIMIZE PRODUCT RECOVERY FOR REUSE OR RECYCLING. CONDITIONS OF USE MAY CAUSE MATERIAL TO BECOME STATE OR FEDERAL "HAZARDOUS WASTE" AS DEFINED BY APPLICABLE LAWS. USE ONLY APPROVED TRANSPORTERS, TREATMENT AND DISPOSAL SITES.

SECTION XI SPECIAL PROTECTIVE EQUIPMENT

CLOTHING: WEAR LONG SLEEVED CLOTHING, GLOVES AND OTHER GARMENTS TO LIMIT SKIN CONTACT. IF SPLASHING CANNOT BE AVOIDED, WEAR FACE AND EYE PROTECTION. CONSIDER USE OF BARRIER CREAMS IF APPROPRIATE.

RESPIRATORY: USE ONLY NIOSH APPROVED RESPIRATOR FOR ORGANIC MISTS TO PREVENT OVEREXPOSURE IN CONDITIONS WHERE OIL MIST OR VAPORS EXCEED OCCUPATIONAL EXPOSURE LIMITS. WHEN H_2S IS PRESENT, AVOID OVER EXPOSURE OR USE ONLY NIOSH APPROVED SELF CONTAINED BREATHING APPARATUS.

DATE OF PREPARATION: JULY 5, 1994 (REVISED HAZARD COMMUNICATION STANDARD INFORMATION)

Koppers020144

PACIFIC NORTHERN OIL

MATERIAL SAFETY DATA SHEET

****

SECTION I - MATERIAL IDENTIFICATION

****

PRODUCT NAME:	Diesel Oil
SUPPLIER:	Pacific Northern Oil Corp. 100 W. Harrison North Tower, Suite 200 Seattle, WA 98119 (206) 282-4421
EMERGENCY PHONE NUMBER:	(206) 282-4421
CHEMICAL NAME AND SYNONYMS:	Mixture of middle distillate hydrocarbons. Gas Oil, #2 Oil, #2 Diesel Oil
DOT HAZARD CLASSIFICATION:	Combustible Liquid
DOT HAZARD MATERIALS SHIPPING NAME:	Fuel Oil, Diesel
LABEL REQUIRED:	None

DESCRIPTION: A mixture of middle distillate paraffinic, napthenic and aromatic hydrocarbons derived from petroleum distillation.

****

SECTION II - HAZARDOUS INGREDIENTS

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Complex mixture of petroleum hydrocarbons boiling between 345 deg F/170 deg C and 790 deg F/420 deg C, 100 percent.

****

SECTION III - HEALTH INFORMATION

****

The petroleum hydrocarbons in this product are a mixture of paraffinic, napthenic and aromatic hydrocarbons. The aromatics contain polycyclic compounds of various concentrations. Some of these compounds may be those which have been shown to induce cancer in animals under laboratory conditions. In humans, extreme cases of poor personal hygiene and prolonged and repeated contact with some gas oils may eventually cause cancer. Inhalation of mists from gas oils containing certain polycyclic aromatics may also present a cancer hazard.

Exposure to vapors or mist from gas oils may irritate eyes, nose and throat, and at high concentrations cause headache, nausea, dizziness and pulmonary irritation. Prolonged or repeated skin contact may cause skin irritation, dermatitis or other skin disorders. Aspiration of liquid into lungs may cause pneumonitis, the effects of which may be delayed.

****

SECTION IV - PHYSICAL DATA

****

BOILING RANGE: (deg F/C)	Between 345/170 and 790/420 (approx.)
VAPOR PRESSURE AT 68 deg F/20 deg C: (mmHg)	Negligible to 1
DENSITY AT 68 deg F/20 deg C: (kg/liter)	0.826 - 0.866
CLOUD POINT: (deg F/C)	Not above 43/6
VAPOR DENSITY: (Air = 1)	Heavier
EVAPORATION RATE: (Water = 1)	Slower
PERCENT VOLATILE AT 100 deg F/38 deg C:	Negligible
SOLUBILITY IN WATER:	Negligible
APPEARANCE AND ODOR:	Clear, yellow colored liquid. Characteristic petroleum odor.

****

SECTION V - FIRE AND EXPLOSION HAZARD DATA

****

FLASH POINT: (PMCC method) (deg F/C)	Above 140/60
AUTO IGNITION TEMPERATURE: (deg F/C)	Above 445/230
FLAMMABLE LIMITS:	Lower: Not determined Upper: Not determined
ELECTRICAL CONDUCTIVITY: (pS/m - ASTM D2624)	5 - 10

FIRE AND EXPLOSION HAZARDS: Combustible liquid. If heated above flash point, this material will release flammable vapors which, if exposed to source of ignition, can burn or be explosive in confined spaces. Mists or spray may be flammable at temperatures below flash point. Keep away from heat or open flame.

EXTINGUISHING MEDIA: Dry chemical, foam, Halon and CO_2. Water fog may be effective. Do not use direct hose stream of water.

SPECIAL FIRE FIGHTING PRECAUTIONS: Do not enter enclosed or confined spaces without proper breathing equipment. This may include NIOSH approved self contained breathing apparatus. Cool tanks and containers exposed to fire with water. Improper use of water or extinguishers may cause frothing and spread fire over larger area. Avoid containers exposed to extreme heat or direct flame because of potential of product to vaporize and develop build-up of internal pressures.

****

SECTION VI - HEALTH HAZARD DATA

****

HAZARD DESCRIPTION: Combustible liquid. No acute effects from limited incidental contact. Ingestion may be accompanied by aspiration into lungs which can cause severe pneumonitis.

EXPOSURE LIMITS: Not Determined

EMERGENCY FIRST AID

Eyes: Flush with copious water for 15 minutes holding eyelids apart and away from eyeball. Seek medical advise if pain or redness develops and persists.

Skin: Wash skin with mild soap and water as soon as practicable after contact. Remove heavily contaminated clothing and wash any contaminated underlying skin. Launder clothing before re-use.

Inhalation: If inhalation of mists or vapors causes irritation of nose or throat, or coughing, remove patient to fresh air. Seek medical advice if symptoms persist, or if difficulty in breathing occurs.

Swallowing: Do not induce vomiting because of risk of aspiration. After spontaneous vomiting, monitor patient for difficult breathing. **EFFECT OF LIQUID IN LUNGS MAY BE DELAYED ONE OR TWO DAYS. IF SYMPTOMS PERSIST OR EXPOSURE IS SEVERE, SEEK PROMPT MEDICAL HELP.**

NOTE TO PHYSICIAN: Petroleum aspiration may cause severe pneumonitis ("oil pneumonia"). Vomiting should not be induced, and gastric lavage should be undertaken with consideration of endotracheal intubation, especially in an unconscious patient.

SECTION VII - REACTIVITY DATA

STABILITY:	Stable under normal conditions. Not chemically reactive.
CONDITIONS TO AVOID:	Extreme heat and open flame.
MATERIALS TO AVOID:	Strong oxidizers, alkalis or acids.
HAZARDOUS DECOMPOSITION OF PRODUCT:	Burning or excessive heating may produce CO, H_2S or other harmful gasses or vapors including oxides of S, N, metals and other elements.
HAZARDOUS POLYMERIZATION:	Will not occur.

SECTION VIII - ENVIRONMENTAL HAZARDS

This product is an "oil" under the Clean Water Act. Keep out of surface waters or any water courses or sewers leading to surface waters. Keep from entering ground waters.

SECTION IX - SPILL, LEAK OR DISPOSAL PROCEDURES

Stop flow of product. Contain spill. Remove all sources of ignition. Evacuate all non-essential personnel. Clean up as soon as possible using proper protective equipment, booms, sorbents and containers. Notify local, state or federal agencies if required by law and comply with all applicable laws. Notify National Response Center if spill enters or threatens to enter surface waters - (800) 424-8802.

Maximize product recovery for reuse or recycling. Conditions of use may cause material to become state or federal "Hazardous Waste" as defined by applicable laws. Use only approved transporters, treatment and disposal sites.

****

SECTION X - SPECIAL PROTECTIVE EQUIPMENT

****

CLOTHING: Wear long sleeved clothing, gloves and other garments to limit skin contact. If splashing cannot be avoided, wear face and eye protection. Consider use of barrier creams if appropriate.

RESPIRATORY: Use only NIOSH approved respirator for organic mists to prevent overexposure in conditions where oil mist or vapors exceed occupational exposure limits. Use self contained breathing apparatus in emergencies where intense vapors, fumes, smoke, etc. is present.

****

Date of Preparation: November 18, 1985

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STRAIGHT BILL OF LADING – SHORT FORM – Original – Not Negotiable

Shipper's No. _____

(Carrier) FOSS ENVIRONMENTAL SCAC: _____ Carrier's No. P9 328

Received, subject to the classifications and tariffs in effect on the date of this Bill of Lading:

at Pamoco St Helens Rd, date 8 19 99 from _____

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, or to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, as recorded in Appendix B to Part 1035) which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)

TO: Consignee Fuel Processors
Street
Destination Zip

FROM: Shipper
Street
Origin Zip

Route:

Delivering Carrier FES Trailer Initial/Number 204 U.S. DOT Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
1 II		Spent fuel (Bunker, Diesel)				2200	GL		
		, water				2571			
		Sebastian Gorman							
		589 GL w/fuel							

Remit C.O.D. to:
Address:
City: State: Zip:

COD AMT: $

Charges Advanced $

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement. The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

C. O. D. FEE: Prepaid ☐ Collect ☐ $

FREIGHT CHARGES ☐ Prepaid ☐ Collect

The shipments moved between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight". If – where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. Agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

It is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per _____

PLACARDS REQUIRED

PLACARDS SUPPLIED ☐ YES ☐ NO - FURNISHED BY CARRIER

DRIVER'S SIGNATURE:

SHIPPER: _____ CARRIER: FES

PER: _____ DATE: _____ PER: [signature] DATE: 8 19 99

EMERGENCY RESPONSE TELEPHONE NUMBER: ( )

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (6172.604)

29-BLS-A3 (Rev. 7/95)

** RECEIVING RECORD ** No. 992205

RECEIVED BY: Oil Re-Refining Company EPA# WAD989986012 PLANT:PORTLAND
5420 N. Suttle Road Phone (503) 286-8352 EMPLOYEE:JG
Portland, OR 97217 Fax (503) 286-5027 PAGE: 1

RECEIVED FROM: Foss Environmental Customer ID# 3716
5420 N. Lagoon Ave Phone:
DATE: 09/20/99 Portland,OR 97217 Driver: BOB

QTY.	UNIT	ITEM	MNF	%H20	%SOLID	B/L#
2571.	GAL.	Emulsified Oil & Water	N	80.%	0.%	0
	GEN:	PACIFIC NORTHERN OIL				
		CDT 0PPM PH-6				

TOTAL GAL 2571.

Customer warrents that the waste petroleum products being received do not contain any contaminants including, without limitation, pesticides, chlorinated solvents at total concentrations greater than 1000 PPM, PCB's geater than 2 PPM, or any other material classified as hazardous waste by 40 CFR part 261, Subparts C and D (implementing the Federal Resource Conservation and Recovery Act) or by any State or local hazardous waste classification program. Should laboratory tests find this waste product not in compliance with 40 CFR part 261 customer agrees to pay for all disposal costs incurred.

Signed X Bob Hansen DATE: 08/20/99

[illegible] ENVIRONMENTAL
"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PNOCO

LOCATION:

PROJECT NUMBER: P9328 DATE: 8-19-99 PG ___ OF ___

TIME	DESCRIPTION OF ACTIVITIES
1145	Called by Mike at PNOCO for land spill.
	Load gear.
1221	Depart shop
1240	On site. Meet very briefly with Mike. Safe
1254	Send crew for vacuum max, steel drums & floor dry.
1353	USCG on site. Shipperly, Vermillion, Foster
1415	Crew back on site. Tailgate Safety
1445	Kevin on site. continue cleanup
1831	Crew off duty
2100	Bob Asmussen off duty complete pumping of slop tank

VISITORS ON SITE:

ADDITIONAL COMMENTS
9.5 mi one way
527-0576 Kevin

WEATHER CONDITIONS:

SIGNED:

"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PANOCO

LOCATION: 7900 N.W. St Helens Rd

PROJECT NUMBER: P9328 DATE: 8-25-99 PG ____ OF ____

TIME	DESCRIPTION OF ACTIVITIES
0700	At shop. Load gear
0720	Depart shop
0740	On site. Spencer on site
0745	Tailgate
0800	Spencer departs.
0815	McDowell on site
0825	Safety with McDowell - sign Tailgate
0920	John McNulty on site
(0845)	Back hoe on site again - start dig
1000	Hyd. line on Hse bidan
1030-1045	Break
1055	Bob departs with van truck 2571 total (246 drum + 2325 tank)
1145	Back hoe repaired
1150	2 more Spencer Boxes ordered.
1202	George M. wants every trace cleaned up.
1300-1330	Lunch
1400	McDowell departs. Set for Monday at 1340
1440	John McNulty departs
1550	Bob departs with 1023 + drums
1600-1615	Crew break
1820	Secure - depart
1840	At shop
1900	Crew off

VISITORS ON SITE: Gary, Shore

WEATHER CONDITIONS: Clear & warm

ADDITIONAL COMMENTS
Spencer 788-4612
589 Oil with water - 1982 Water
20,940 lbs

SIGNED:

FOSS ENVIRONMENTAL

"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PANOCO

LOCATION: 7900 N.W. St Helens, Rd.

PROJECT NUMBER: 19378 DATE: 8-23-99 PG ____ OF ____

TIME	DESCRIPTION OF ACTIVITIES
0700	Shop
0720	Report
0745	on site
0800	Safety meeting
0940	Broken hose / (welding) crew break.
1071	Ha on site
1215-1245	Lunch
1430	John M. departs
1500	Bob H. off duty.
1630	Secure at site.

VISITORS ON SITE:

ADDITIONAL COMMENTS

WEATHER CONDITIONS:

SIGNED:

08/13/99 MON 13:04 FAX 503 289 6568 FOSS ENVIRONMENTAL

Koppers020154

Always Ready

DAILY FIELD ACTIVITY LOG

PROJECT NAME: Panoco Spill

LOCATION: 7900 N.W. St. Helens Rd

PROJECT NUMBER: P9328 DATE: 8/23/99 PG 1 OF 1

TIME	DESCRIPTION OF ACTIVITIES
0745	Receive marching orders from T Archer - at site
0815	Tailgate Safety - Excavation Begins
0900	Leo (from McDowell) went to Get Dump truck to speed up work
0925	Truck arrives, work Begins again
0925	John From AEST arrives
1030	Leo in Route to fuel Tank
1100	Back at site excavating
11:30	Leo & Vidal from McDowell Break for lunch
12:00	Lunch Break
12:30	Back at it.
14:00	found Bus pocket under footing of containment wall.
1630	Leo & McDowell crew leave
1700	Hole Caution taped - Pile covered, Trench lines with Plastic & Sorbs
	Heading to job to unload Rig
1800	at Shop - Truck Clean & Parked, Paper work finished.

VISITORS ON SITE:
John McNulty From AESI

WEATHER CONDITIONS:
Hot, Sunny

ADDITIONAL COMMENTS
Oil 00249 out From under containment wall footing

SIGNED: [signature]

"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PONOCA

LOCATION: 7900 NW St Helens Rd

PROJECT NUMBER: PG328 DATE: 8-25-94 PG ____ OF ____

TIME	DESCRIPTION OF ACTIVITIES
0700	Load out supplies at shop
0720	Leave for Job site
0745	on site look at trench - some standing oil & soak pads
800	John on site Tailgate safety meeting
	Waiting for Excavating crew to arrive
0900	Leo & Nidal on site Sign safety meeting sheet
000	Trenched south to end of Oil -
030	Checked North Packer - Clean -
1130	Backhoe work done - Crew left
	Cleaning up job site
1200	Lunch Break
1230	Finishing job site Cleanup
1330	Leave job site
1400	At shop putting supplies away and Finishing up Paper work

ITORS ON SITE:

ADDITIONAL COMMENTS

ATHER CONDITIONS:

SIGNED:

Koppers020156

FOSS ENVIRONMENTAL
"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PNOCO

LOCATION:

PROJECT NUMBER: P9328 DATE: 8-19-99 PG ____ OF ____

TIME	DESCRIPTION OF ACTIVITIES
1145	Called by Mike at PNOCO for land spill: hand gear.
1221	Depart shop
1240	On site. Meet very briefly with Mike Sater
1254	Send crew for vacuum max, steel drums & floor dry.
1353	USCG on site Shipperly, Vermullen, Foster
1415	Crew back on site. Tailgate Safety
1445	Kevin on site. continue cleanup
1831	Crew off duty
2100	Bob Asmussen off duty complete pumping of slop tank

VISITORS ON SITE:

ADDITIONAL COMMENTS
9.5 mi one way
527-0576 Kevin

WEATHER CONDITIONS:

SIGNED:

"Always Ready"

DAILY FIELD ACTIVITY LOG

PROJECT NAME: PANOCO

LOCATION: 7900 N.W. St Helens Rd

PROJECT NUMBER: P9328 DATE: 8-25-99 PG ____ OF ____

TIME	DESCRIPTION OF ACTIVITIES
0700	At shop. Load gear
0720	Depart shop
0740	On site. Spencer on site
0745	Tailgate
0800	Spencer departs.
0815	McDowell on site
0825	Safety with McDowell - sign Tailgate
0920	John McNulty on site
(0845)	Back hoe on site again - start dig.
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1550	Bob departs with 1023 + drums
1600-1615	Crew break.
1820	Secure - depart
1840	At shop
1900	Crew off

VISITORS ON SITE: Gary, Shane

WEATHER CONDITIONS: Clear & warm

ADDITIONAL COMMENTS
Spencer 788-4612
589 Oil with water - 1982 Water
20,940 lbs

SIGNED:

SOUND ANALYTICAL SERVICES, INC.

Client Name	North Creek Analytical
Project Name	P908475
Date Received	08-27-99

General Chemistry Parameters

Client Sample ID			P908475 07		
Lab ID			03711-01		
Parameter	Method	Date Analyzed	Units	Result	PQL
Total Halogens (TX)	EPA 9076	09-10-99	mg/kg	ND	9.6

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
PNO-SS-1	P908475-01	Soil	8/24/99
PNO-SS-2	P908475-02	Soil	8/24/99
PNO-SS-3	P908475-03	Soil	8/24/99
PNO-SS-4	P908475-04	Soil	8/24/99
PNO-SS-5	P908475-05	Soil	8/24/99
PNO-SS-6	P908475-06	Soil	8/24/99
Stock-1	P908475-07	Soil	8/25/99
PNO-SS-7	P908475-08	Soil	8/25/99
PNO-SS-8	P908475-09	Soil	8/25/99
PNO-SS-9	P908475-10	Soil	8/25/99
PNO-SS-10	P908475-11	Soil	8/25/99
PNO-SS-11	P908475-12	Soil	8/25/99
PNO-SS-12	P908475-13	Soil	8/25/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Howard Holmes, Project Manager

Koppers020160

Portland, Oregon
Soil Recycling Facility

OREGON HYDROCARBON INC.

(a TPS Technologies Inc. company)

SOIL DATA AND CERTIFICATION SHEET

Date: 9-22-99

Generator and/or Client:
Pacific Northern Oil Co.
7900 N.W. St. Helens Rd.
Portland, OR 97210
286-5321

Consultant/Engineering Firm:
Foss Environmental Services Co
5420 N Lagoon Ave.
Portland, OR 97217
283-1150

Testing Laboratory (include contact person and phone #):
NCA, Portland
Howard Holmes
906-9231

Sampling procedures and location (attach add'l sheets and map)
Grab Sample from Stock pile. Sample ID Stock 1

Site History (list address, describe contamination type, contamination source, how contamination was stored, past activities at site - Attach additional sheet if necessary) 7900 N.W. St Helens Rd.
Fuel Oil spill from dock recovery system that spilled to ground. Soil is stored in drop boxes and on visqueen with visqueen cover.
Past activities - marine oil terminal.

Estimated Qty (Tons): 100

State Classification:

Please check appropriate box below and attach all required analytical reports, including test methodologies used. Unless otherwise noted, composite samples should be collected with the following frequency: One (1) sample for 250 tons or less; two (2) samples for 500 tons or less and one (1) additional sample for each 500 additional tons.

☐ I/We certify that the soil referenced herein is contaminated solely by virgin petroleum products from leaking underground storage tank(s).

Attach analysis for the following:
1. Total Petroleum Hydrocarbons ID test (Method TPH-HCID)
2. If Method TPH-HCID shows gasoline is present, perform a Total Petroleum Hydrocarbons test for gasoline (Method TPH-G or EPA Method 8020)
3. If Method TPH-HCID shows that diesel, heating oil, and/or Bunker C are present, perform a Total Petroleum Hydrocarbons test for fuel oils (EPA Method 418.1 Modified)
4. If Method TPH-HCID shows that both gasoline and diesel or heating oils are present, then both types of TPH tests must be performed.

☒ I/We certify that some or all of the contaminants in the soil referenced herein is waste oil, or some other non-virgin petroleum product or virgin petroleum from something other than a leaking underground storage tank.

Attach analysis for the following:
1. Total Petroleum Hydrocarbons ID test (Method TPH-HCID)
2. If Method TPH-HCID shows gasoline is present, perform a Total Petroleum Hydrocarbons test for gasoline (Method TPH-G or EPA Method 8020)**
3. If Method TPH-HCID shows that diesel, heating oil, and/or Bunker C are present, perform a Total Petroleum Hydrocarbons test for fuel oils (EPA Method 418.1 Modified)
4. If Method TPH-HCID shows that both gasoline and diesel or heating oils are present, then both types of TPH tests must be performed.
5. Halogenated Volatile Organic compounds (EPA Method 8240)
6. PCB's and Halogenated Pesticides (EPA Method 8080)
7. TCLP (EPA Method 1311) metals concentration for a) through h):
   a) arsenic c) cadmium e) lead g) selenium
   b) barium d) chromium f) mercury h) silver

** If elevated benzene levels are detected, an additional TCLP benzene test may be required in an above-ground spill or leak situation.

No soils referenced herein may be delivered until the foregoing certificate is received and approved by OHI, and OHI issues manifests and assigns a delivery date. If any soils delivered to OHI are found to be "hazardous waste" pursuant to federal or state regulations, Client shall be solely responsible for their removal. If Client fails to so remove such soils, OHI, acting as Client's agent, may arrange for such removal at Client's expense.

"This is a complete and accurate description of the soil referenced herein; no deliberate or willful omissions have been made and all known or suspected hazards have been disclosed herein. I/We further hereby certify that the soil is not "hazardous" as defined by U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA), State or local regulations. All required analysis reports are attached."

Generator's Authorized Signatory: _____ Date: 9-22-99

Print Name: M.L. SAARE Title: Supervisor

Engineer/Environmental Firm Authorized Signatory: _____ Date: 9-22-99

Print Name: Timothy J. Aichele Title: Project Manager

JUN 20 '97 09:30AM TPS TECH/OREGON P.22

Koppers020161

Customer Job Report

Gross & Tare Weight Codes: M=Manual; S=Scale; T=Trk File

Job Number Name	SiteAddress	SiteCity	State	ZipCode
A09 -- 04211 PACIFIC NORTHERN OIL C	7900 NW ST HELENS ROAD	PORTLAND	OR	97210

Load #	Date & Time Out	Transporter #	Truck & Trailer Number	Gross (lb)	Tare (lb)	Net (lb)	Net Wt (tons)
1	09/28/99 09:12			62,960M	32,300M	30,660	15.33
2	09/28/99 10:57			60,940M	32,280M	28,660	14.33
3	09/29/99 10:57			46,580M	30,220M	16,360	8.18
4	09/29/99 12:15			50,080M	30,180M	19,900	9.95
5	09/29/99 13:32			51,160M	30,160M	21,000	10.50
0	10/06/99 07:56			0	0	0	0.00

Completed Loads	Manifests Received	Completed Weight	Estimated Weight	TOTAL Net Wt:
62.50%	5	58.30%	100.00 (tons)	58.29 (tons)

Koppers020162

Manifest

TPS Technologies Soil Recyclin

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Spencer	A09	04211	001

Generator and/or Consultant

Generator's Name and Billing Address: PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-5321 Person to Contact: MIKE SAIRE FAX #:	Generator's US EPA ID No. 2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address: FOSS ENVIRONMENTAL SERVICES 6420 N LAGOON AVENUE PORTLAND, OR 97217 USA	Consultant's Phone #: (503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	 Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)* PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			67960	37300	30660
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.33	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Keith Johnston		09	28	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	9/28/99

Please print or type

TPS INVOICING COPY

Koppers020163

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Spencer	A09	04211	002

Generator and/or Consultant

Generator's Name and Billing Address: PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-5321 Person to Contact: MIKE SATRE FAX #:	Generator's US EPA ID No. 2480N/F Customer Account Number with TPS: SPANOCO
Consultant's Name and Billing Address: FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	Consultant's Phone #: (503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	 Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)* PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			60940	32280	28660
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				14330	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Keith Johnston | Signature and date: Keith Johnston | Month: 09 | Day: 28 | Year: 99

Discrepancies:

Recycling Facility

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: Glenna Mullan 9/25/99

Please print or type

TPS INVOICING COPY

Koppers020164

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
/ /	Consultant	Spencer	AOS	04211	003

Generator and/or Consultant

Generator's Name and Billing Address: PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-5321 Person to Contact: MIKE SAFRE FAX #:	Generator's US EPA ID No. 2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address: FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	Consultant's Phone #: (503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	 Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)* PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			46580	30220	16360
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				58.18	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Thomas F. Cassell	X Thomas F. Cassell	09	29	99

Discrepancies:

Recycling Facility

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	9/29/99

Please print or type

TPS INVOICING COPY

Koppers020165

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Spencer	A09	04211	004

Generator and/or Consultant

Generator's Name and Billing Address: PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-5321 Person to Contact: MIKE SATRE FAX #:	Generator's US EPA ID No. 2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address: FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	Consultant's Phone #: (503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	 Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)* PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			50080	30080	19900
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				995	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Thomas F. Cassell	X Thomas F Cassell	09	29	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 9/29/99

Please print or type

TPS INVOICING COPY

Koppers020166

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Spencer	A09	04213	005

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-5321 Person to Contact: MIKE SATRE FAX #:	2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	(503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			51160	30160	21000
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				10.50	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Thomas F. Cassell	X Thomas F Cassell	09	29	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 9/29/99

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

TPS INVOICING COPY

Koppers020167

Customer Job Report

Gross & Tare Weight Codes: M=Manual; S=Scale; T=Trk File

Job Number Name	SiteAddress	SiteCity	State	ZipCode
A09 – 04211 PACIFIC NORTHERN OIL C	7900 NW ST HELENS ROAD	PORTLAND	OR	97210

Load #	Date & Time Out	Transporter #	Truck & Trailer Number	Gross (lb)	Tare (lb)	Net (lb)	Net Wt (tons)
6	10/07/99 09:32			49,080M	22,560M	26,520	13.26
7	10/07/99 11:13			53,300M	22,540M	30,760	15.38
8	10/07/99 12:11			53,440M	22,500M	30,940	15.47
9	10/07/99 14:38			38,200M	22,660M	15,540	7.77

Completed Loads	Manifests Received	Completed Weight	Estimated Weight	TOTAL Net Wt:
75.00%	9	110.20%	100.00 (tons)	51.88 (tons)

Koppers020168

Manifest

TPS Technologies Soil Recyclir

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Foss	A09	0421	006

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-5321 Person to Contact: MIKE SATRE FAX #:	2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	(503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐			49080	22560	26520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐				13.26	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Bonny Walls	X Bonny Walls	10	7	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 10/7/99

Please print or type

Koppers020169

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Foss Env	A09	04211	007

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-5321	2480N/F
	Person to Contact: MIKE SATRE	
	FAX #:	Customer Account Number with TPS: 9PANOCO

Consultant's Name and Billing Address:	Consultant's Phone #:	
FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	(503) 283-1150	
	Person to Contact: TIM ARCHER	
	FAX #: (503) 289-6568	Customer Account Number with TPS: 1000459

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			53300	22540	30760
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.38	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
Benny Walls		Benny Walls	10	7	99

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Benny Walls	Benny Walls	10	7	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 10/7/99

Please Print or Type

TPS INVOICING COPY

Koppers020170

Manifest

PS Technologies Soil Recycli

Non-Hazardous Soils

Manifest #:

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Foss	A09	04211	008

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-5321 Person to Contact: MIKE SATRE FAX #:	2480N/F Customer Account Number with TPS: 9PANOCO

Consultant's Name and Billing Address:	Consultant's Phone #:	
FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	(503) 283-1150 Person to Contact: TIM ARCHER FAX #: (503) 289-6568	 Customer Account Number with TPS: 1000459

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐			53440	27500	25940
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐				1547	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
Shane M. Teeter for Bonco		10	7	99

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Benny Walls	Benny Walls	10	7	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 10/7/99

Please print or type

Koppers020171

TPS Technologies Soil Recycling

Non-Hazardous Soils

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Consultant	Foss	A09	04211	003

Generator and/or Consultant

Generator's Name and Billing Address: PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-5321 Person to Contact: MIKE SAIRE FAX#:	Generator's US EPA ID No.: 2480N/F Customer Account Number with TPS: 9PANOCO
Consultant's Name and Billing Address: FOSS ENVIRONMENTAL SERVICES 5420 N LAGOON AVENUE PORTLAND, OR 97217 USA	Consultant's Phone #: (503) 283-1150 Person to Contact: TIM ARCHER FAX#: (503) 289-6568	Customer Account Number with TPS: 1000459
Generation Site (Transport from): *(name & address)* PACIFIC NORTHERN OIL COMPANY 7900 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX#:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX#: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX#:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			38200	22660	15540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				7.77	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Shane Foster — Generator ☐ Consultant ☐ — Signature and date: [signature] — Month 10 Day 7 Year 99

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Benny Walls — Signature and date: Benny Walls — Month 10 Day 7 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN — Signature and date: [signature] 10/7/99

TPS INVOICING COPY

Koppers020172

ASSOCIATED EARTH SCIENCES, INC

BAINBRIDGE ISLAND OFFICE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
FAX (206) 780-9438

CORPORATE OFFICE
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
(425) 827-7701
FAX (425) 827-5424

November 23, 1999

Pacific Northern
100 West Harrison - Ste 420, North Tower
Seattle, WA 98119

Attention: George Markwood

INVOICE NO. B1007-BV99125A
PROJECT NO. BV99125A
Portland OR Terminal
PANOCO/WVG

PROFESSIONAL SERVICES: Progress invoice for services recorded September 18 - November 19, 1999

Oil Spill Response, Portland, Oregon terminal

Senior Project Hydrogeologist	9.5 hrs @ $90/hr	$ 855.00
Senior Staff Scientist	15.5 hrs @ $65/hr	1,007.50
AutoCAD drafting and workstation	4.0 hrs @ $65/hr	260.00
Word Processing/Clerical	2.0 hrs @ $35/hr	70.00
Expenses		
Vehicle expenses		159.96
North Creek Analytical (analytical testing)		1,725.00
Friedman & Bruya (analytical testing)		207.00
	TOTAL	$4,284.46

11-29-99 Final Invoice

TOTAL DUE THIS BILLING $4,284.46

PLEASE REMIT DUPLICATE COPY!!!

Attn: Black Fax 282-6574 pg 1 of 2
(See Email)

PACIFIC NORTHERN INC.
100 West Harrison • Suite 420 North Tower • Seattle, WA 98119
Telephone 206 / 282-4421 • FAX 206 / 282-6574

November 11, 1999

Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, OR 97210

Dear Amos:

Enclosed is an invoice for the 1st phase of clean up for the spill at Pacific Northern Oil's facility in Portland on August 19, 1999. Please reference my letter to you dated October 5, 1999.

There will be another invoice for the balance that we will be sending to you at the end of the month.

If you have any questions or require additional information please call Brad Perry in our Seattle office. He can be reached at 206-282-4421.

Thank you for your cooperation and assistance with the processing and payment.

Very truly yours,

George Markwood

George Markwood
Vice President

INVOICE NUMBER: 107996

P[redacted] CORP.
100 West Harrison - Suite 420 North Tower
Seattle, WA 98119 206 / 282-4421
TLX 32-1034 TWX 910-444-4048 FAX 206-282-6574

LIFT DATE : 11/10/99
P/O NUMBER :

IN ACCOUNT WITH:
KOPPERS CO.
7540 NW ST HELENS RD
PORTLAND, OR 97210-3663

FOB : SELLER'S TERM. PUGET SOUND
SHIPPED VIA:
TERMS : UPON RECEIPT OF INVOICE
DUE DATE : 11/10/99

SHIPPED TO:

Late payment penalty 1.5% per mont

LIFT DATE	DESCRIPTION	PRICE	AMOUNT
	OIL SPILL CLEAN UP - PORTLAND, OR		30,895.9
	TOTAL AMOUNT INVOICED (USD)		30,895.9

100 West Harrison - Suite 420 North Tower
Seattle, WA 98119

This amount is determined as owing above shall be conclusive unless purchaser and/or its agent dispute said amounts within twenty days of receipt hereof.

50+21515

ASSOCIATED EARTH SCIENCES, INC

BAINBRIDGE ISLAND OFFICE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
FAX (206) 780-9438

CORPORATE OFFICE
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
(425) 827-7701
FAX (425) 827-5424

September 27, 1999

Pacific Northern
100 West Harrison - Ste 420, North Tower
Seattle, WA 98119

Attention: George Markwood

INVOICE NO. B923-BV99125A
PROJECT NO. BV99125A
Portland OR Terminal
PANOCO/WVG

PROFESSIONAL SERVICES: Progress invoice for services recorded through September 17, 1999

Oil Spill Response, Portland, Oregon terminal

Senior Staff Scientist	52.5 hrs @ $65/hr	$3,412.50
Word Processing/Clerical	1.0 hrs @ $35/hr	35.00
Expenses		
Mileage	1108 miles @ $0.40	443.20
Meals		30.06
Lodging		88.00
Film developing		6.16
Friedman & Bruya (analytical testing)		1,305.25
	TOTAL	$5,320.17

50x1100x2000
$50.00

RECEIVED
SEP 29 1999
BY:

TOTAL DUE THIS BILLING $5,320.17

PLEASE REMIT DUPLICATE COPY!!!

INVOICE

FOSS ENVIRONMENTAL SERVICES

5420 N Lagoon
Portland OR 97217

REMIT TO: DEPT. 5251, PO BOX 34936
SEATTLE, WA 98124-1936

Invoice #: I-P9328-01
Invoice Date: September 16, 1999
FES Job #: P9328
Customer PO#:

Customer: Pacific Northern Oil Company
7900 NW St. Helens Rd.
Portland, OR 97210

Contact: Mike Sabo
Phone: 286-6321
Fax:
Terms: Net 30 Days

Job Description: Respond to oil spill in tank farm.

Job Location: 7900 NW St. Helens Rd. Portland, OR
Job Date (s): 8/19-8/25/99

50x1100x2000

Progress Billing: X
Final Billing:

QUANTITY	DESCRIPTION	UOM	UNIT PRICE	EXTENDED PRICE
1	LABOR	EA	$8,185.00	$8,185.00
1	EQUIPMENT	EA	$1,788.30	$1,788.30
1	MATERIALS	EA	$1,155.60	$1,155.60
1	OTHER	EA	$2,254.98	$2,254.98

INVOICE SUBTOTAL	$13,383.88
TAX	$0.00
INVOICE TOTAL	$13,383.88

Currency: USD

THANK YOU FOR YOUR BUSINESS

Tim Archer
503-283-1158
Direct Phone

FED ID #: 91-1572522
A 1.5% PER MONTH FINANCE CHARGE WILL BE ASSESED FOR ALL PAST DUE INVOICES.

CC: ACCOUNTING

Revenue Revenue

FOSS ENVIRONMENTAL INC.		CUSTOMER NAME:	Pacific Northern Oil	PHONE:	286-5321	PROGRES:	
JOB NUMBER:	P9329	ADDRESS:	7900 NW St. Helens	CONTACT:	Mike Satre	FINAL	
INVOICE NUMBER:	P9329-01	DATE:	9/19/99	Portland, OR 97210	PO:		
JOB DESCRIPTION:	Respond to oil spill in tank farm						
JOB LOCATION:	7900 NW St Helens Rd, Portland, OR						

LABOR CHARGES		DATE	DATE	DATE	DATE	DATE	DATE	DATE		
LABOR GRADE	RATE	8/19/99	8/20/99	8/22/99	8/24/99	8/25/99			TOTAL	CHARGE
Proj. Manager- T Archer ST	$100.00	3.00	8.00	8.00		4.50			23.5	$2,350.00
Proj. Manager- T Archer OT	$100.00	2.00	4.00	2.00					8.0	$800.00
Supervisor- K Benedict ST	$55.00	0.50							0.5	$27.50
Supervisor- K Benedict OT	$67.00	1.50							3.5	$234.50
Technician- B Asmussen ST	$42.00	3.00	8.00						11.0	$462.00
Technician- B Asmussen OT	$54.00	6.00	2.00						8.0	$432.00
Technician- D Armbruster ST	$42.00	3.00	8.00						11.0	$462.00
Technician- D Armbruster OT	$54.00	1.50	4.00						7.5	$405.00
Technician- B Jolma ST	$42.00		8.00	8.00	8.00				24.0	$1,008.00
Technician- B Jolma OT	$54.00		4.00	2.00	3.00				9.0	$486.00
Technician- B Hyke ST	$42.00			8.00		7.50			15.5	$651.00
Technician- B Hyke OT	$54.00								0.0	$0.00
Technician- R Quiray ST	$42.00	3.00	8.00						11.0	$462.00
Technician- R Quiray OT	$54.00	3.50	4.00						7.5	$405.00
										$8,186.00

EQUIPMENT CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		08/19/99	8/20/99	8/22/99	8/24/99	8/25/99			TOTAL	CHARGE
Pick up - #1071	$100.00	1.00	1.00	1.00		1.00			4.0	$400.00
Mileage	$0.00	19.00	19.00	19.00		19.00			76.0	$0.00
Pick up - #1070	$100.00	1.00							1.0	$100.00
Mileage	$0.00	19.00							19.0	$0.00
Gear Truck 1 Ton- #1021	$125.00	1.00	1.00	1.00	1.00	1.00			5.0	$625.00
Mileage	$0.00	38.00	19.00	19.00	19.00	19.00			114.0	$0.00
Gear Truck 1 Ton- #1023	$125.00		1.00						1.0	$125.00
Mileage	$0.00		19.00						19.0	$0.00
70 bbl Vacuum Truck/OIR	$38.00	2.50	4.00						6.5	$247.00
Mileage	$0.00	29.00	29.00						58.0	$0.00
Air Compressor	$100.00	1.00							1.0	$100.00
Vac-u-max	$80.00	1.00							1.0	$80.00
Drum Dolly	$0.00	1.00	1.00						2.0	$0.00
Cellular Phone	$50.00	1.00	1.00	1.00	1.00	1.00			5.0	$250.00
Hand Tools	$5.00	5.00	3.00	3.00	1.00				12.0	$60.00
Discount	10%								-198.7	-$198.70
	RATE									$1,788.30

MATERIALS CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		8/19/99	8/20/99	8/22/99	8/24/99	8/25/99			TOTAL	CHARGE
Level D PPE	$35.00		4.00	3.00	1.00				8.0	$280.00
Rain Gear	$20.00	2.00							2.0	$40.00
Black Rubber Gloves	$6.00	4.00				2.00			8.0	$48.00
Cotton Gloves	$2.00					3.00			3.0	$6.00
Floor Dry	$7.50	40.00	10.00						50.0	$375.00
Sorbent Pads	$75.00	1.00		1.00	1.00				3.0	$225.00
55 Gallon Drums	$45.00	6.00							6.0	$270.00
Rags	$75.00		1.00						1.0	$75.00
Hand Cleaner	$10.00		1.00						1.0	$10.00
Simple Green	$15.00		1.00						1.0	$15.00
Visqueen	$78.00		1.00						1.0	$78.00
Drum Liners	$1.36		10.00						10.0	$13.60
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
										$1,155.60

MISC. CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		8/19/99	8/20/99	8/22/99	8/24/99	8/25/99			TOTAL	CHARGE
Spencer Environmental- Box Rental	18%		1911						1,911.00	$2,254.98
									0.00	$0.00
									0.00	$0.00
										$2,254.98
										$13,383.88

[redacted]

TPS
TECHNOLOGIES INC.

For Questions Call:
(407) 886-9570 x116 or 162
(800) 940-2666
Fax (407) 886-8300

REMIT TO: TPS TECHNOLOGIES, INC.
P.O. BOX 100103
PASADENA, CA 91189-0103

INVOICE NUMBER 005776

TPS JOB: 99-04211

RECEIVED
OCT 18 1999
Amd

SOLD TO: FOSS ENVIRONMENTAL
5420 N. Lagoon Avenue
PORTLAND OR 97217

REFERENCE: Pacific Northern Oil Company
7900 NW St Helens Road
Portland OR 97210

Customer PO: P13280-2

ACCOUNT NO	SALESPERSON	TERRITORY	TERMS	INVOICE DATE	
1900459	PK	109	Net 30 Days	10/06/99	

CODE	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Contact: Tim Archer		
REM	58.25	CONTAMINATED SOIL REMEDIATION	34.00	$1,981.86
AH	1.00	DEBRIS / EXTRA LABOR FLAT FEE	150.00	$150.00

A ThermoRetec Company

Thank You

TOTAL: $2,131.86

ORIGINAL

[redacted]

TPS
TECHNOLOGIES INC.

For Questions Call:
(407) 886-9570 x116 or 162
(800) 940-2666
Fax (407) 886-8300

REMIT TO: TPS TECHNOLOGIES, INC.
P.O. BOX 100193
PASADENA, CA 91189-0193

INVOICE NUMBER 005777

TPS JOB: 99-01211

RECEIVED
OCT 18 1999
Ans'd

SOLD TO: TOMS ENVIRONMENTAL
5420 N. Lagoon Avenue
PORTLAND OR 97217

REFERENCE: Pacific Northern Oil Company
7900 NW St Helens Road
Portland OR 97210

Customer PO# P932805

ACCOUNT NO.	SALESPERSON	FACILITY	TERMS	INVOICE DATE
1000459	PH	189	Net 30 Days	10/07/99

CODE	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Contact: Tim Archer		
REM	51.88	CONTAMINATED SOIL REMEDIATION	34.00	$1,763.92

A ThermoRetec Company

Thank You

TOTAL $1,763.92

ORIGINAL

12/02/99 THU 16:41 FAX 206 282 6574 PACIFIC NORTHERN OIL → PTI 013

ANGELL QUARRY
MORSE BROS.

PORTLAND OR 97283 449
(503) 286-4201

CCB #2101 STATEMENT
Please Retain this Portion and Remit to:

PO Box 7 Lebanon OR 97355-0007
(541) 451-5141

READY MIX CONCRETE
SAND & GRAVEL
CRUSHED ROCK
HIGHWAY CONSTRUCTION
PRESTRESS CONCRETE

FOSS ENVIRONMENTAL
JOHN H PETERSON
5420 N LAGOON AVE
PORTLAND OR 97217-7638

RECEIVED
OCT 29 1999
Ann'd

Date: 10/25/99
3032400

REFERENCE NUMBER	DATE	DESCRIPTION	AMOUNT
0746	10/07/99	INVOICE	274.90
0746	10/07/99	INVOICE	278.58

CURRENT	30 DAYS		
553.48	.00	[illegible]	553.48

PLEASE PAY THIS AMOUNT

TERMS: NET 15TH OF MONTH. A service charge of 1½% per month, or a minimum of $1.00, will be made on the unpaid balance at the end of the following month's billing cycle. This is an ANNUAL PERCENTAGE RATE OF 18%.
"NOTICE: See reverse side for important information regarding your rights to dispute billing errors.":

II 657 (12/98)

MORSE BROS.

IMPORTANT:
Please return this stub with your remittance to the address below.
PO BOX 7
LEBANON OR 97355-0007

FOR MONTH ENDED 10/25/99 ACCOUNT NO. 3032400-02-20
FOSS ENVIRONMENTAL

To insure proper credit to your account, if you are paying by invoice, please check (√) items paid.

REFERENCE NUMBER	√	DATE	AMOUNT
120746		10/07/99	274.90
120746		10/07/99	278.58

PLEASE PAY THIS AMOUNT 553.48

Pink—File/Requester
Canary—Accounting
White—Purchasing

201
tension
3.48
235

Koppers020181

SPENCER ENVIRONMENTAL
Protecting the Environment
6400 SE 101st Ave. • Portland, Oregon 97266
(503) 788-4612 Fax: (503) 788-4629

INVOICE #: 58226

DATE: Sep 30 99

BILL TO:
FOSS ENVIRONMENTAL
5420 N LAGOON AVE
PORTLAND, OR 97217

LOCATION:
FOSS ENVIRONMENTAL @
PNOCO
7900 NW ST. HELENS RD
PORTLAND OR 97210

CUST #	EMP INT	PO #	DATE OF JOB	JOB #	TERMS NET	DUE DATE	ORDER #
19040	ES		Sep 28 99		30 DAYS	Oct/30/99	67517

LOAD & TRANSPORT (5) 20YD DROP BOXES TO TPS SOIL FACILITY FOR DISPOSAL.
TIM ARCHER WILL MEET YOU ON SITE WITH MANIFESTS.
BOX #'S H-6, H-11, H-14, H-5, & 6469.

0001-00NT-0103-0SHR	TRK TRANSPORT #103 STANDA	9.00 OK	70.00	HR	630.00
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	40.00 OK	14.50	DA	580.00

LAST BOX RENTAL ITEM IS FOR 40 DAYS DUE TO NOT BILLING FOR BOX H-11 ON INVOICE NUMBER 49151

RECEIVED
OCT 8 1999
Ans'd

PLEASE REMIT PAYMENT TO:
6400 S.E. 101st AVENUE
PORTLAND, OR. 97266-5142

ORDERED BY: [redacted]
TIM ARCHER

0.00

2,892.00

PAY THIS AMOUNT →

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney fees.

INVOICE FACSIMILE

** COPY **

HERTZ Equipment Rental

R.A. No. 114689

PAGE

BRANCH: 724	BILL TO CUSTOMER: 1277360	SHIPPING ADDRESS
9724 HERTZ EQUIPMENT 4938 N.E. COLUMBIA BLVD. PORTLAND, OR 97218 503-287-5789	FOSS ENVIRONMENTAL SERVICES CO 5420 NORTH LAGOON PORTLAND, CA 99999	PORTLAND WILL CALL COLUMBIA BLVD PORTLAND, OR 97218 510-749-1390

DESCRIPTION/CHARGES

EST START: 10/07/99 8:00 EST RETURN: 10/07/99 5:30 DROP DATE:

SHIPPED BY: ORDERED BY: SHANE DROP TIME:

ORDER DATE: 10/07/99 SALESPERSON: 773 SALES COORDINATOR:

FOS / JOB#: T932806 / 1 - PORTLAND WILL CA

Rates include maintenance service

Qty	Equipment #	Min	Day	Week	4 Week	Amt
1	BOXDUMP/12-14YD/DSL 656140024 Make: IH Model: 2674-01 Ser #: 1HTGLAAT9YH252718	445.00	445.00	1335.00	4000.00	44

MI OUT: 4361.10 MI IN: 4415.00 TOTAL: 53.90 MIL CHG:

SALES ITEMS:

Qty	Item number	Unit	Price	
10	REFUEL 4041000001	EA	2.500	2

Sub-total: 44
Fuel: 2

Taxable Sub-total: 0.00

Total: 47

Direct All Inquiries To:
Hertz Equipment Rental
P.O. Box 26960
Oklahoma City, OK 73126-0390
Telephone: (800) 456-8452

Thank You For Renting From HERTZ Equipment Rental

Charges Are Subject To Final Audit

CUSTOMER IS RESPONSIBLE FOR FUEL, FLATS, AND DAM

Carefully read the terms and conditions on reverse side of this page

Actual Invoice Will Be S

Revenue

POSS ENVIRONMENTAL INC.			CUSTOMER NAME:		Pacific Northern Oil Co	PHONE:	268-6321	PROGRESS:		
JOB NUMBER:	P9328		ADDRESS:		7900 NW St. Helens	CONTACT:	Mike Bauer	FINAL:	X	
INVOICE NUMBER:	[illegible]	DATE:	11/4/99		Portland, OR	PO:				
JOB DESCRIPTION:	Disposal of contaminated soil									
JOB LOCATION:	Portland									
LABOR CHARGES		DATE	DATE	DATE	DATE	DATE	DATE	DATE		
LABOR GRADE	RATE	10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Project Manager T. Archer ST	$100.00	1.00							1.0	$100.00
Project Manager T. Archer OT	$100.00								0.0	$0.00
Supervisor S. Teeters ST	$55.00		4.00	8.00					12.0	$660.00
Supervisor S. Teeters OT	$67.00								0.0	$0.00
Technician R. Walls ST	$42.00	1	4.00	8.00					15.0	$630.00
Technician R. Walls OT	$54.00								0.0	$0.00
Technician R. Quiray ST	$48.00		4.00						4.0	$192.00
Technician R. Quiray OT	$56.00								0.0	$0.00
Technician B. Assmussen ST	$48.00		4.00						4.0	$192.00
Technician B. Assmussen OT	$56.00								0.0	$0.00
									0.0	$0.00
										$1,774.00
EQUIPMENT CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		10/05/99	10/6/99	10/7/99					TOTAL	CHARGE
One Ton Gear Truck	$100.00	1.00	1.00	1.00					3.0	$300.00
Cell Phone	$50.00		1.00	2.00					3.0	$150.00
Hand Tools	$5.00		2.00						2.0	$10.00
Discount	10%								-[illegible]	-[illegible]
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
										$415.55
MATERIALS CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Level D PPE	$35.00		3.00						3.0	$105.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
										$105.00
MISC. CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Dump Truck Rental	18%			$470.00					$84.60	$554.60
Drop Box Rental	18%	$2,892.00							$520.56	$3,412.56
Fill Material	18%			$553.48					$99.63	$653.11
Disposal	18%		$2,131.88	$1,763.92					701.24	$4,597.02
Backhoe Rental	18%	$257.00							$46.26	$303.26
Loader Landscaper 60hp	18%			$271.00					$48.78	$319.78
Plate Compactor Rental	18%	$50.00							$9.00	$59.00
										$9,898.33
										$12,191.88

INVOICE

FOSS ENVIRONMENTAL SERVICES
5420 N Lagoon
Portland OR 97217

REMIT TO: DEPT. 0251, PO BOX 34936
SEATTLE, WA 98124-1936

Invoice #: I-P9328-02
Invoice Date: November 4, 1999
FES Job #: P9328
Customer PO#:

Customer: Pacific Northern Oil Co
7900 NW St. Helens
Portland, OR

Contact: Mike Satre
Phone: 286-5321
Fax:
Terms: Net 30 Days

Job Description: Disposal of Contaminated Soil

Job Location: Portland
Job Date (s): 10/5-10/7/99

Progress Billing:
Final Billing: X

QUANTITY	DESCRIPTION	UOM	UNIT PRICE	EXTENDED PRICE
1	LABOR	EA	$1,774.00	$1,774.00
1	EQUIPMENT	EA	$413.55	$413.55
1	MATERIALS	EA	$105.00	$105.00
1	OTHER	EA	$9,899.33	$9,899.33
				$0.00
				$0.00
			INVOICE SUBTOTAL	$12,191.88
			TAX	$0.00
			INVOICE TOTAL	$12,191.88

Currency: USD

THANK YOU FOR YOUR BUSINESS

Tim Archer
503-283-1160
Direct Phone

FED ID #: 91-1572532
A 1.5% PER MONTH FINANCE CHARGE WILL BE ASSESED FOR ALL PAST DUE INVOICES.

CC: ACCOUNTING

50 x 1100 K Low

SPENCER ENVIRONMENTAL
Protecting the Environment
6400 SE 101st Ave. • Portland, Oregon 97266
(503) 788-4612 Fax: (503) 788-4629

INVOICE #: 43151

DATE: Aug 30 99

BILL TO:
FOSS ENVIRONMENTAL
5420 N LAGOON AVE
PORTLAND, OR 97217

LOCATION:
PACIFIC NORTHERN OIL CO
7900 NW ST HELENS RD
PORTLAND, OR

CUST #	EMP INT	PO #	DATE OF JOB	JOB #	TERMS NET	DUE DATE	ORDER
19040	ES		Aug 20 99		30 DAYS	Sep/29/99	66265

DELIVER 20 YARD DROP BOXES TO SITE FOR OIL SPILL CLEAN-UP. TRANSFER BOXES ON-SITE AS DIRECTED BY CLIENT.

02/20/99: DELIVER (2) 20 YARD BOXES #H-6 & #H-5

0001-00NT-0103-0SHS	TRK TRANSPORT#103 STANDAR	8.00	70.00	HR	560.00
0005- REN 0004-	DROP BOX RENTAL (20 YARD	11.00	14.50	DA	159.50
0005- REN-0004-	DROP BOX RENTAL (20 YARD	11.00	14.50	DA	159.50
0004-00YE-0BOX 0SUS	DROP BOX LINER (SITE CLEA	4.00	40.00	EA	160.00

02/23/99: DELIVER (2) ADDITIONAL 20 YARD BOXES AND STANDY BY FOR MOVING AND WEIGHING OF BOXES ON-SITE FOR CLIENT

0001-00NT-0103-0SHS	TRK TRANSPORT#103 STANDAR	8.00	70.00	HR	560.00
0001-00NT-101A-0SHS	TRLR TRANSPORT#101A STAND	8.00	10.00	HR	80.00
0005- REN-0004-	DROP BOX RENTAL (20 YARD	8.00	14.50	DA	116.00
0005- REN-0004-	DROP BOX RENTAL (20 YARD	8.00	14.50	DA	116.00

RECEIVED
SEP 07 1999
Acct

PLEASE REMIT PAYMENT TO:
6400 S.E. 101st AVENUE
PORTLAND, OR. 97266-5142

ORDERED BY: TIM ARCHER - 283-1150

0.00

1,311.00

PAY THIS AMOUNT →

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney fees.

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001

November 29, 1999

McDowell Welding & Pipefitting, Inc.
4000 NW St. Helens Road
Portland, OR 97210

Attention: Kurt Liebe, General Manager

RE: Pacific Northern Spill on or about August 19, 1999

As you know, Pacific Northern, Inc. has made a claim against Koppers Industries, Inc. ("Koppers") concerning a spill on the property of Pacific Northern, Inc. It is our understanding that this spill resulted from the actions of McDowell Welding & Pipefitting, Inc. ("McDowell") on or about August 19, 1999. Further, it would appear as though this incident was the result of activities your company was performing on behalf of Koppers.

Please be advised that Koppers expects McDowell to indemnify and defend Koppers from any and all liability and responsibility arising out of the incident, and we would ask that you confirm in writing you intention to do so at your earliest convenience.

In addition, attached is the first invoice from Pacific Northern, Inc. for the spill clean up. Please see that it is promptly paid and that I am notified when payment has been made.

Should you have any comments or questions concerning this matter, please do not hesitate to contact me.

Very Truly Yours,

Jack L. Stephenson
Manager of Purchasing

JLS/blh

BCC: Without attachment – Amos Kamerer – Portland
Without attachment - Jim Dietz – K 1650
Without attachment - Tracy Self – K 1801
Without attachment – Steve Kifer – K 1701

PACIFIC NORTHERN INC.
100 West Harrison · Suite 420 North Tower · Seattle. WA 98119
Telephone 206 / 282-4421 · FAX 206 / 282-6574

November 11, 1999

Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, OR 97210

Dear Amos:

Enclosed is an invoice for the 1st phase of clean up for the spill at Pacific Northern Oil's facility in Portland on August 19, 1999. Please reference my letter to you dated October 5, 1999.

There will be another invoice for the balance that we will be sending to you at the end of the month.

If you have any questions or require additional information please call Brad Perry in our Seattle office. He can be reached at 206-282-4421.

Thank you for your cooperation and assistance with the processing and payment.

Very truly yours,

George Markwood

George Markwood
Vice President

P[illegible] CORP.

INVOICE NUMBER: 107896

100 West Harrison - Suite 420 North Tower
Seattle, WA 98119 206 / 282-4421
TLX 32-1034 TWX 910-444-4043 FAX 206-282-6574

LIFT DATE : 11/10/99
P/O NUMBER :

IN ACCOUNT WITH:
KOPPERS CO.
7540 NW ST HELENS RD
PORTLAND, OR 97210-3663

FOB : SELLER'S TERM.
PUGET SOUND
SHIPPED VIA:

TERMS : UPON RECEIPT OF INVOICE
DUE DATE : 11/10/99

SHIPPED TO:

Late payment penalty 1.5% per month.

LIFT DATE	DESCRIPTION	PRICE	AMOUNT
	OIL SPILL CLEAN UP - PORTLAND, OR		30,895.93
	TOTAL AMOUNT INVOICED (USD)		30,895.93

The amounts determined as owing above shall be conclusive unless purchaser and/or its agent dispute said amounts within twenty days of receipt hereof.

100 West Harrison - Suite 420 North Tower
Seattle, WA 98119

50*21515

ASSOCIATED EARTH SCIENCES, INC

BAINBRIDGE ISLAND OFFICE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
FAX (206) 780-9438

CORPORATE OFFICE
911 Fifth Avenue, Suite 100
Kirkland, Washington 98033
(425) 827-7701
FAX (425) 827-5424

September 27, 1999

Pacific Northern
100 West Harrison - Ste 420, North Tower
Seattle, WA 98119

Attention: George Markwood

INVOICE NO. B923-BV99125A
PROJECT NO. BV99125A
Portland OR Terminal
PANOCO/WVG

PROFESSIONAL SERVICES: Progress invoice for services recorded through September 17, 1999

Oil Spill Response, Portland, Oregon terminal

Senior Staff Scientist	52.5 hrs @ $65/hr	$3,412.50
Word Processing/Clerical	1.0 hrs @ $35/hr	35.00
Expenses		
Mileage	1108 miles @ $0.40	443.20
Meals		30.06
Lodging		88.00
Film developing		6.16
Friedman & Bruya (analytical testing)		1,305.25
	TOTAL	$5,320.17

50x1100x2000
$50.00

RECEIVED
SEP 29 1999
BY:

TOTAL DUE THIS BILLING $5,320.17

PLEASE REMIT DUPLICATE COPY!!!

INVOICE

FOSS ENVIRONMENTAL SERVICES

5420 N Lagoon
Portland OR 97217

REMIT TO: **DEPT. 5251, PO BOX 34936**
SEATTLE, WA 98124-1936

Invoice #: I-P9328-01
FES Job #: P9328
Customer PO#:

Invoice Date: September 16, 1999

Customer: Pacific Northern Oil Company
7900 NW St. Helens Rd.
Portland, OR 97210

Contact: Mike Satre
Phone: 286-5321
Fax:
Terms: Net 30 Days

Job Description: Respond to oil spill in tank farm.

Job Location: 7900 NW St. Helens Rd. Portland, OR

Job Date (s): 8/19-8/25/99

50x1100x2000
#50 [illegible]

Progress Billing: x
Final Billing:

QUANTITY	DESCRIPTION	UOM	UNIT PRICE	EXTENDED PRICE
1	LABOR	EA	$8,185.00	$8,185.00
1	EQUIPMENT	EA	$1,788.30	$1,788.30
1	MATERIALS	EA	$1,155.60	$1,155.60
1	OTHER	EA	$2,254.98	$2,254.98

INVOICE SUBTOTAL	$13,383.88
TAX	$0.00
INVOICE TOTAL	$13,383.88

Currency: USD

THANK YOU FOR YOUR BUSINESS

Tim Archer
503-283-1150
Direct Phone

FED ID #: 91-1572532
A 1.5% PER MONTH FINANCE CHARGE WILL BE ASSESED FOR ALL PAST DUE INVOICES.

CC: ACCOUNTING

Revenue

revenue

FOSS ENVIRONMENTAL INC.			CUSTOMER NAME:	Pacific Northern Oil C	PHONE:	286-5321	PROGRES
JOB NUMBER:	P9328	ADDRESS:		7900 NW St. Helens	CONTACT:	Mike Satre	FINAL:
INVOICE NUMBER:	I-P9328-01	DATE:	9/16/99	Portland, OR 97210	PO:		
JOB DESCRIPTION:	Respond to oil spill in tank farm						
JOB LOCATION:	7900 NW St. Helens Rd. Portland, OR						

LABOR CHARGES		DATE	DATE	DATE	DATE	DATE	DATE	DATE		
LABOR GRADE	RATE	8/19/99	8/20/99	8/23/99	8/24/99	8/25/99			TOTAL	CHARGE
Proj. Manager- T Archer ST	$100.00	3.00	8.00	8.00		4.50			23.5	$2,350.00
Proj. Manager- T Archer OT	$100.00	2.00	4.00	2.00					8.0	$800.00
Supervisor- K Benedict ST	$55.00	0.50							0.5	$27.50
Supervisor- K Benedict OT	$67.00	3.50							3.5	$234.50
Technician- B Asmussen ST	$42.00	3.00	8.00						11.0	$462.00
Technician- B Asmussen OT	$54.00	6.00	2.00						8.0	$432.00
Technician- D Armbruster ST	$42.00	3.00	8.00						11.0	$462.00
Technician- D Armbruster OT	$54.00	3.50	4.00						7.5	$405.00
Technician- B Jolma ST	$42.00		8.00	8.00	8.00				24.0	$1,008.00
Technician- B Jolma OT	$54.00		4.00	2.00	3.00				9.0	$486.00
Technician- B Hyke ST	$42.00			8.00		7.50			15.5	$651.00
Technician- B Hyke OT	$54.00								0.0	$0.00
Technician- R Quiray ST	$42.00	3.00	8.00						11.0	$462.00
Technician- R Quiray OT	$54.00	3.50	4.00						7.5	$405.00
						LABOR TOTAL				$8,185.00

EQUIPMENT CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		08/19/99	8/20/99	8/23/99	8/24/99	8/25/99			TOTAL	CHARGE
Pick up - #1073	$100.00	1.00	1.00	1.00		1.00			4.0	$400.00
Mileage	$0.00	19.00	19.00	19.00		19.00			76.0	$0.00
Pick up - #1070	$100.00	1.00							1.0	$100.00
Mileage	$0.00	19.00							19.0	$0.00
Gear Truck 1 Ton- #1021	$125.00	1.00	1.00	1.00	1.00	1.00			5.0	$625.00
Mileage	$0.00	38.00	19.00	19.00	19.00	19.00			114.0	$0.00
Gear Truck 1 Ton- #1023	$125.00		1.00						1.0	$125.00
Mileage	$0.00		19.00						19.0	$0.00
70 bbl Vacuum Truck/HR	$38.00	2.50	4.00						6.5	$247.00
Mileage	$0.00	29.00	29.00						58.0	$0.00
Air Compressor	$100.00	1.00							1.0	$100.00
Vac-u-max	$80.00	1.00							1.0	$80.00
Drum Dolly	$0.00	1.00	1.00						2.0	$0.00
Cellular Phone	$50.00	1.00	1.00	1.00	1.00	1.00			5.0	$250.00
Hand Tools	$5.00	5.00	3.00	3.00	1.00				12.0	$60.00
Discount	10%								-198.7	-$198.70
	RATE					EQUIP TOTAL				$1,788.30

MATERIALS CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		8/19/99	8/20/99	8/23/99	8/24/99	8/25/99			TOTAL	CHARGE
Level D PPE	$35.00		4.00	3.00	1.00				8.0	$280.00
Rain Gear	$20.00	2.00							2.0	$40.00
Black Rubber Gloves	$8.00	4.00				2.00			6.0	$48.00
Cotton Gloves	$2.00					3.00			3.0	$6.00
Floor Dry	$7.50	40.00	10.00						50.0	$375.00
Sorbent Pads	$75.00	1.00		1.00	1.00				3.0	$225.00
55 Gallon Drums	$45.00	6.00							6.0	$270.00
Rags	$75.00		1.00						1.0	$75.00
Hand Cleaner	$10.00		1.00						1.0	$10.00
Simple Green	$15.00		1.00						1.0	$15.00
Visqueen	$78.00		1.00						1.0	$78.00
Drum Liners	$1.36		10.00						10.0	$13.60
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
						MAT'L TOTAL				$1,155.60

MISC. CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		8/19/99	8/20/99	8/23/99	8/24/99	8/25/99			TOTAL	CHARGE
Spencer Environmental- Box Rental	18%		1911						1,911.00	$2,254.98
									0.00	$0.00
									0.00	$0.00
						MISC TOTAL				$2,254.98
						GRAND TOTAL				$13,383.88

Koppers020192

SPENCER ENVIRONMENTAL

Protecting the Environment

6400 SE 101st Ave. • Portland, Oregon 97266
(503) 788-4612 Fax: (503) 788-4629

INVOICE #: 49151

DATE: Aug 30 99

BILL TO:
FOSS ENVIRONMENTAL
5420 N LAGOON AVE
PORTLAND, OR 97217

LOCATION:
PACIFIC NORTHERN OIL CO
7900 NW ST HELENS RD
PORTLAND, OR

CUST #	EMP INT	PO #	DATE OF JOB	JOB #	TERMS NET	DUE DATE	ORDER #
19040	ES		Aug 20 99		30 DAYS	Sep/29/99	66265

DELIVER 20 YARD DROP BOXES TO SITE FOR OIL SPILL CLEAN-UP. TRANSFER BOXES ON-SITE AS DIRECTED BY CLIENT.

02/20/99: DELIVER (2) 20 YARD BOXES #H-6 & #H-5

0001-00NT-0103-0SHS	TRK TRANSPORT#103 STANDAR	8.00	70.00	HR	560.00
0005- REN-0004-	DROP BOX RENTAL (20 YARD	11.00	14.50	DA	159.50
0005- REN-0004-	DROP BOX RENTAL (20 YARD	11.00	14.50	DA	159.50
0004-00Y2-0BOX-0SUS	DROP BOX LINER (SITE CLEA	4.00	40.00	EA	160.00

02/23/99: DELIVER (2) ADDITIONAL 20 YARD BOXES AND STANDY BY FOR MOVING AND WEIGHING OF BOXES ON-SITE FOR CLIENT

0001-00NT-0103-0SHS	TRK TRANSPORT#103 STANDAR	8.00	70.00	HR	560.00
0001-00NT-101A-0SHS	TRLR TRANSPORT#101A STAND	8.00	10.00	HR	80.00
0005- REN-0004-	DROP BOX RENTAL (20 YARD	8.00	14.50	DA	116.00
0005- REN-0004-	DROP BOX RENTAL (20 YARD	8.00	14.50	DA	116.00

RECEIVED
SEP 07 1999
Acct'd.....

PLEASE REMIT PAYMENT TO:
6400 S.E. 101st AVENUE
PORTLAND, OR. 97266-5142

ORDERED BY: TIM ARCHER - 283-1150

0.00

1,911.00

PAY THIS AMOUNT →

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney fees.

INVOICE

FOSS ENVIRONMENTAL SERVICES
5420 N Lagoon
Portland OR 97217

REMIT TO: DEPT. 5251, PO BOX 34936
SEATTLE, WA 98124-1936

Invoice Date: November 4, 1999

Invoice #: I-P9328-02
FES Job #: P9328
Customer PO#:

Customer: Pacific Northern Oil Co
7900 NW St. Helens
Portland, OR

Contact: Mike Salre
Phone: 286-5321
Fax:
Terms: Net 30 Days

Job Description: Disposal of Contaminated Soil

Job Location: Portland

Job Date (s): 10/5/-10/7/99

Progress Billing:
Final Billing: X

QUANTITY	DESCRIPTION	UOM	UNIT PRICE	EXTENDED PRICE
1	LABOR	EA	$1,774.00	$1,774.00
1	EQUIPMENT	EA	$413.55	$413.55
1	MATERIALS	EA	$105.00	$105.00
1	OTHER	EA	$9,899.33	$9,899.33
				$0.00
				$0.00
			INVOICE SUBTOTAL	$12,191.88
			TAX	$0.00
			INVOICE TOTAL	$12,191.88

Currency: USD

THANK YOU FOR YOUR BUSINESS

Tim Archer
503-283-1160
Direct Phone

FED ID #: 91-1572532
A 1.5% PER MONTH FINANCE CHARGE WILL BE ASSESED FOR ALL PAST DUE INVOICES.

CC: ACCOUNTING

50 x 1100 K Lbs

Revenue

POSS ENVIRONMENTAL INC.		CUSTOMER NAME:	Pacific Northern Oil Co	PHONE:	286-5321	PROGRESS:		
JOB NUMBER:	P9328	ADDRESS:	7800 NW St. Helens	CONTACT:	Mike Gatre	FINAL:	X	
INVOICE NUMBER:	P9328-02 DATE:	11/4/99	Portland, Or	PO:				
JOB DESCRIPTION:	Disposal of contaminated soil							
JOB LOCATION:	Portland							

LABOR CHARGES		DATE	DATE	DATE	DATE	DATE	DATE	DATE		
LABOR GRADE	RATE	10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Project Manager T. Archer ST	$100.00	1.00							1.0	$100.00
Project Manager T. Archer OT	$100.00								0.0	$0.00
Supervisor S. Teeters ST	$69.00		4.00	8.00					12.0	$660.00
Supervisor S. Teeters OT	$87.00								0.0	$0.00
Technician B. Walls ST	$62.00	3	4.00	8.00					15.0	$930.00
Technician B. Walls OT	$58.00								0.0	$0.00
Technician R. Quiray ST	$48.00		4.00						4.0	$192.00
Technician R. Quiray OT	$58.00								0.0	$0.00
Technician B. Assmussen ST	$48.00		4.00						4.0	$192.00
Technician B. Assmussen OT	$58.00								0.0	$0.00
									0.0	$0.00
						LABOR TOTAL				$1,774.00

EQUIPMENT CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		10/05/99	10/6/99	10/7/99					TOTAL	CHARGE
One Ton Gear Truck	$100.00	1.00	1.00	1.00					3.0	$300.00
Cell Phone	$60.00		1.00	2.00					3.0	$180.00
Hand Tools	$5.00		2.00						2.0	$10.00
Discount	10%								-68.5	-$68.45
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
						EQUIP TOTAL				$413.55

MATERIALS CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
	RATE	10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Level D PPE	$35.00		3.00						3.0	$105.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
									0.0	$0.00
						MATL TOTAL				$105.00

MISC. CHARGES	RATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE		
		10/5/99	10/6/99	10/7/99					TOTAL	CHARGE
Dump Truck Rental	18%			$970.00					$554.60	$554.60
Drop Box Rental	18%	$2,892.00							$520.56	$3,412.56
Fill Material	18%			$553.68					$299.93	$853.11
Disposal	18%		$2,131.88	$1,765.92					701.26	$4,897.02
Backhoe Rental	18%	$257.00							$46.26	$303.26
Loader Landscaper 60hp	18%			$271.00					$48.78	$319.78
Plate Compacter Rental	18%	$50.00							$9.00	$59.00
						MISC TOTAL				$9,899.33
						TOTAL CHARGES				$12,191.88

Koppers020195

ID: JUN 15'03 4:43 No.002 P.04

INVOICE FACSIMILE

** COPY **

Hertz Equipment Rental

R.A. No. 1146898-

PAGE

BRANCH: 724	BILL TO CUSTOMER: 1277360	SHIPPING ADDRESS
9724 HERTZ EQUIPMENT 4938 N.E. COLUMBIA BLVD. PORTLAND, OR 97218 503-287-5700	FOSS ENVIRONMENTAL SERVICES CO 5420 NORTH LAGOON PORTLAND, CA 99999	PORTLAND WILL CALL COLUMBIA BLVD PORTLAND, OR 97218 510-749-1390

DESCRIPTION/CHARGES

EST START: 10/07/99 8:00 EST RETURN: 10/07/99 3:30 DROP DATE:

SHIPPED BY: ORDERED BY: SHANE DROP TIME:

ORDER DATE: 10/07/99 SALESPERSON: 773 SALES COORDINATOR:

PO# / JOB#: T932806 / 1 - PORTLAND WILL CA

Rates include maintenance service

Qty	Equipment #	Min	Day	Week	4 Week	Amou
1	BOXDUMP/12-14YD/DSL 656140024 Make: IH Model: 2674-01 Ser #: 1HTGLATT9YH252718	445.00	445.00	1335.00	4000.00	445.

MI OUT: 4361.10 MI IN: 4415.00 TOTAL: 53.90 MIL CHG:

SALES ITEMS:

Qty	Item number	Unit	Price	
10	REFUEL 4041000001	EA	2.500	25.

Sub-total: 445.

Fuel: 25.

Taxable Sub-total: 0.00

Total: 470.

Direct All Inquiries To:
Hertz Equipment Rental
P.O. Box 26960
Oklahoma City, OK 73126-0390
Telephone: (800) 456-8492

Thank You For Renting From HERTZ Equipment Rental

Charges Are Subject To Final Audit

CUSTOMER IS RESPONSIBLE FOR FUEL, FLATS, AND DAMAG

Carefully read the terms and conditions on reverse side of this page

Actual Invoice Will Be Sen

SPENCER ENVIRONMENTAL
Protecting the Environment
6400 SE 101st Ave. • Portland, Oregon 97266
(503) 788-4612 Fax: (503) 788-4629

INVOICE #: 50226

DATE: Sep 30 99

BILL TO:
FOSS ENVIRONMENTAL
5420 N LAGOON AVE
PORTLAND, OR 97217

LOCATION:
FOSS ENVIRONMENTAL @
PNOCO
7900 NW ST. HELENS RD
PORTLAND OR 97210

CUST #	EMP INT	PO #	DATE OF JOB	JOB #	TERMS NET	DUE DATE	ORDER #
19040	ES		Sep 28 99		30 DAYS	Oct/30/99	67517

LOAD & TRANSPORT (5) 20YD DROP BOXES TO TPS SOIL FACILITY FOR DISPOSAL.
TIM ARCHER WILL MEET YOU ON SITE WITH MANIFESTS.
BOX #'S H-6, H-11, H-14, H-5, & 6469.

0001-00NT-0103-0SHR	TRK TRANSPORT #103 STANDA	9.00 OK	70.00	HR	630.00
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	29.00 OK	14.50	DA	420.50
0005- REN-0HH2-0SDR	DROP BOX RENTAL (20 YARD	40.00 OK	14.50	DA	580.00

LAST BOX RENTAL ITEM IS FOR 40 DAYS DUE TO NOT BILLING FOR BOX H-11 ON INVOICE NUMBER 49151

RECEIVED
OCT 8 1999
Ass'd.....

PLEASE REMIT PAYMENT TO:
6400 S.E. 101st AVENUE
PORTLAND, OR. 97266-5142

ORDERED BY: [redacted]
TIM ARCHER

	0.00
PAY THIS AMOUNT →	2,892.00

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney fees.

ANGELL QUARRY
ANGELL QUARRY

MORSE BROS.

PO BOX 83449
PORTLAND OR 97283 449
(503) 286-4201

JUN 15'03 4:44 No.002 P.06

CCB #2101 **STATEMENT**

Please Retain this Portion and Remit to:

PO Box 7 Lebanon OR 97355-0007
(541) 451-5141

READY MIX CONCRETE
SAND & GRAVEL
CRUSHED ROCK
HIGHWAY CONSTRUCTION
PRESTRESS CONCRETE

FOSS ENVIRONMENTAL
JOHN H PETERSON
5420 N LAGOON AVE
PORTLAND OR 97217-7638

RECEIVED
OCT 29 1999
Acct'd

Date: 10/25/99

3032400

ID:

INVOICE NUMBER	DATE	DESCRIPTION	AMOUNT
0746	10/07/99	INVOICE	274.90
0746	10/07/99	INVOICE	278.58

CURRENT	30 DAYS				
553.48	.00	.00	.00	.00	553.48

PLEASE PAY THIS AMOUNT

TERMS: NET 15TH OF MONTH. A service charge of 1½% per month, or a minimum of $1.00, will be made on the unpaid balance at the end of the following month's billing cycle. This is an ANNUAL PERCENTAGE RATE OF 18%.

"NOTICE: See reverse side for important information regarding your rights to dispute billing errors."

11 #57 (12/98)

MORSE BROS.

IMPORTANT:

Please return this stub with your remittance to the address below.

PO BOX 7
LEBANON OR 97355-0007

FOR MONTH ENDED: 10/25/99
ACCOUNT NO.: 3032400-02-20

FOSS ENVIRONMENTAL

To insure proper credit to your account, if you are paying by invoice, please check (√) items paid.

REFERENCE NUMBER	√	DATE	AMOUNT
120746		10/07/99	274.90
120746		10/07/99	278.58

PLEASE PAY THIS AMOUNT 553.48

201

dension

3.48

275

Pink—File/Requester
Canary—Accounting
White—Purchasing

Koppers020198

[redacted]

TPS
TECHNOLOGIES INC.

For Questions Call:
(407) 886-9570 x116 or 162
(800) 940-2666
Fax (407) 886-8300

REMIT TO: TPS TECHNOLOGIES, INC.
P.O. BOX 100103
PASADENA, CA 91189-0103

INVOICE NUMBER 005777

TPS JOB: 09-04211

RECEIVED
OCT 18 1999
Ans'd

SOLD TO: FOSS ENVIRONMENTAL
5620 N. Lagoon Avenue
PORTLAND OR 97217

REFERENCE: Pacific Northern Oil Company
7900 NW St Helens Road
Portland OR 97210

Customer PO# P932805

ACCOUNT NO.	SALESPERSON	FACILITY	TERMS	INVOICE DATE
1000459	PH	109	Net 30 Days	10/07/99

CODE	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Contact: Tim Archer		
REM	51.88	CONTAMINATED SOIL REMEDIATION	34.00	$1,763.92
			TOTAL:	$1,763.92

A ThermoRetec Company

Thank You

ORIGINAL

TPS
TECHNOLOGIES INC.

For Questions Call:
(407) 886-9570 x116 or 162
(800) 940-2666
Fax (407) 886-8300

REMIT TO: TPS TECHNOLOGIES, INC.
P.O. BOX 100103
PASADENA, CA 91189-0103

INVOICE NUMBER 005776

TPS JOB: 09-04211

RECEIVED
OCT 18 1999
Ans'd

SOLD TO: FOSS ENVIRONMENTAL
5420 N. Lagoon Avenue
PORTLAND OR 97217

REFERENCE: Pacific Northern Oil Company
7900 NW St Helens Road
Portland OR 97210

Customer PO# P932802

ACCOUNT NO.	SALESPERSON	FACILITY	TERMS	INVOICE DATE
1000459	PH	109	Net 30 Days	10/06/99

CODE	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Contact: Tim Archer		
REM	58.29	CONTAMINATED SOIL REMEDIATION	34.00	$1,981.86
AB	1.00	DEBRIS / EXTRA LABOR FLAT FEE	150.00	$150.00
			TOTAL:	$2,131.86

A ThermoRetec Company

Thank You

ORIGINAL

United Rentals
4621 NW ST. HELENS RD
PORTLAND, OR 97210-1299
503-796-1235

Formerly Power Rents Inc.

Remit To:
UNITED RENTALS
PO BOX 2533
PORTLAND, OR 97208-2533

RENTAL RETURN INVOICE

** COPY **

Job Site:
FOSS ENVIRONMENTAL/PORTLAND
5420 N LAGOON AVE
PORTLAND, OR 97217

CH: 503-283-1150 JH: 503-283-1150

Customer: 71881
FOSS ENVIRONMENTAL/PORTLAND
5420 N LAGOON AVE
PORTLAND, OR 97217

Invoice #: 5505748-002
Invoice date: 10/08/99
Date out: 10/06/99 10:00 AM
Date in: 10/07/99 2:00 PM
Job Loc: 7900 NW ST HELENS RD,
Job No:
P.O. #: P932809
Ordered By: TIM ARCHER
Written by: UR268DS
Terms: Net 30 Days

Qty	Equipment #	Min	Day	Week	4 Week	Amount
1	BACKHOE/LOADER 2WD 70HP	245.00	245.00	875.00	2950.00	225.00
	140-1-9 Make: CASE Model: 580L Ser #: JJG0222066					
	HR OUT: 1633.80 HR IN: 1638.40 TOTAL: 4.60					
	140-1-9					
1	BACKHOE BUCKET 24IN	20.00	20.00	80.00	200.00	N/C
	ATTN. TIM ARCHER					
	BACKED CHARGED TO ONE DAY. SORRY WE WERE LATER. THANK YOU, DON					

SALES ITEMS:

Qty	Item number	Unit	Price	
6	DSL DIESEL	EA	2.000	12.00
	PICKUP CHARGE DRUE TO DEL			20.00

Sub-total:	245.00
Fuel:	12.00
Total:	257.00

RECEIVED
OCT 14 1999
Acct.

COPY

PLEASE PAY FROM THIS COPY

OPTIONAL DAMAGE WAIVER: Upon accepting the optional Damage Waiver, the Customer agrees to pay a charge equal to 12% of the rental charges on Equipment (Optional Terms apply) and to be relieved of Damage Waiver, in which United agrees to waive claims for accidental damage to such covered Equipment occurring during normal and careful use. ACCIDENTAL DAMAGE WAIVER IS NOT INSURANCE. Customer remains liable for all damages listed under Additional Damage Waiver exclusions in the Terms and Conditions on back.
Customer Accepts: / / Customer Declines: / /

READ BEFORE SIGNING: United agrees to Customer the Equipment listed in the Terms and Conditions on the reverse side and Customer hereby accepts all TERMS AND CONDITIONS listed in this rental agreement, including the Terms and Conditions set forth on the reverse side, which the undersigned has read and understands. REMINDERS: (1) Rates do not include fuel or delivery; (2) Optional Damage Waiver (page 2, 12% of the equipment charge) is available; (3) Customer pays for all time the Equipment is out, including Saturdays, Sundays and holidays; (4) This rental agreement supersedes all other agreements, terms or forms and constitutes complete terms of Customer's agreement; (5) Customer assumes all risk and is responsible for all damages and other costs, including fire damage. Details of the above as well as other obligations and responsibilities are contained in the TERMS AND CONDITIONS ON REVERSE. THE INDIVIDUAL SIGNING BELOW AS OR ON BEHALF OF CUSTOMER: (1) AGREES TO ALL OF THE TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS RENTAL AGREEMENT, (2) ACKNOWLEDGES RECEIPT OF THE EQUIPMENT IN GOOD WORKING ORDER AND (3) IS FULLY FAMILIAR WITH ITS OPERATION AND USE.

X

United Rentals
4621 NW ST. HELENS RD
PORTLAND, OR 97210-1299
503-796-1235

Formerly Power Rents Inc.

Remit to:
UNITED RENTALS
PO BOX 5233
PORTLAND, OR 97208-5233

RENTAL RETURN INVOICE

** COPY **

Job Site:
ROSS ENVIRONMENTAL/PORTLAND
PACIFIC NORTHERN OIL
7900 NW ST HELENS RD
PORTLAND, OR 97200
C#: 503-283-1150 J#: 503-283-1150

Customer: 71881
ROSS ENVIRONMENTAL/PORTLAND
5420 N LAGOON AVE
PORTLAND, OR 97217

Invoice #: 5531683-001
Invoice date 10/14/99
Date out: 10/07/99 11:00 AM
Date in: 10/07/99 2:00 PM
Job Loc.: PACIFIC NORTHERN OIL
Job No.: 19- ROSS ENVIRONMENT
P.O. #: P9948803
Ordered by: SHANE
Written by: DR268D8
Terms: Net 30 Days

Qty	Equipment #	Min	Day	Week	4 Week	Amount
1	LOADER LANDSCAPER 4WD 60HP	225.00	225.00	765.00	2300.00	225.00
	115-6-13 Make: CASE Model: 570LXT 4X4 Ser #: JJG0225896					
	HR OUT: 414.60 HR IN: 416.70 TOTAL: 2.10					
SALES ITEMS:						
Qty	Item number	Unit	Price			
1	EPA ENVIRONMENTAL FEE	EA				N/C
3	DSL DIESEL	EA	2.000			6.00
	DELIVERY CHARGE					20.00
	PICKUP CHARGE CLIFF TO DROP					20.00
					Sub-total:	265.00
					Fuel:	6.00
					Total:	271.00

COPY
RECEIVED
OCT 6 1999
Acct.

PLEASE PAY FROM THIS COPY

OPTIONAL DAMAGE WAIVER: Upon accepting the optional damage waiver, the Customer agrees to pay a charge equal to 12% of the rental charges for Equipment Customer elects to waive, for the Damage Waiver to be in effect, United Rentals must be notified within 24 hours of the time Customer discovers damage to such Equipment. Customer must also promptly report any accident, theft or vandalism. ACCIDENTAL DAMAGE WAIVER IS NOT INSURANCE! Customer remains liable for all damages listed under Section II (Damage Waiver) provisions in the Terms and Conditions on back.
Customer Accepts: ( )
Customer Declines: ( )

READ BEFORE SIGNING: Unless stated otherwise in Customer's Contract for Rental of the Terms and Conditions on the reverse side and Customer hereby accepts all TERMS AND CONDITIONS as in the rental agreement, including pick-up and return of Equipment as set forth on the reverse side, which the undersigned has read and understands. (1) DAMAGE: (i) Upon the full inflation and delivery of Equipment to United Rentals at the location specified on the reverse side, United Rentals will be responsible for any damage to Equipment, ordinary wear and tear excepted. (ii) Customer pays for all loss to the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (2) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (3) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (4) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (5) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (6) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (7) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (8) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (9) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (10) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (11) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (12) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (13) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (14) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment. (15) Customer pays for all loss the Equipment or Other Property, including equipment, supplies and fixtures, ACCIDENTAL DAMAGE WAIVER is a 12% additional rental charge for loss of Equipment.

X

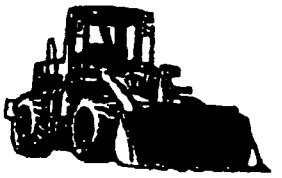
CUSTOMER SIGNATURE DATE NAME PRINTED DELIVERED BY DATE

A LARGER FONT COPY OF THE TERMS AND CONDITIONS IS AVAILABLE UPON REQUEST.

Hertz

ORIGINAL INVOICE

10/07/99



CUSTOMER NUMBER: 1277360

INVOICE NUMBER: 713501

FOSS ENVIRONMENTAL SERVICE
5420 NORTH LAGOON
PORTLAND CA 99999

PO NUMBER : T932807
JOB NUMBER :
ORDERED BY : SHANE
ORDER DATE : 10/07/99
DELIVERED BY: CUSTOMER
RETURNED BY: CUSTOMER
ORIGINAL RA#:

SHIPPING ADDRESS:	RENTING LOCATION:
PORTLAND HILL CALL COLUMBIA BLVD PORTLAND OR 97218	PORTLAND, OR BRANCH# 9724 PHONE: (503) 287-5789

START DATE/TIME : 10/07/99 08:10
END DATE/TIME : 10/07/99 15:30 RENTAL DAYS: 1.0

RENTAL	50.00
TAXABLE CHARGES	50.00
SALES TAX	0.00
TOTAL CHARGES	50.00

PAYMENT TERMS ARE NET 10 DAYS

LATE CHARGES MAY APPLY

FOR CUSTOMER SERVICE AND BILLING INQUIRIES CALL 1-800-456-6492

DIRECT PAYMENT TO:

HERTZ EQUIPMENT RENTAL
P. O. BOX 26390
OKLAHOMA CITY, OK 73126-0390

RECEIVED
OCT 19 1999
Ans'd

NET DUE 50.00

THANK YOU FOR RENTING FROM HERTZ!

PLEASE PAY THIS AMOUNT: 50.00

QTY	EQUIPMENT DESCRIPTION	DAY	WEEK	4WEEK	RENTAL AMT
01	MULTIQUI MVC90H PLATE COMPACTOR IC#: 075-01-9114 ITEM#: 003407454 SERIAL#: G4630	50.00	145.00	430.00	50.00

Detach at perforation and send bottom portion with payment.

10/07/99

FOSS ENVIRONMENTAL SERVICE
5420 NORTH LAGOON
PORTLAND CA 99999

Customer Number: 1277360
Invoice Number: 713501

PLEASE PAY THIS AMOUNT: 50.00

Form HE0214

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: Kurt Liebe, McDowell DATE: 10/15/99

FROM: Amos Kamerer TOTAL # OF PAGES: 3

Here's the Pacific Northern letter — Per our discussion, please respond As soon As possible —

Thanks

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

PACIFIC NORTHERN INC.
100 West Harrison • Suite 420 North Tower • Seattle, WA 98119
Telephone 206 / 282-4421 • FAX 206 / 282-6574

October 5, 1999

Amos Kamerer
Koppers Industries
7540 N.W. St. Helens Road
Portland, OR 97210

Dear Amos

Pursuant to our discussion on October 4, 1999, I am writing to document the spill incident that occurred on August 19, 1999, as a result of Koppers Industries activities on the property that we lease from Northwest Natural Gas Company.

Koppers Industries was in the process of revamping the dock on the Northwest Natural Gas property to accommodate Koppers Industries planned receipt of product. A new pipeline, walkway, heat tracing and other improvements were in the final stages of completion. In order to receive certification for use from the regulatory agencies certain testing must be completed and documented. It was during a hydro test of the tracing system that the spill occurred.

At approximately 11:15 hrs. On 8/19/99, the acting shift supervisor at our facility noticed oil and water coming from our dock oil-water separator tank. This system is designed to handle normal rainfall pumped from the containment basin on the dock-loading platform and has even a surge capacity to accept water from the dock in the event of a 100-year storm. The tank is located in our lower tank farm, inside containment but on unpaved ground.

While the contractor for Koppers Industries was in the process of hydro testing a portion of the system the contractor failed to ensure that the pipe to be tested was properly sealed. To perform a hydro test, all air must be evacuated from the vessel being tested and replaced with a liquid, which is usually water. A pump is used to increase the pressure within the vessel to the desired PSI.

When the contractor started to fill the system with water, water poured out of the open unsealed end of the pipe and began to flood the dock-loading platform. This activated the sump pump, which ran continuously until the oil-water separator tank over flowed and our personnel notified the contractor of the problem. Once the water for the hydro test was shut down and everything was secured, spill response contractors were called to assist with the clean up. By then, it was estimated that a minimum of 2000 gallons of oil and water had been released onto the ground inside containment.

At our request, Foss Environmental and Associated Earth Sciences responded to the spill and excavated, sampled, and tested soils in an effort to confirm that all of the contamination associated with the spill was removed. According to Associated Earth Sciences and based upon receipt of reports from the testing laboratory of Farr, Friedman and Brier on 10/1/99, additional contamination is still present that is attributable to the spill incident that occurred on 8/19/99.

We have directed Foss and Associated Earth Sciences to continue cleanup until all soil impacted by the 8/19/99 spill incident is removed. They indicated that this work should be completed within the next 2 days though the final reports may take a little longer.

As we have discussed, and this letter confirms, Pacific Northern Oil intends to pay all invoices received from the spill response contractors and to submit for reimbursement from Koppers Industries. To date, Pacific Northern has received invoices totaling about $ 18,000 for the initial response, soils excavation, field supervision and laboratory analysis. There will be additional costs associated with the cleanup including charges for the expanded scope of excavation, disposal of all materials, field supervision and laboratory analysis that will increase the costs significantly.

As we have discussed, and this letter confirms the spill incident that occurred on 8/19/99 was a result of an error on the part of a contractor employed by Koppers Industries. Pacific Northern Oil expects to be fully reimbursed for all costs associated with this incident within 15 days of submittal of invoices to Koppers Industries. Please acknowledge the above on behalf of Koppers Industries by signing in the space indicated below and returning a copy to me.

Thank you for your cooperation in this matter.

Very truly yours,

George Markwood

George Markwood
Vice President

Acknowledged and agreed:

_____

Amos Kamerer
Koppers Industries

Thank-you for your letter of October 5, 1999, regarding the incident which occurred on August 19, 1999. In response, please be advised that Koppers Industries, Inc. ("Koppers") is willing to accept responsibility for any damages caused to Pacific Northern Inc. as a result of the actions of Koppers' employees or agents.

Currently, we are attempting to gather all available information regarding this matter and are in the process of pursuing this matter further with the contractor involved. Fortunately, the first indications are that the contractor is willing to take full responsibility for its actions in relation to the incident.

Further, in order to assist us in our investigation, would you please forward to us all information or reports you may have concerning the spill, the excavation and the other cleanup activities to date, so that we can adequately assess Koppers (or the contractor's) responsibility and the scope and nature of the incident and the cleanup effort involved?

I trust that this letter is responsive to the concerns raised in your letter. Please contact me if you have any further questions or concerns.

Thank-you for your anticipated assistance concerning the above.

Vty
Amos Kamerer

Post-it® Fax Note 7671	Date 10/15/99	# of pages ▶ 1
To Kurt Liebe	From Amos	
Co./Dept. McDowell	Co. Koppers	
Phone #	Phone #	
Fax #	Fax #	

Date: 8/19/99 7:58 PM
Sender: Traci Self
To: Jim Dietz; Kevin Fitzgerald; BILL MEISINGER; iskoppers@aol.com; Mark Cilley; Amos Kamerer
Priority: Normal
Subject: Re: Spill

The ODEQ spill report should be completed. Do we have any documentation that the contractor will accept responsibility. If I
can be of any assistance please call or e-mail.

_____ Reply Separator

Subject: Spill
Author: Amos Kamerer at PITT
Date: 8/19/99 3:30 PM

Jim,

McDowell was starting the hydro testing of the pitch line late this morning and
unfortunately had left off the blind flange on the 2" circulation line that
comes off the 8" line at the dock. The water flowed into the PNO sump on the
dock and then was pumped to their decanter (oil/water separator) that is located
in their tank farm. The volume of water caused the decanter to overflow and an
estimated 150 - 200 gallons of bunker/diesel material spilled on to the dirt
ground.

I responded immediately and then contacted the McDowell personnel, who also
responded immediately. PNO called their environmental response contractor, Foss
Environmental, for the clean up and they were there with in 2 hours. PNO did
report the spill to all of the proper authorities, including the Coast Guard.

90% of this will be an easy clean up, unfortunately, there are some fisher's (
holes) in the ground, from the 1996 flood, that feed down into the river; so, I
am not sure how that portion will be resolved. McDowell is committed to do what
ever is necessary to make this right.

I will provide further updates, as things develop.

Amos

Date: 8/19/99 3:30 PM
Sender: Amos Kamerer
To: Jim Dietz
cc: Kevin Fitzgerald; Traci Self; BILL MEISINGER; iskoppers@aol.com; Mark Cilley
Priority: Normal
Subject: Spill

Jim,

McDowell was starting the hydro testing of the pitch line late this morning and unfortunately had left off the blind flange on the 2" circulation line that comes off the 8" line at the dock. The water flowed into the PNO sump on the dock and then was pumped to their decanter (oil/water separator) that is located in their tank farm. The volume of water caused the decanter to overflow and an estimated 150 - 200 gallons of bunker/diesel material spilled on to the dirt ground.

I responded immediately and then contacted the McDowell personnel, who also responded immediately. PNO called their environmental response contractor, Foss Environmental, for the clean up and they were there with in 2 hours. PNO did report the spill to all of the proper authorities, including the Coast Guard.

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I will provide further updates, as things develop.

Amos

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

May 27, 1998

Mr. Stephen Rossenburger
Environmental Services
City of Portland
6543 N. Burlington Ave.
Portland, OR 97203-5452

Reference: Spill Prevention, Control, and Countermeasures Plan

Dear Sir,

As per our company policy, enclosed please find a copy of our revised SPCC plan for your files. Should you have any questions or comments, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer

BCC: T.I. Self

Randy

Traci
- verify what happened
- get copy of contractor's insurance certif.
5:15 Oct

PACIFIC NORTHERN INC.
100 West Harrison • Suite 420 North Tower • Seattle, WA 98119
Telephone 206 / 282-4421 • FAX 206 / 282-6574

- verify facts
- Protect Natural + contractor (copy insurance carrier)
- insurance certificate

October 5, 1999

Amos Kamerer
Koppers Industries
7540 N.W. St. Helens Road
Portland, OR 97210

Dear Amos

Pursuant to our discussion on October 4, 1999, I am writing to document the spill incident that occurred on August 19, 1999, as a result of Koppers Industries activities on the property that we lease from Northwest Natural Gas Company.

Koppers Industries was in the process of revamping the dock on the Northwest Natural Gas property to accommodate Koppers Industries planned receipt of product. A new pipeline, walkway, heat tracing and other improvements were in the final stages of completion. In order to receive certification for use from the regulatory agencies certain testing must be completed and documented. It was during a hydro test of the tracing system that the spill occurred.

Clark Leaders Jeff Hunting Tony Johnson Mark Egan

At approximately 11:15 hrs. On 8/19/99, the acting shift supervisor at our facility noticed oil and water coming from our dock oil-water separator tank. This system is designed to handle normal rainfall pumped from the containment basin on the dock-loading platform and has even a surge capacity to accept water from the dock in the event of a 100-year storm. The tank is located in our lower tank farm, inside containment but on unpaved ground.

Gr. Dist agent
Lake Cond
Hadnum-
+ claims specialist

While the contractor for Koppers Industries was in the process of hydro testing a portion of the system the contractor failed to ensure that the pipe to be tested was properly sealed. To perform a hydro test, all air must be evacuated from the vessel being tested and replaced with a liquid, which is usually water. A pump is used to increase the pressure within the vessel to the desired PSI.

When the contractor started to fill the system with water, water poured out of the open unsealed end of the pipe and began to flood the dock-loading platform. This activated the sump pump, which ran continuously until the oil-water separator tank over flowed and our personnel notified the contractor of the problem. Once the water for the hydro test was shut down and everything was secured, spill response contractors were called to assist with the clean up. By then, it was estimated that a minimum of 2000 gallons of oil and water had been released onto the ground inside containment.

At our request, Foss Environmental and Associated Earth Sciences responded to the spill and excavated, sampled, and tested soils in an effort to confirm that all of the contamination associated with the spill was removed. According to Associated Earth Sciences and based upon receipt of reports from the testing laboratory of Farr, Friedman and Brier on 10/1/99, additional contamination is still present that is attributable to the spill incident that occurred on 8/19/99.

We have directed Foss and Associated Earth Sciences to continue cleanup until all soil impacted by the 8/19/99 spill incident is removed. They indicated that this work should be completed within the next 2 days though the final reports may take a little longer.

Mobility PN plant to include KPI products, will deliver to end of month.
Mark E-mail -

As we have discussed, and this letter confirms, Pacific Northern Oil intends to pay all invoices received from the spill response contractors and to submit for reimbursement from Koppers Industries. To date, Pacific Northern has received invoices totaling about $ 18,000 for the initial response, soils excavation, field supervision and laboratory analysis. There will be additional costs associated with the cleanup including charges for the expanded scope of excavation, disposal of all materials, field supervision and laboratory analysis that will increase the costs significantly.

As we have discussed, and this letter confirms the spill incident that occurred on 8/19/99 was a result of an error on the part of a contractor employed by Koppers Industries. Pacific Northern Oil expects to be fully reimbursed for all costs associated with this incident within 15 days of submittal of invoices to Koppers Industries. Please acknowledge the above on behalf of Koppers Industries by signing in the space indicated below and returning a copy to me.

Thank you for your cooperation in this matter.

Very truly yours,

George Markwood

George Markwood
Vice President

Acknowledged and agreed:

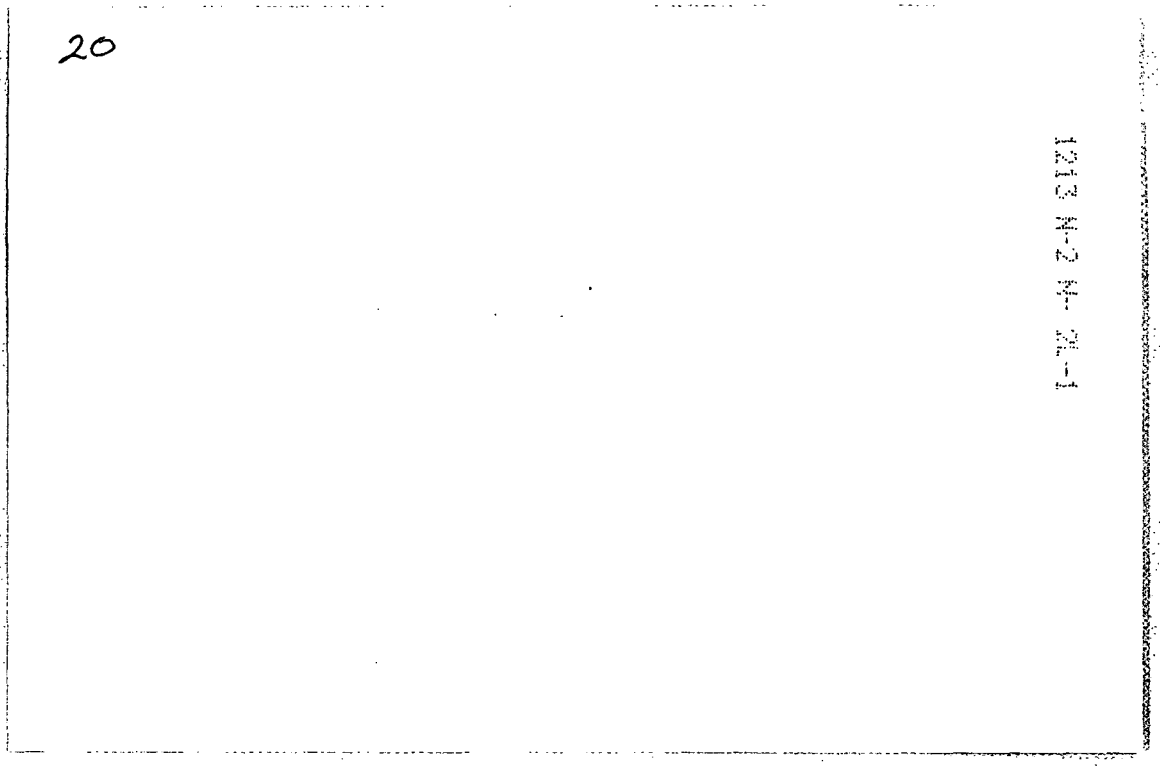
_____

Amos Kamerer
Koppers Industries

18
1213 W-2 W- 2--1

19

1213 M-2 M- 2L-1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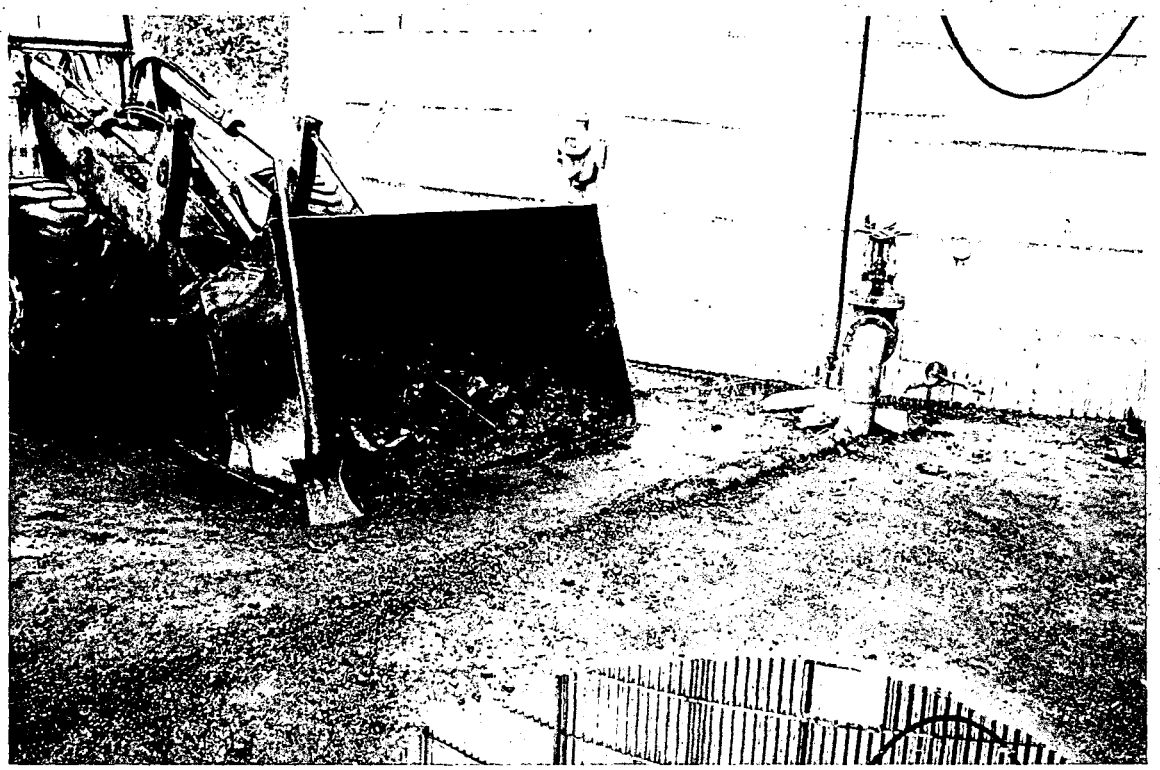

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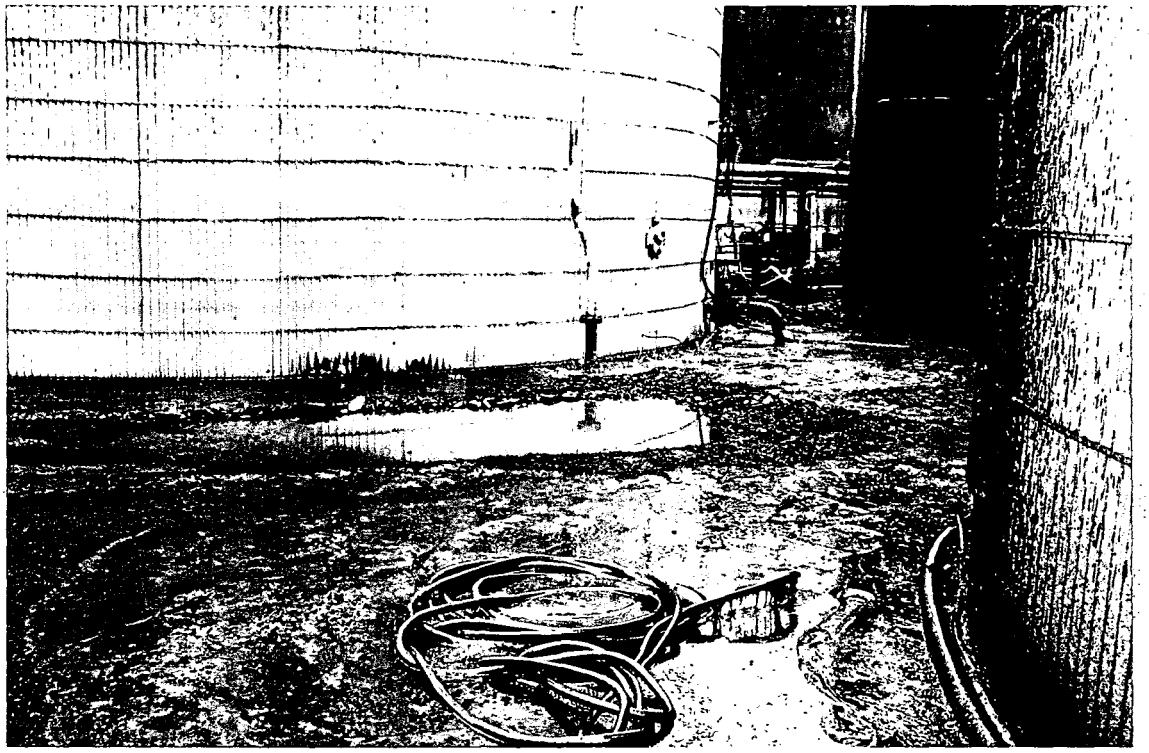

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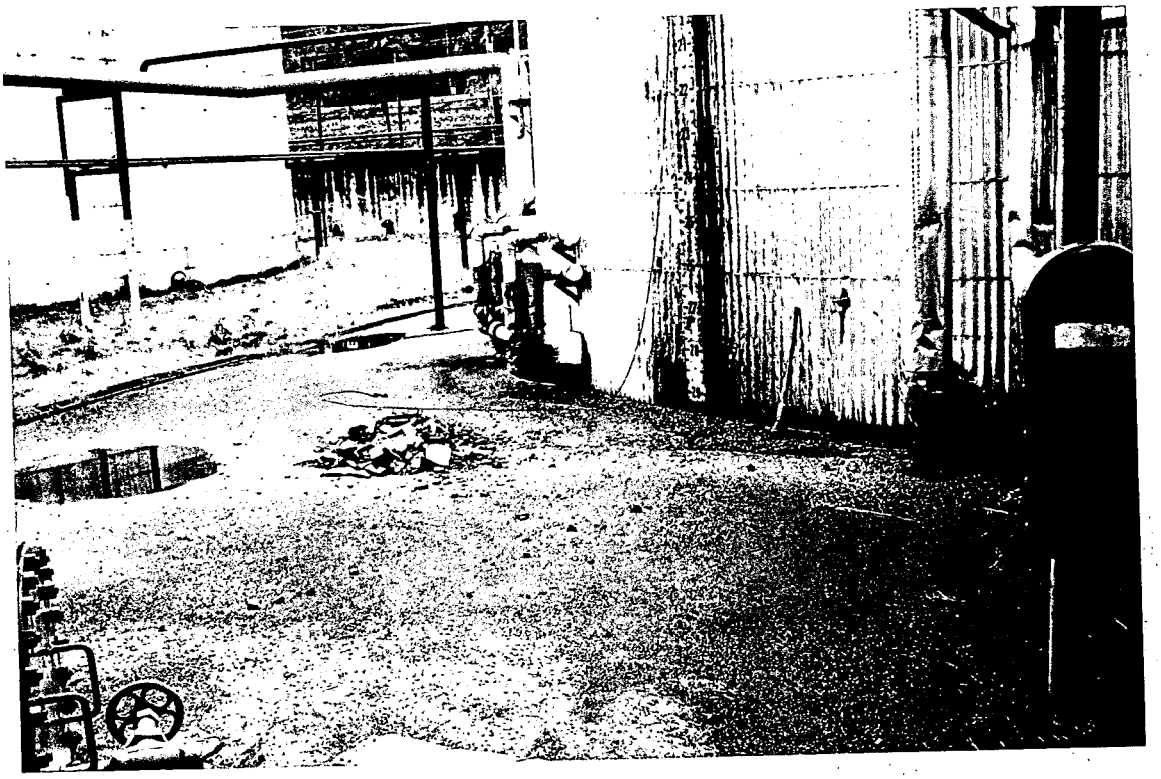

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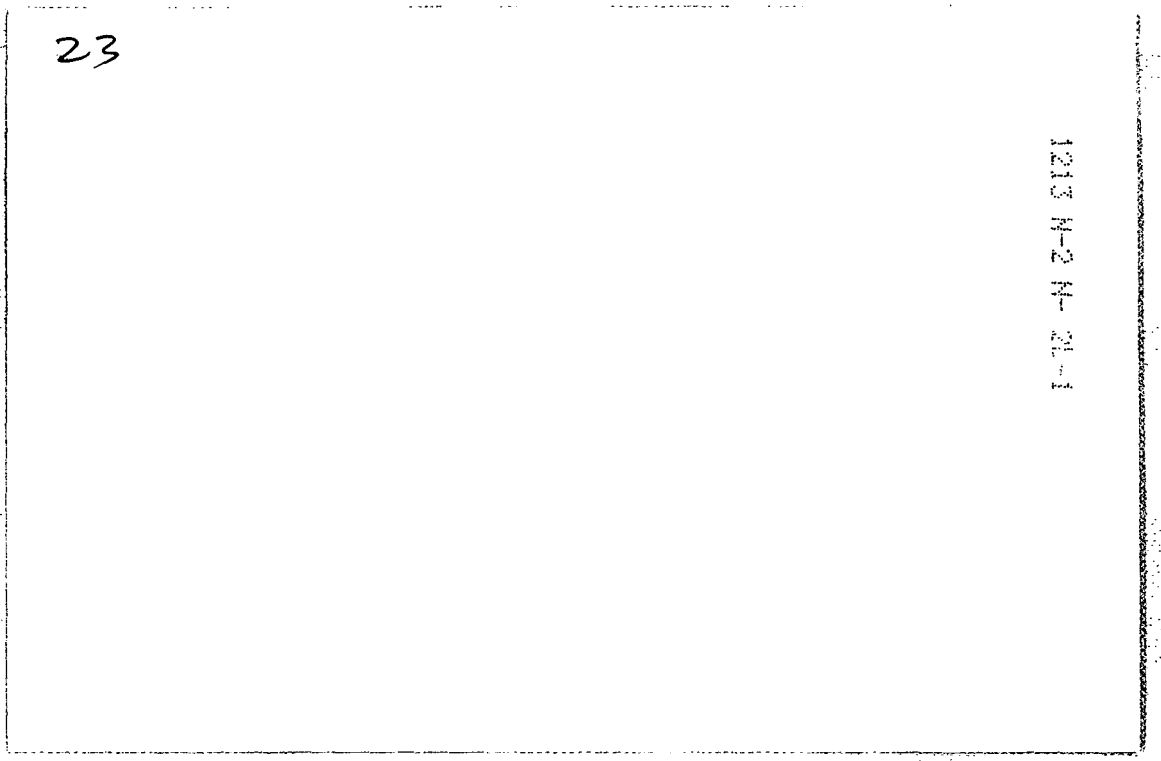

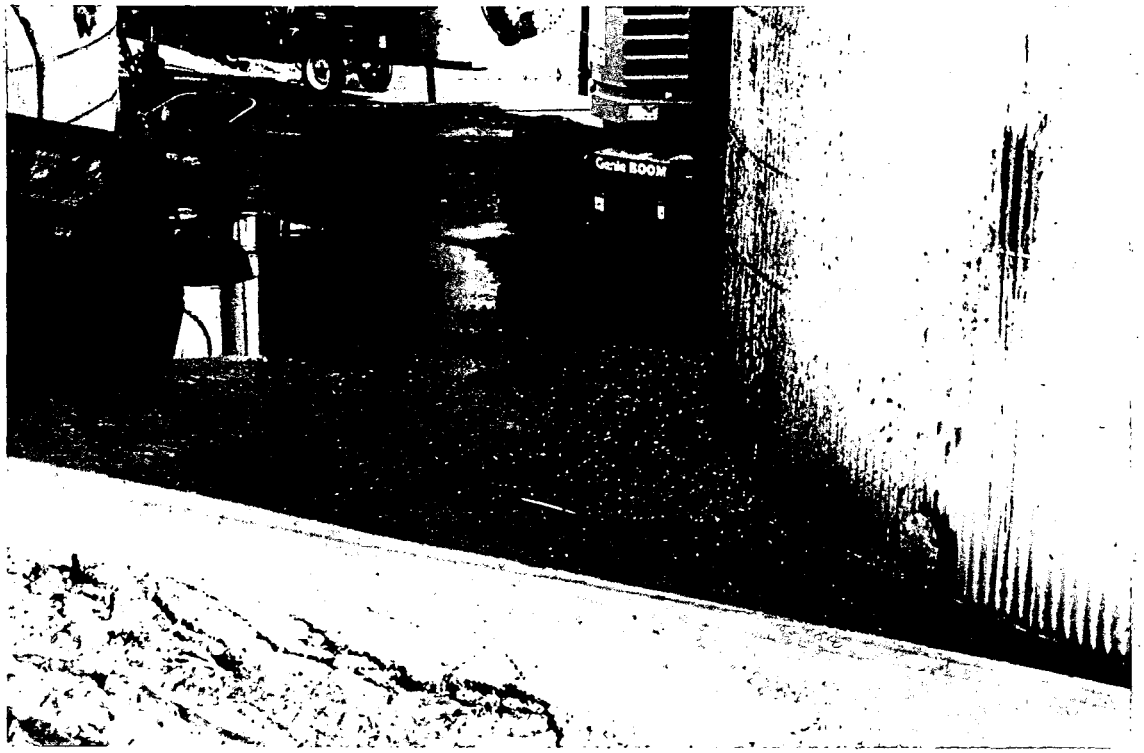
Genie BOOM

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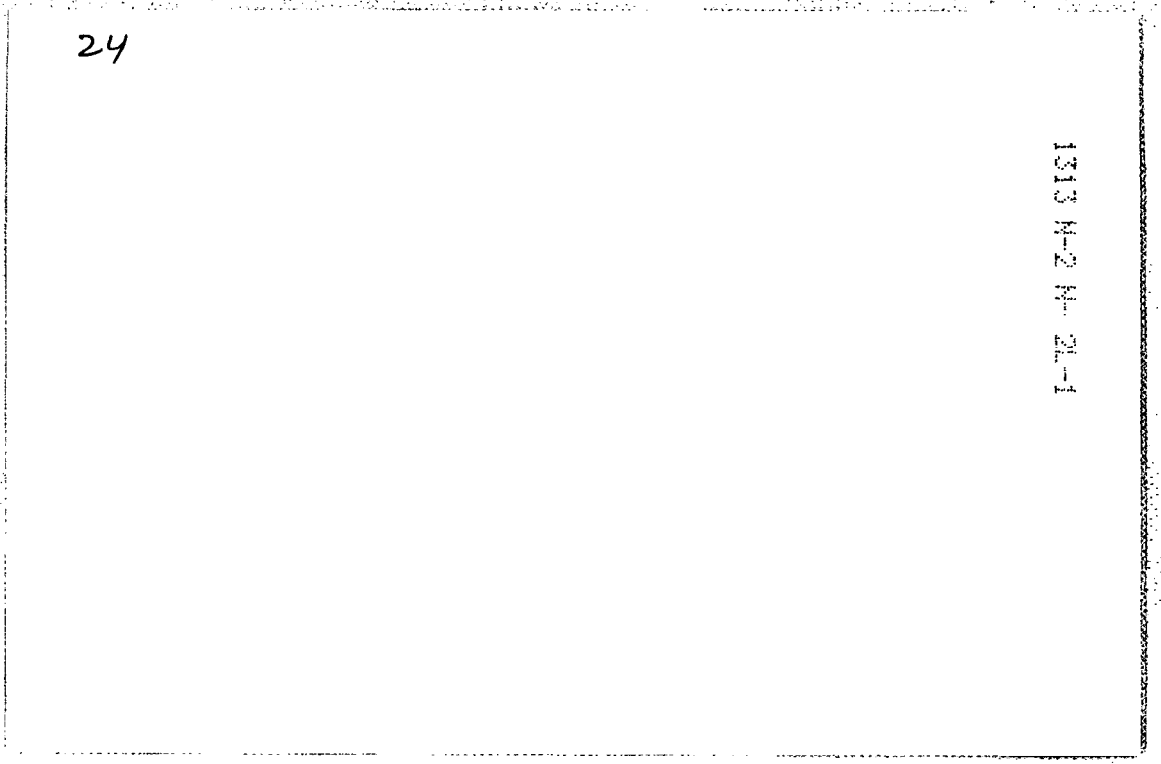

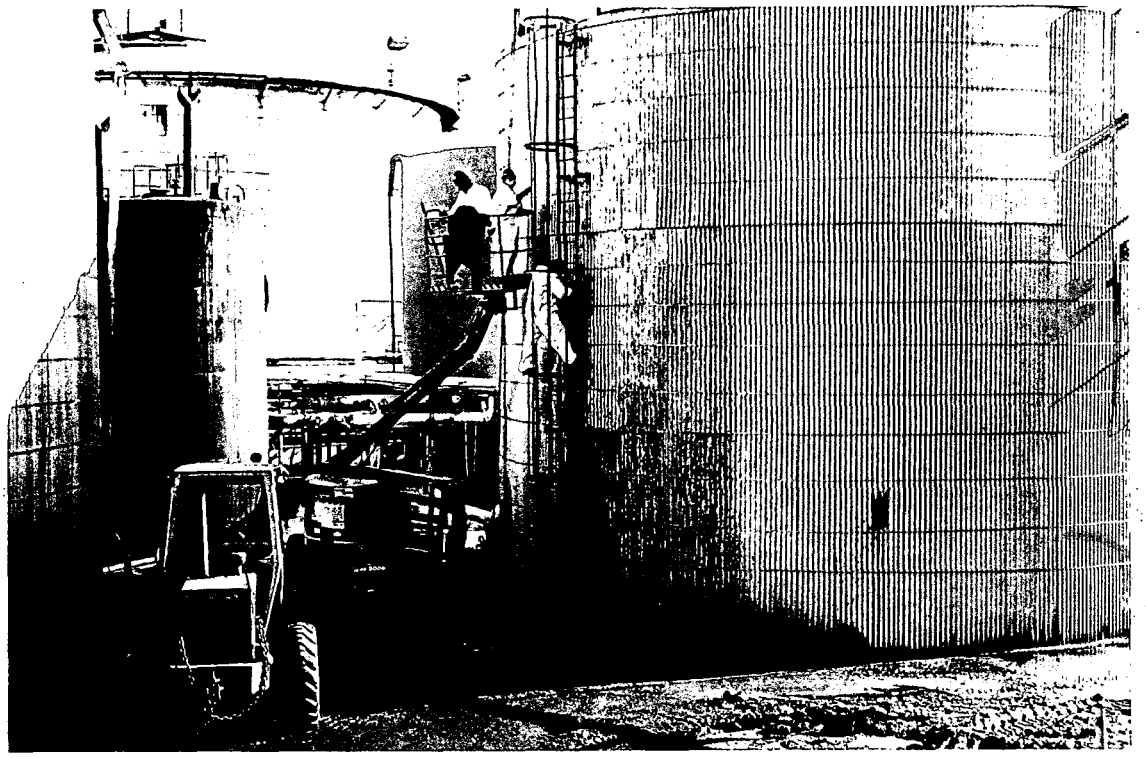

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1313 N-2 N- 21-1

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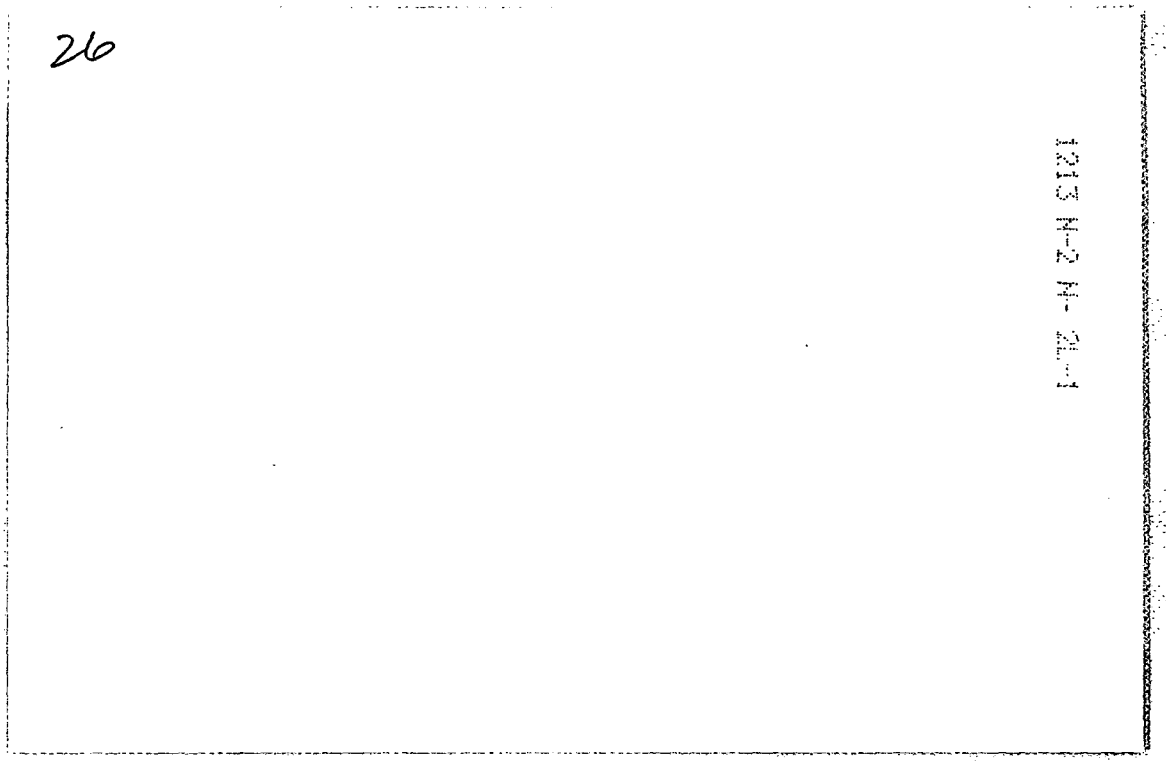

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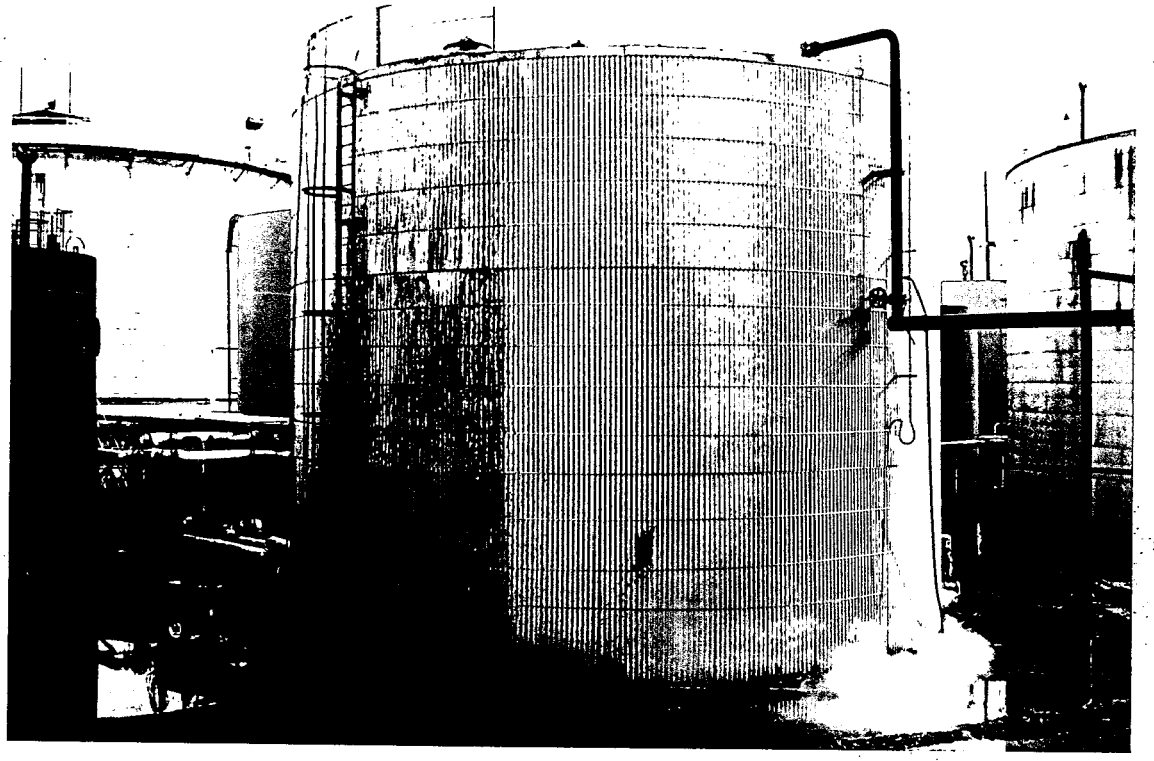
1415 W-2 W- 2L-1



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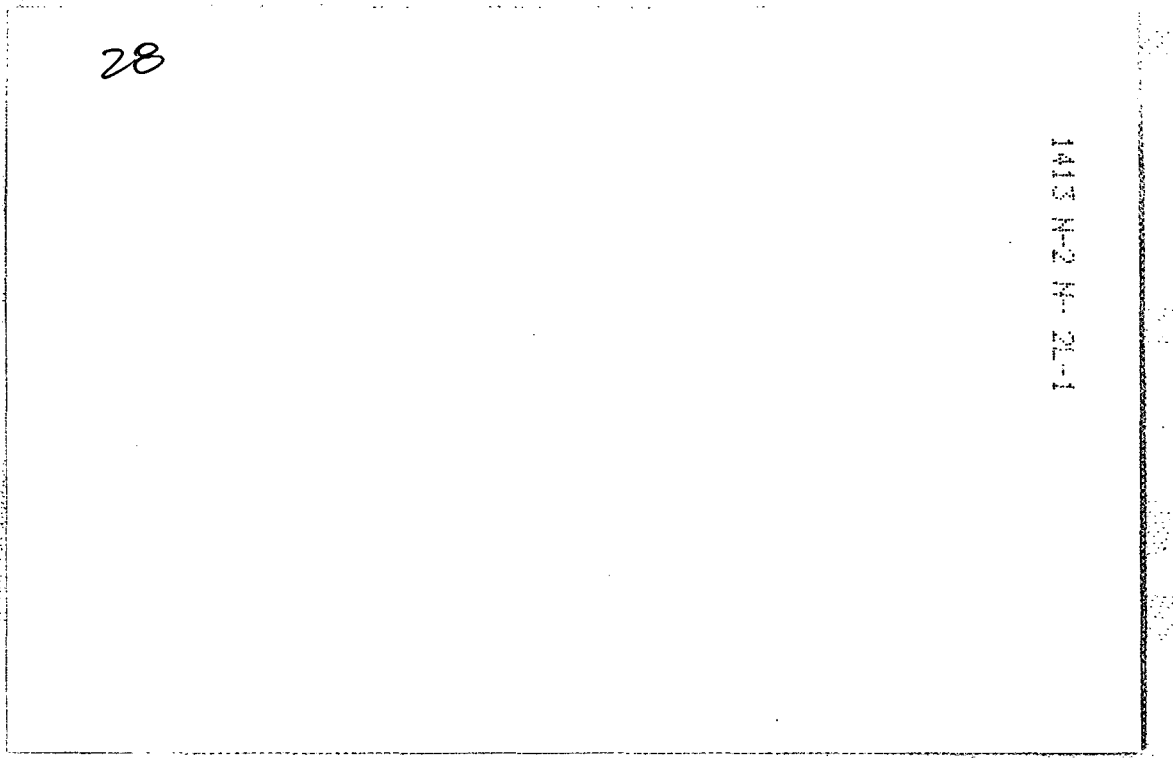

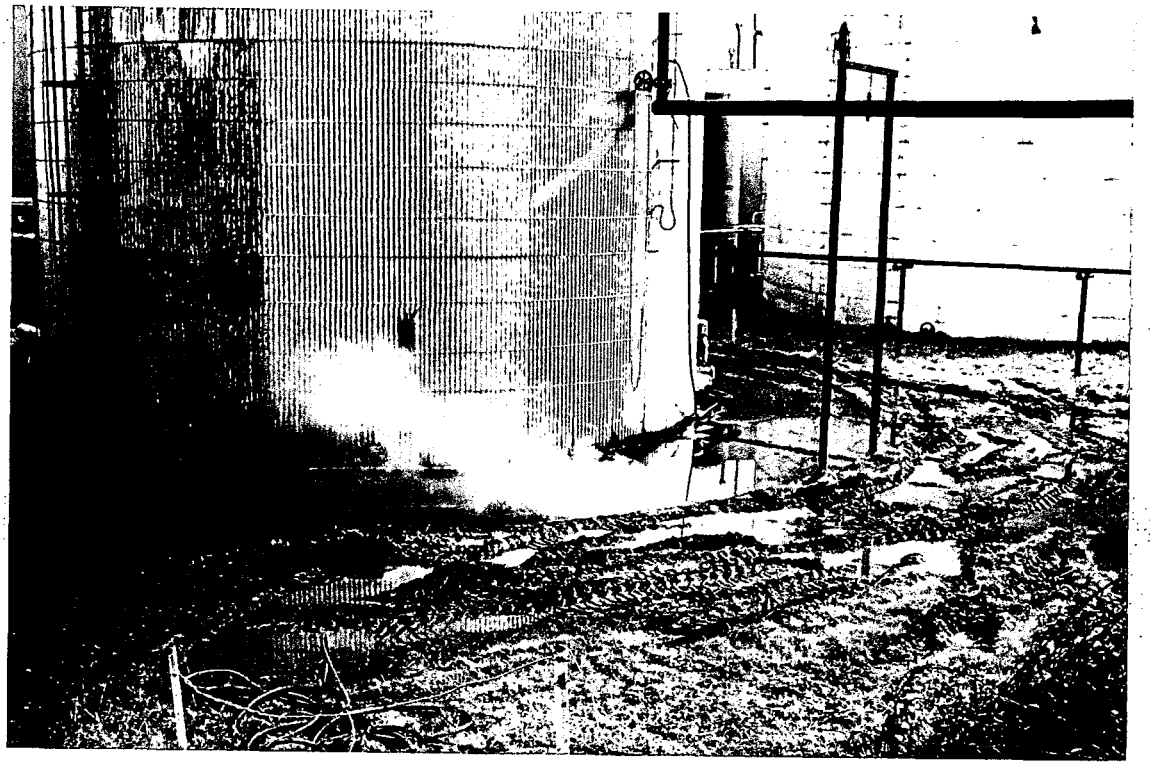

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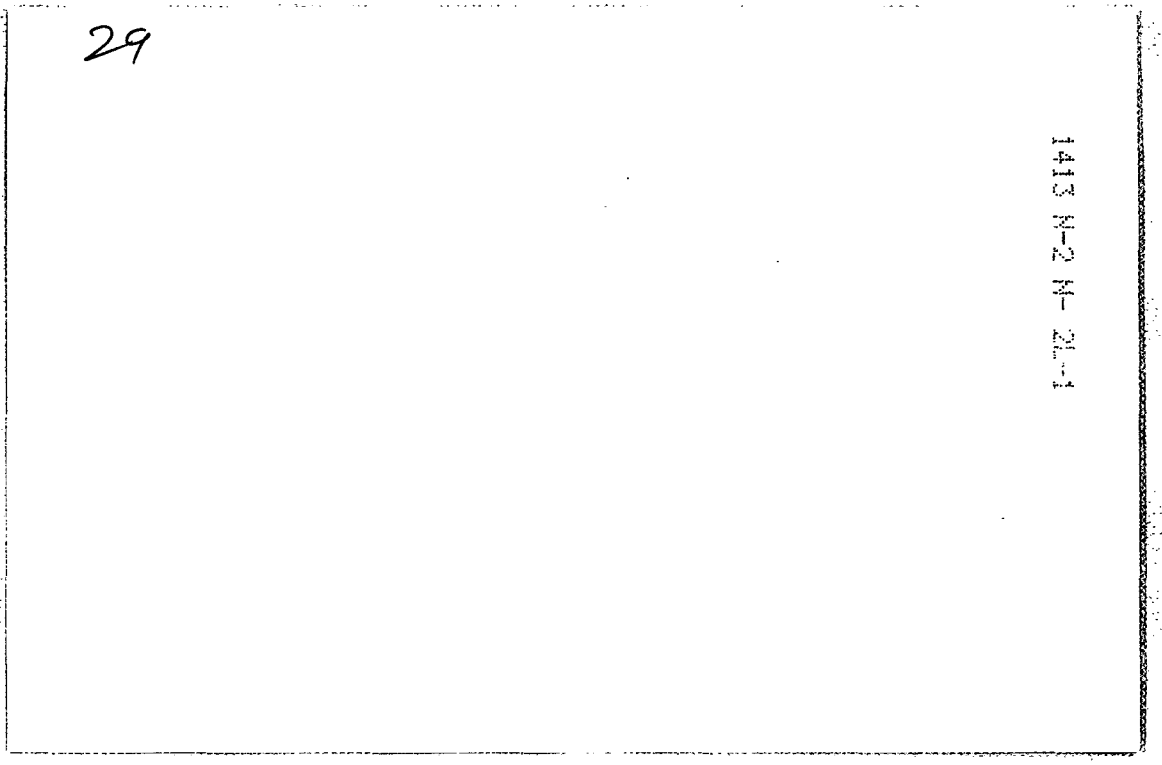

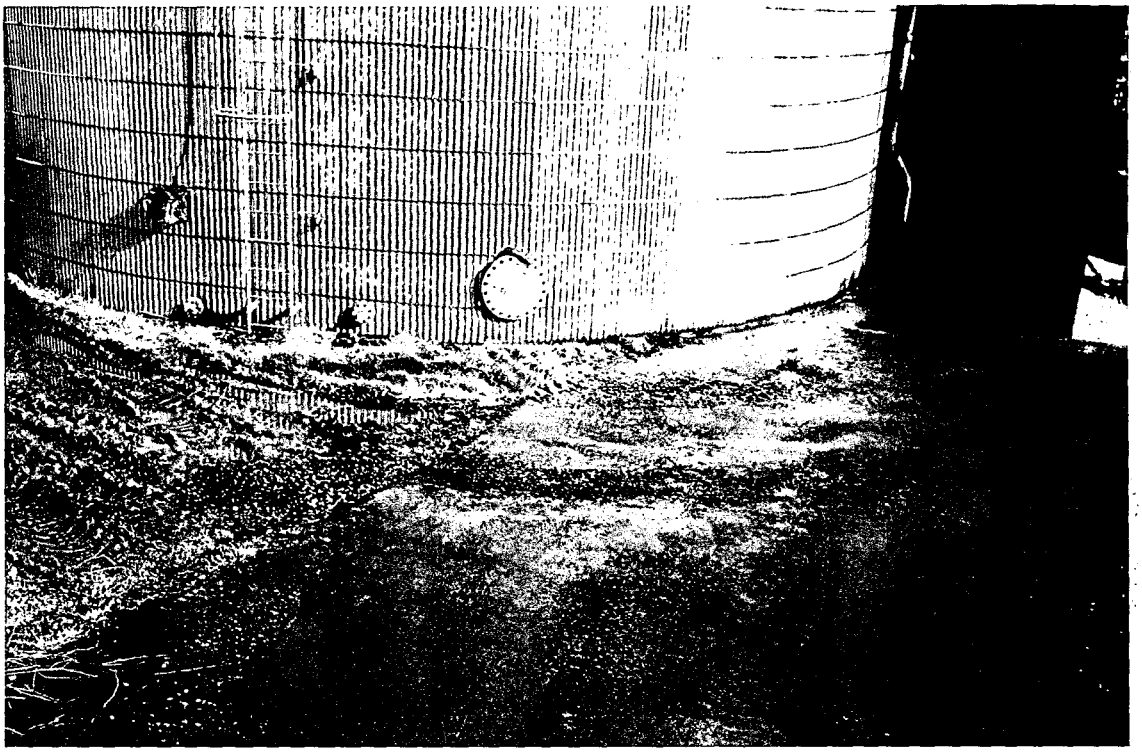

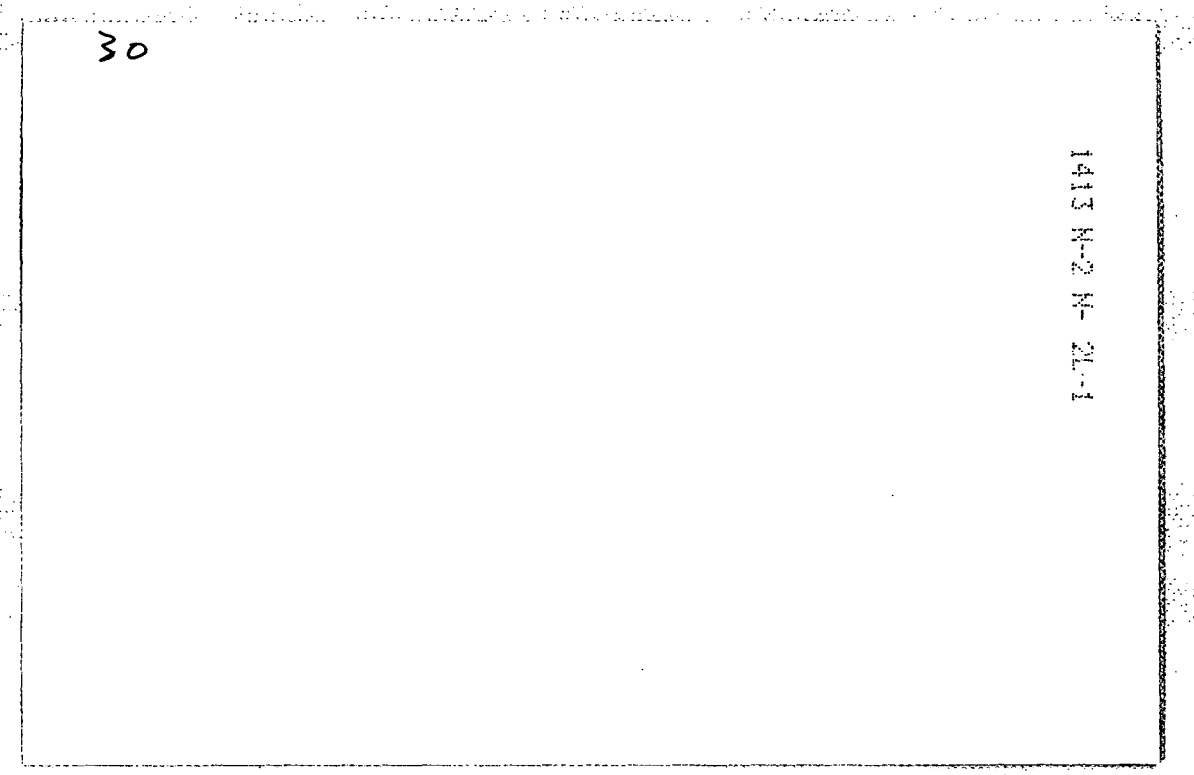
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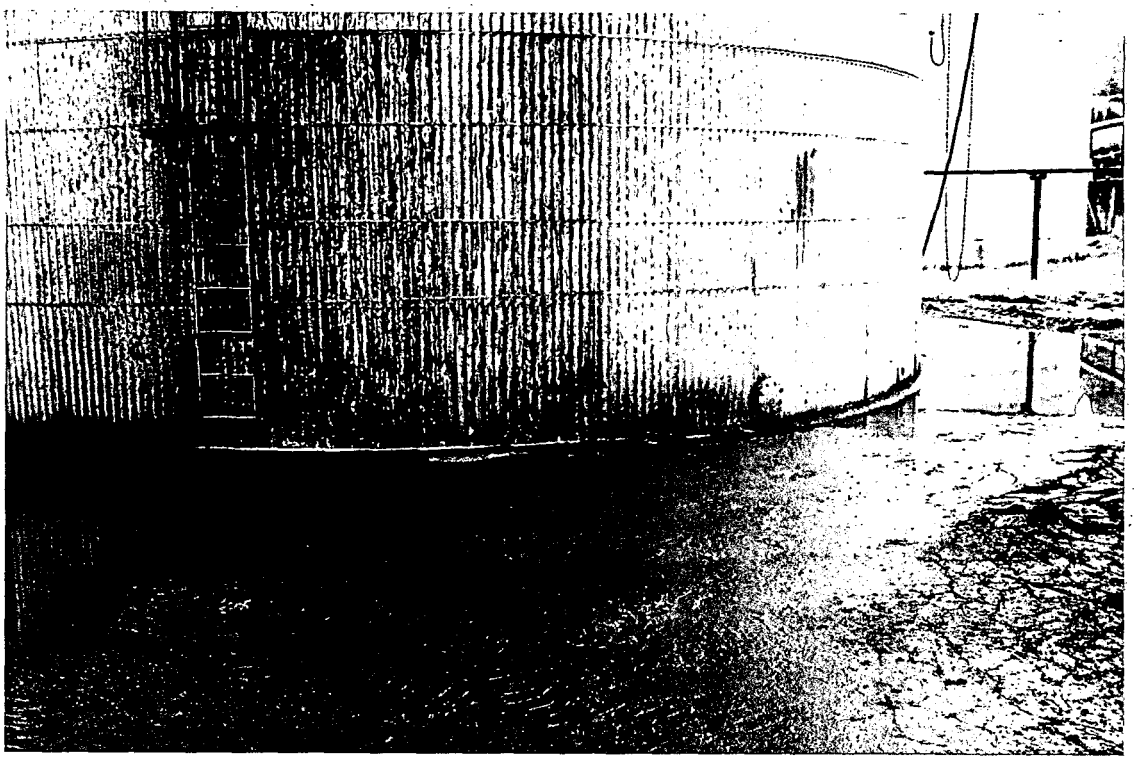

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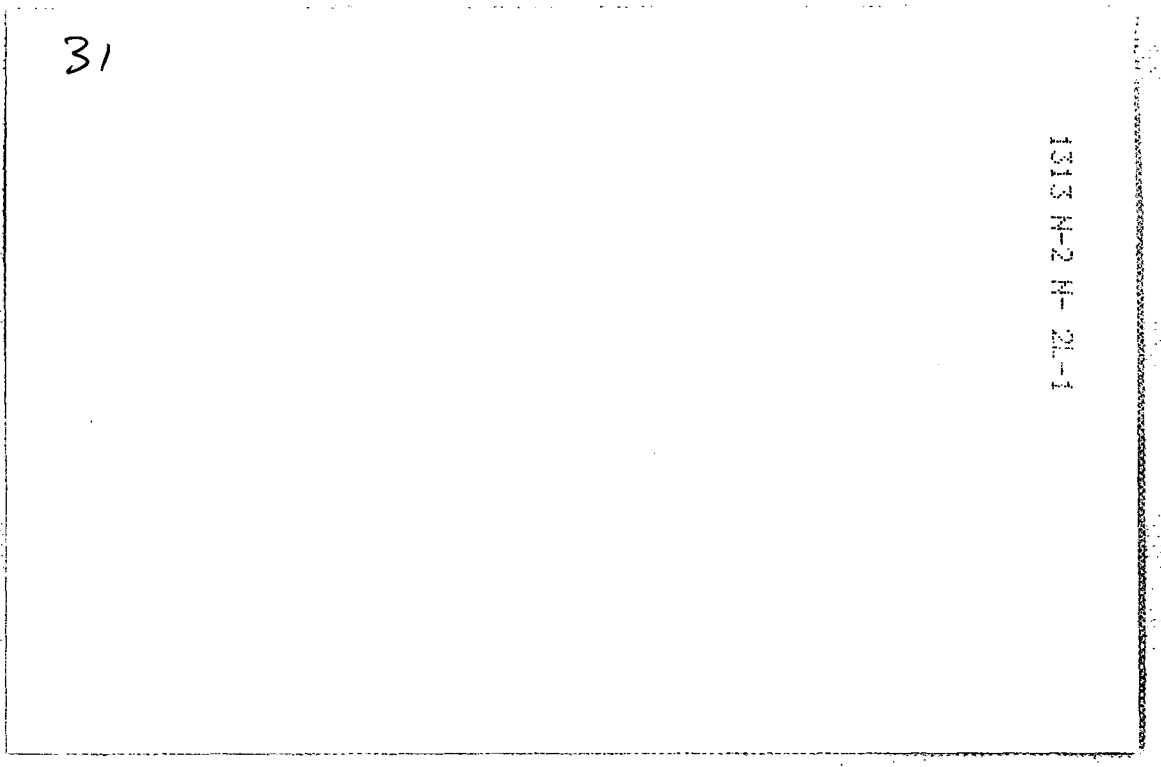

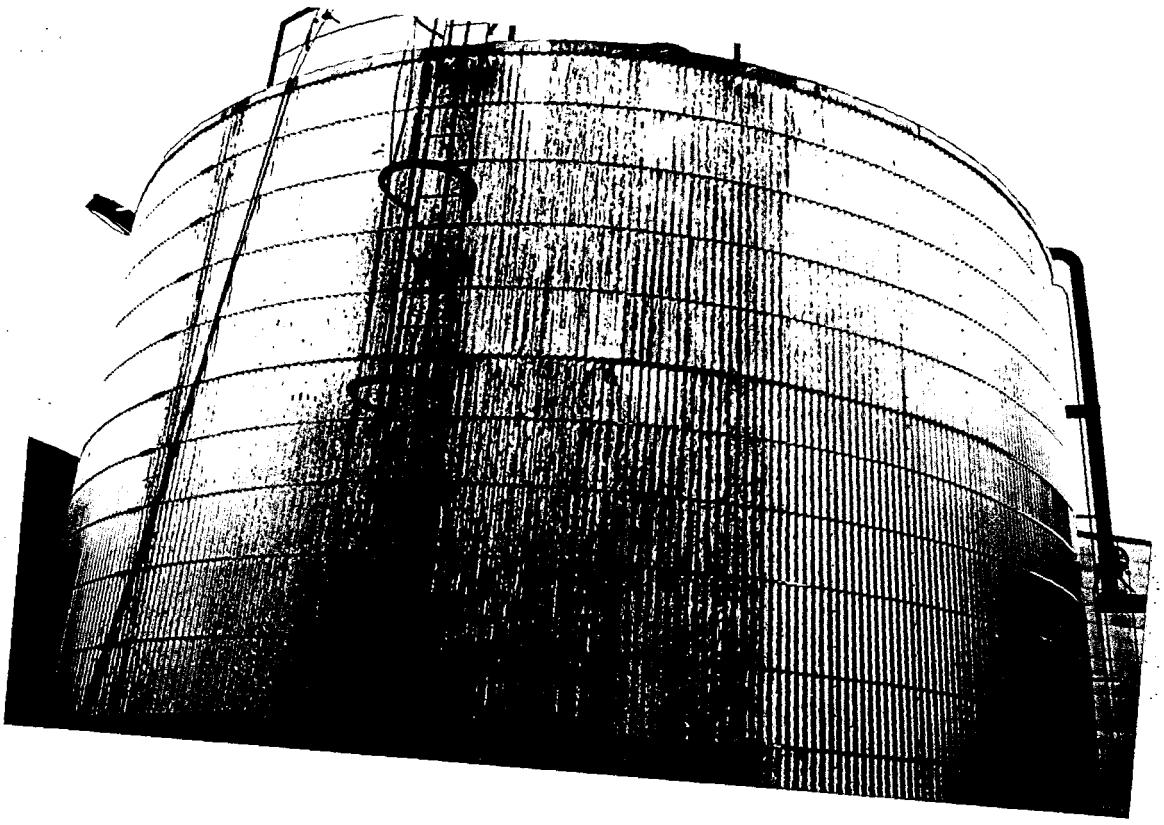

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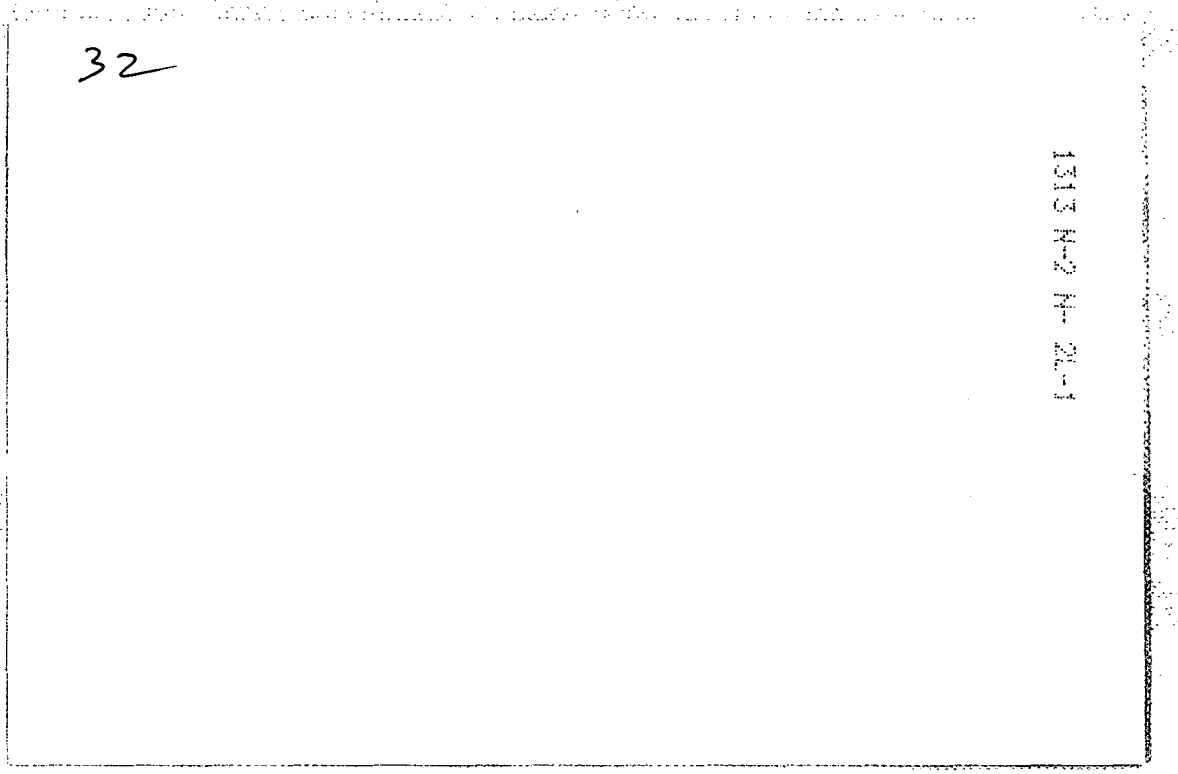

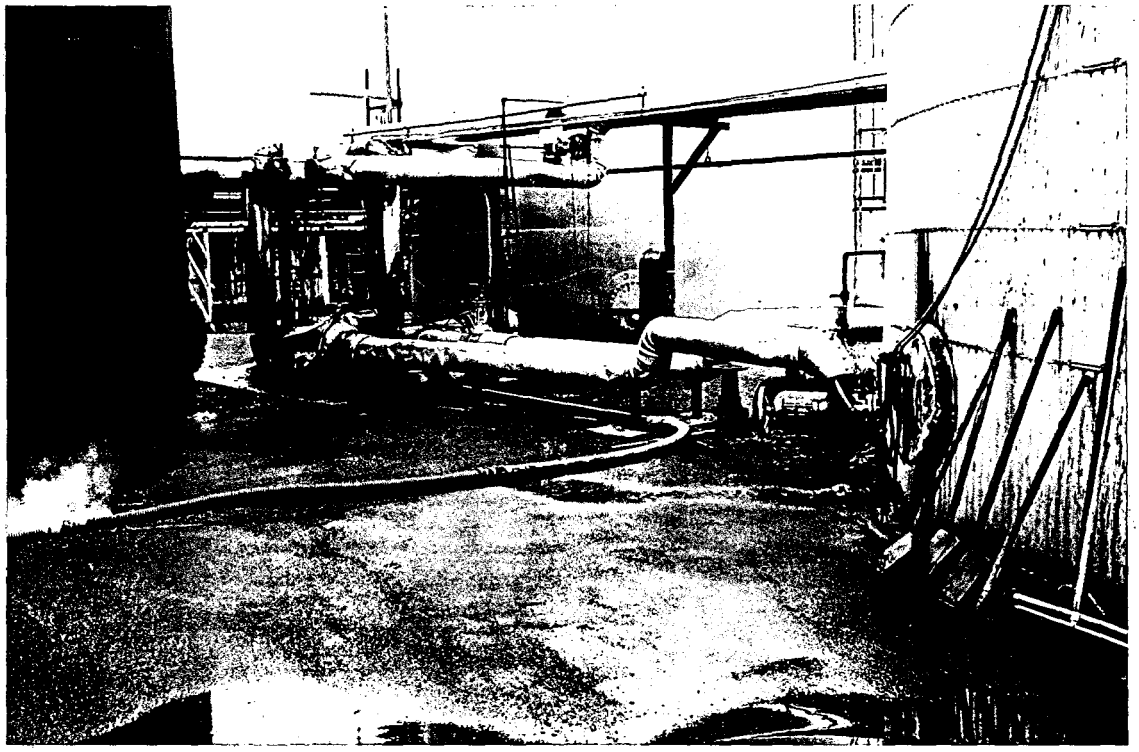

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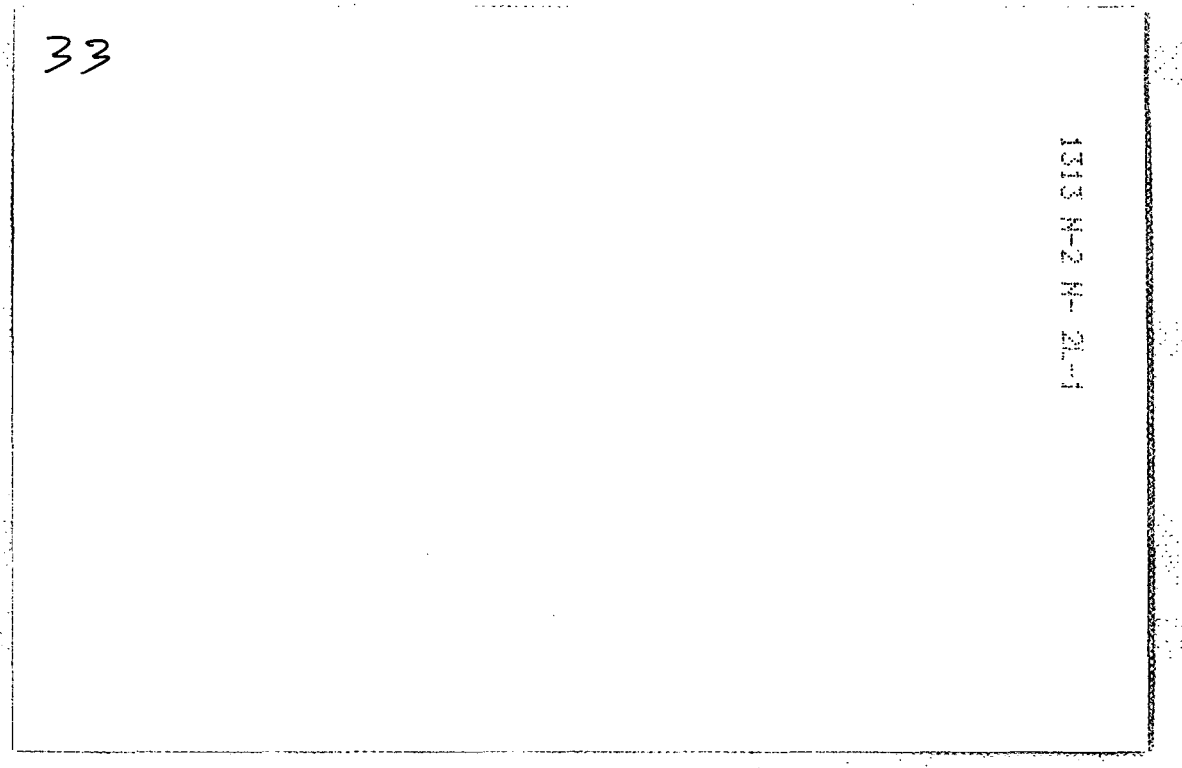

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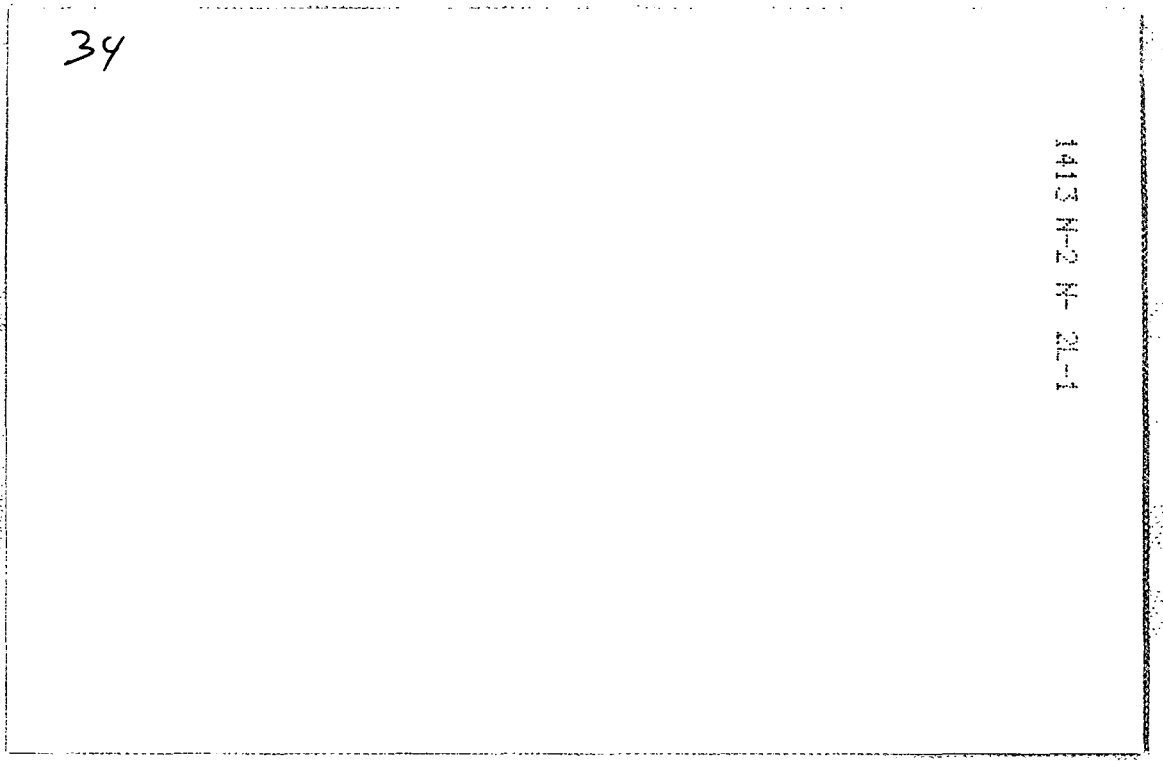

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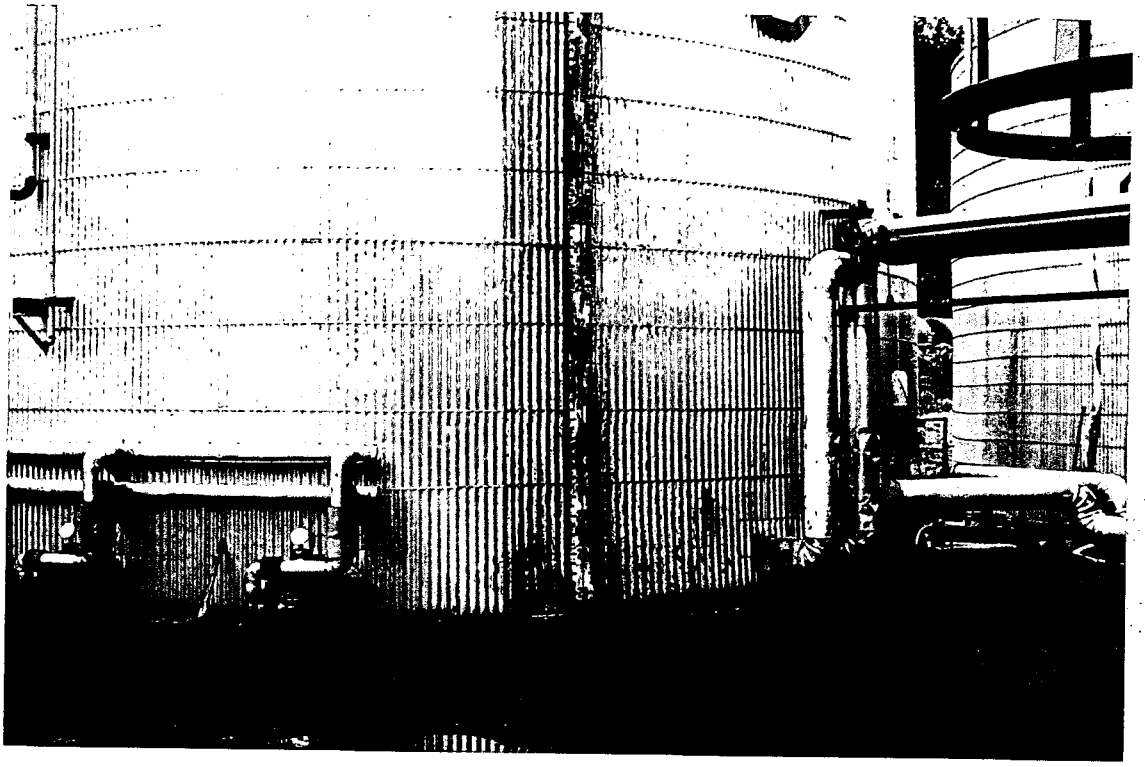

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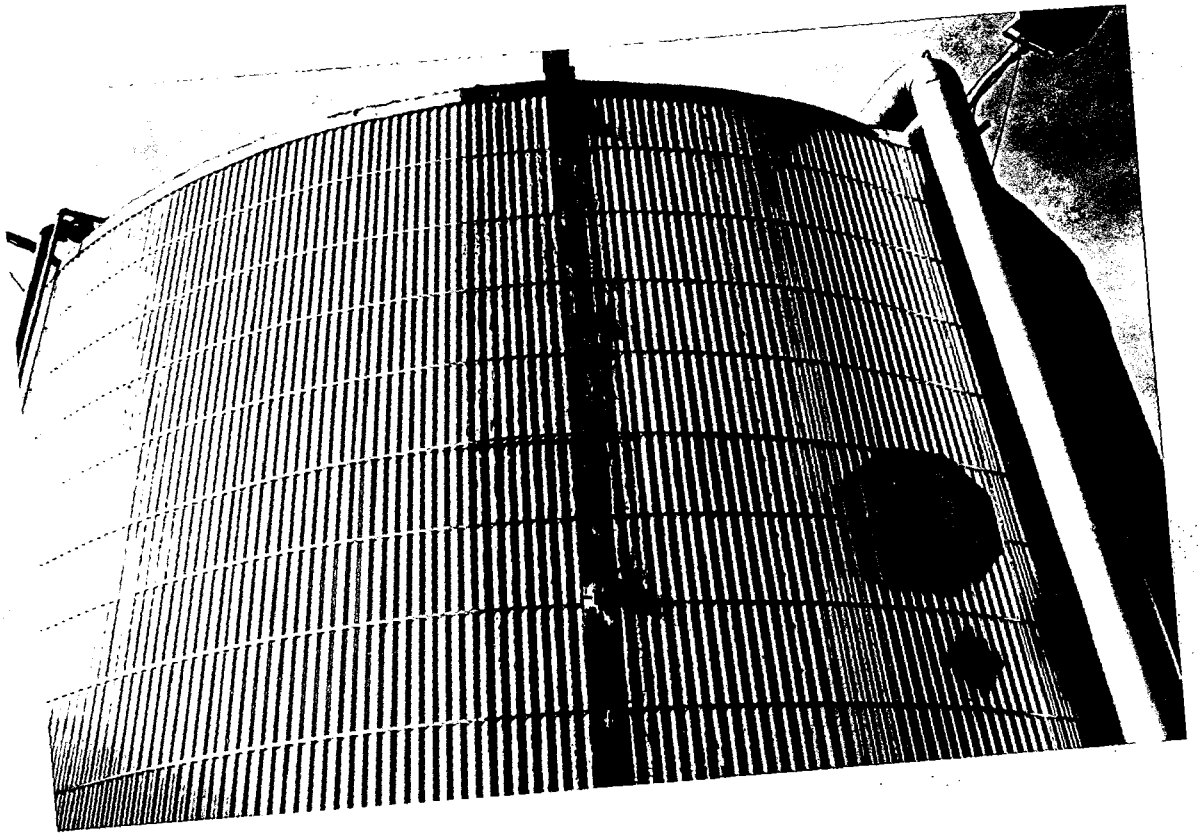

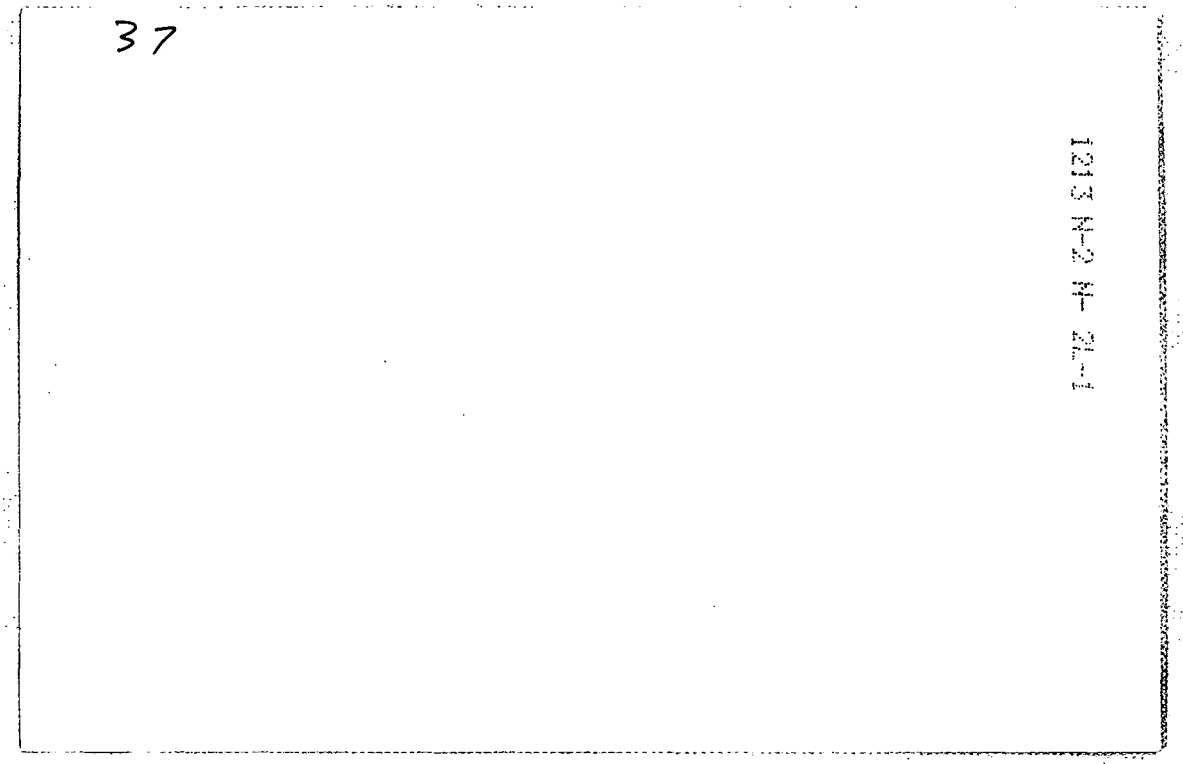
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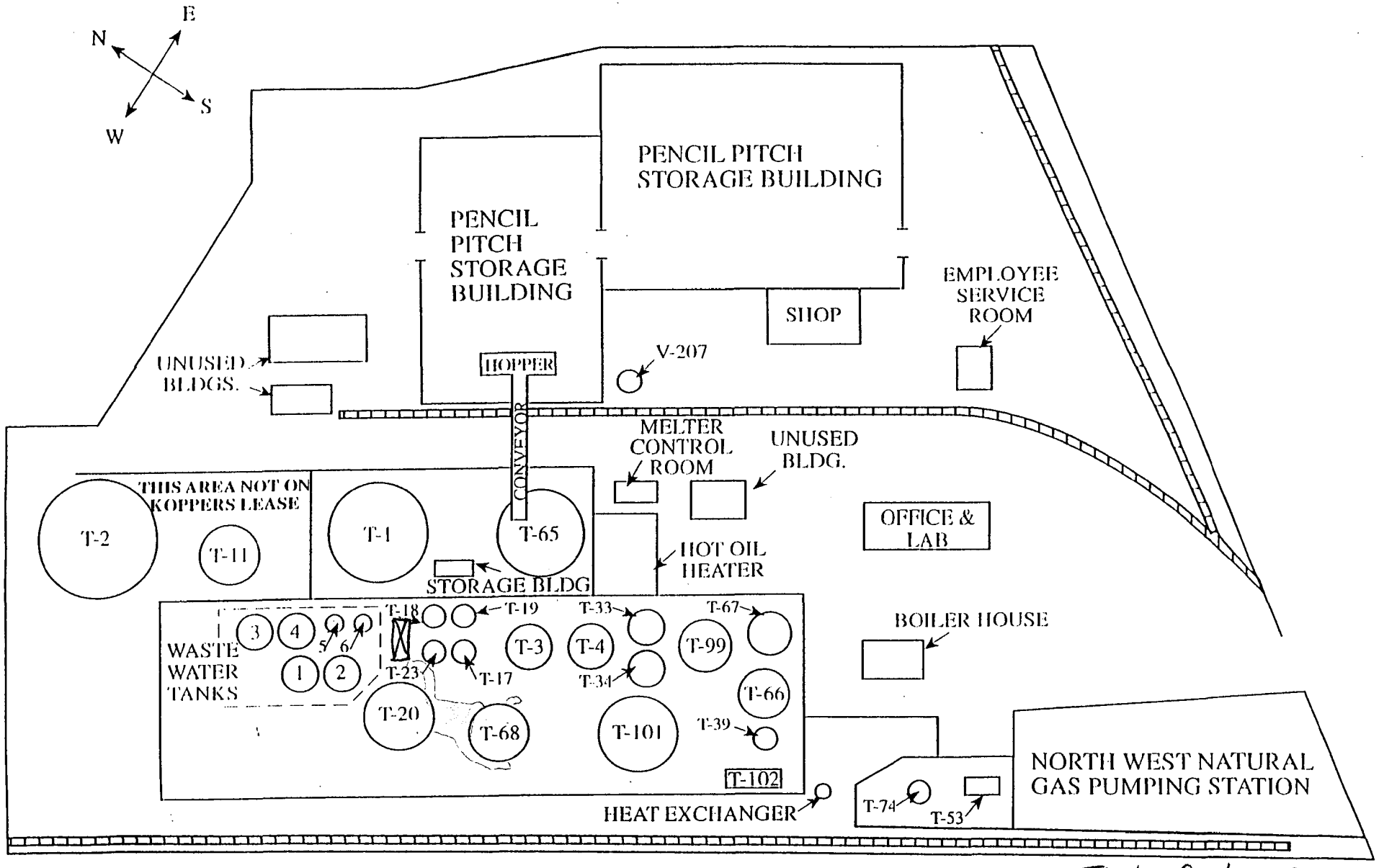
1213 N-2 M- 21-1

38

1/28/98 PITCH SPILL
PORTLAND TERMINAL

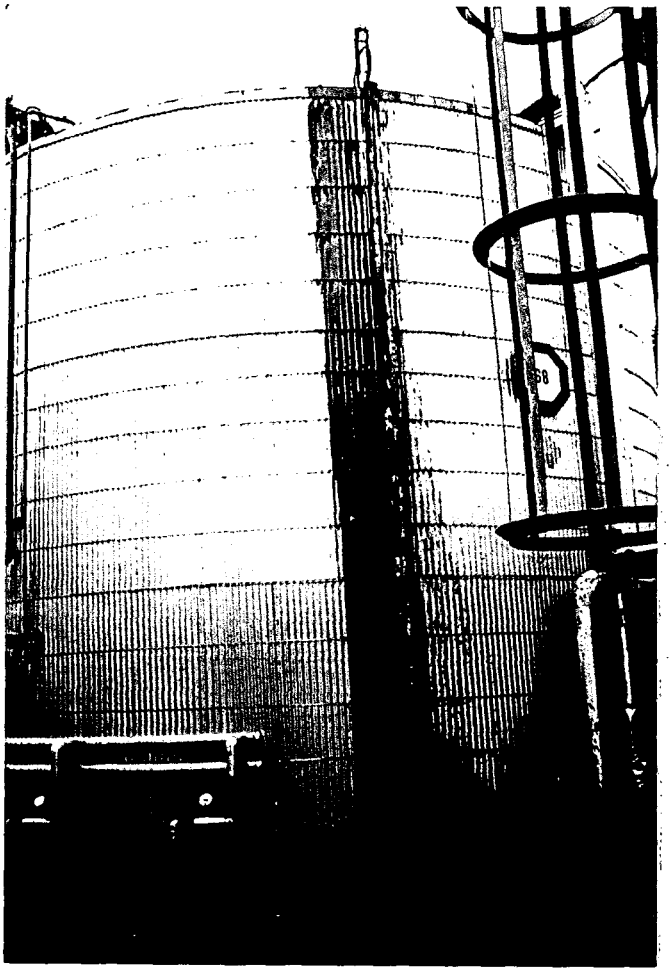
PICTURE #	EXPLANATION	DIRECTION PICTURE WAS TAKEN FROM
1-	T-68 shipping tanks' gauge board	north
2-	T-68 shipping tanks' gauge board and base	north
3-	T-68 shipping tanks' gauge board and base	northwest
4-	T-68 shipping tanks south and southeast side	northeast
5-	T-68 shipping tanks south and southwest side	southwest
6-	T-68 shipping tanks south and west side	southwest
7-	T-68 shipping tanks south and west side	southwest
8-	Area between T-68 and T-20	south
9-	West side of T-68	northwest
10-	West side of T-68	north
11-	East side of T-20	south
12-	East side of T-20	east
13-	East side of T-20	southeast
14-	Area between T-20 and T-23	southeast
15-	Same as area above, this is a concrete drain That feeds into the sump(oil/water separator)	southeast
16-	same as above, from the other end	northwest
17-	same as above, a rock dam to stop the flow	north



TANKS PICTURED
Spill AREA
⊠ Sump

PROPERTY SITE PLAN

Koppers020257



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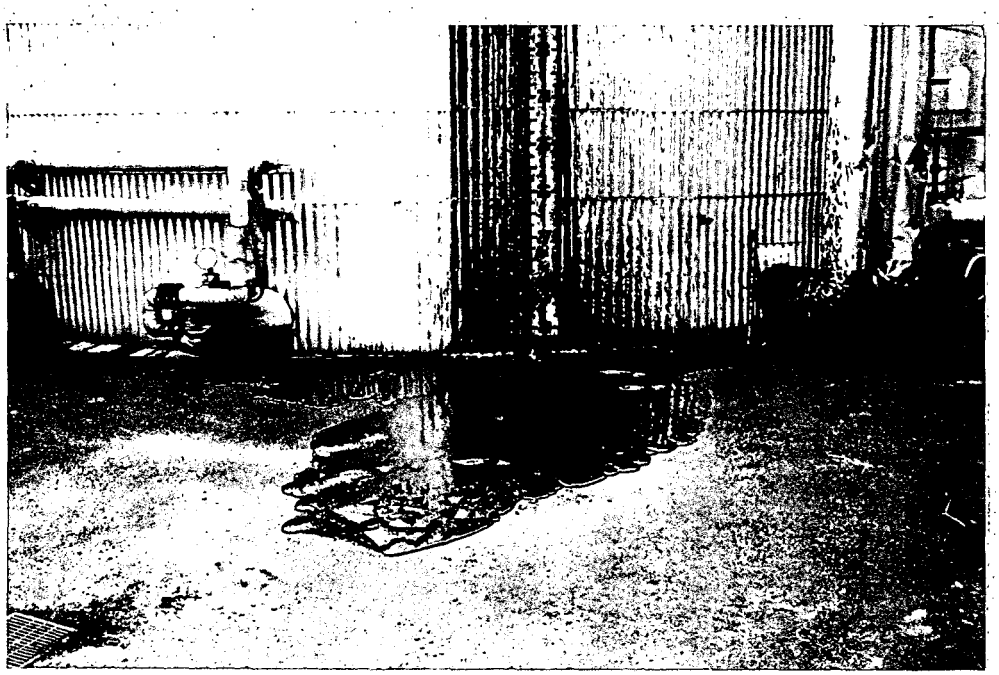
1883 N-2 N- 2L-1



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1883 N-2 N- 2L-1

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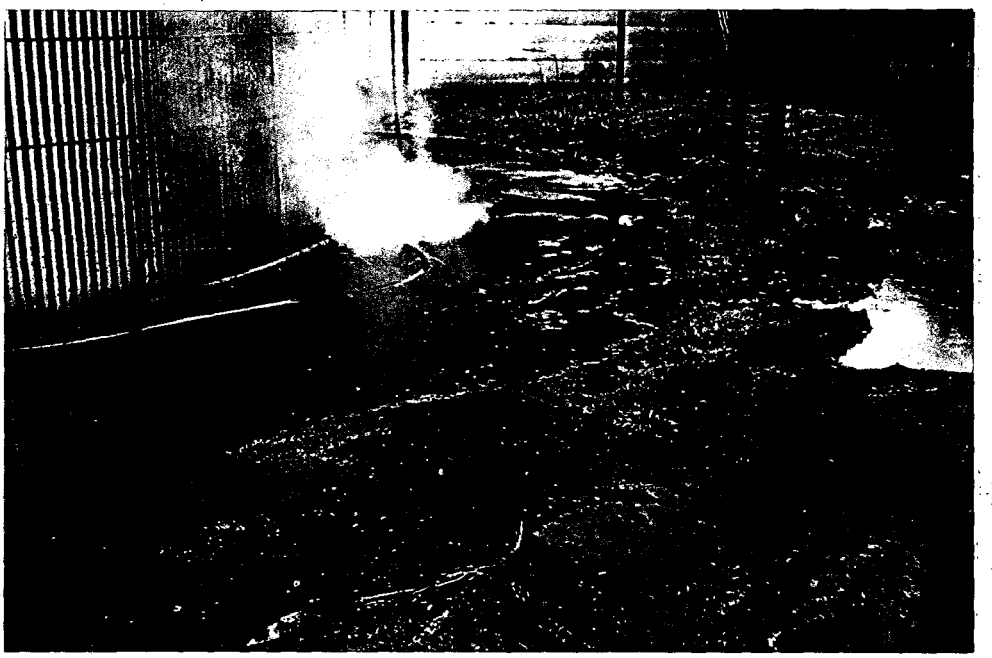
1883 N-2 N- 2L-1

4

1883 N-2 N+ NL-1



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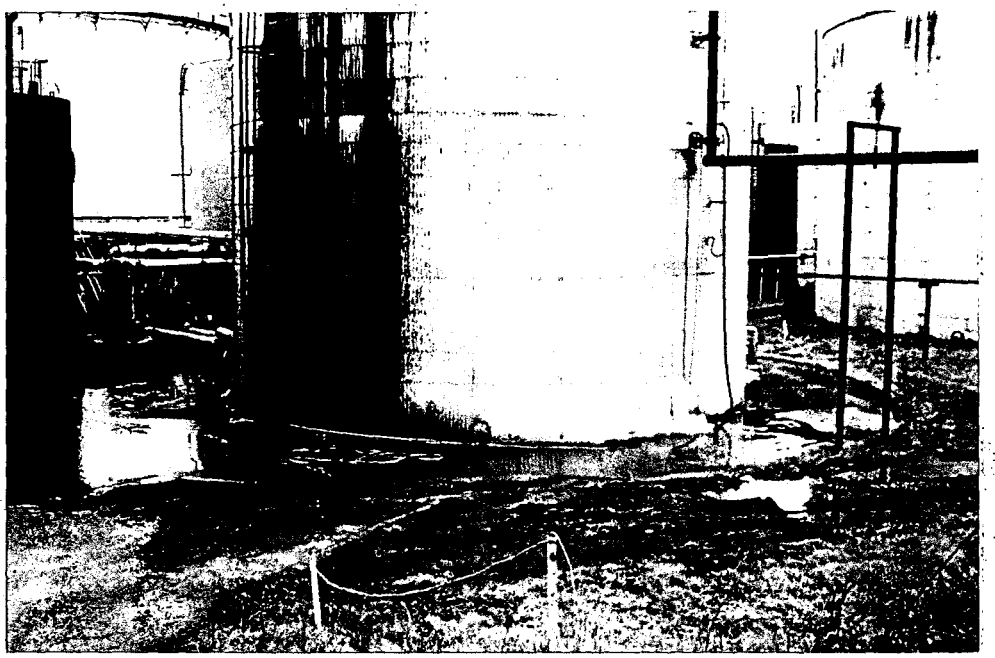
1983 N-2 N+ NL-1



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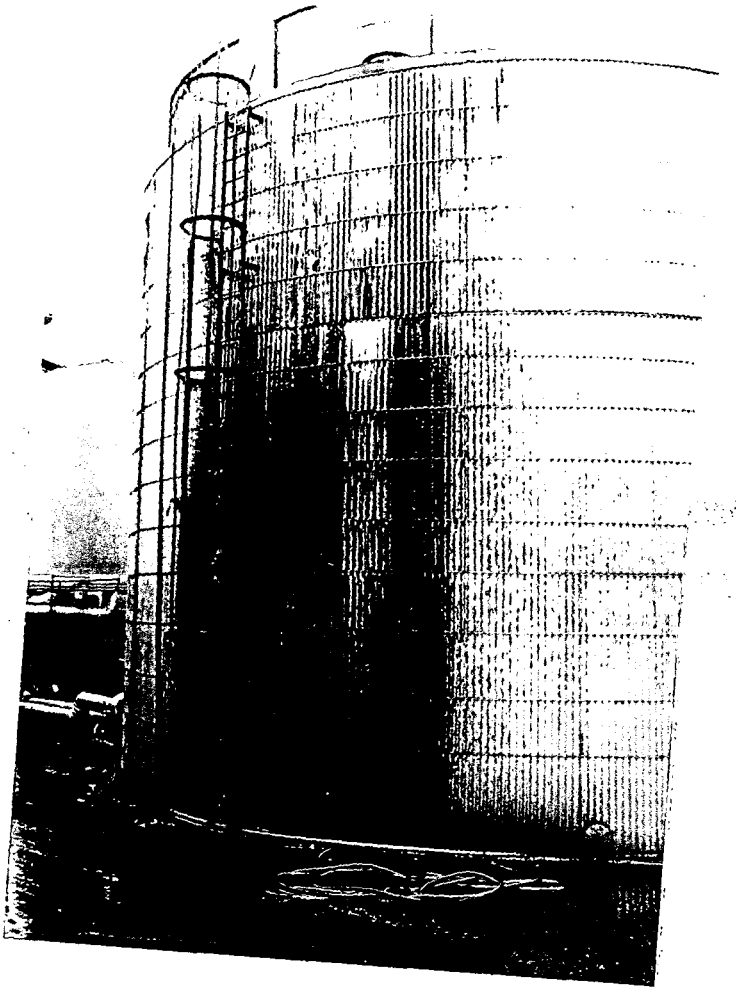

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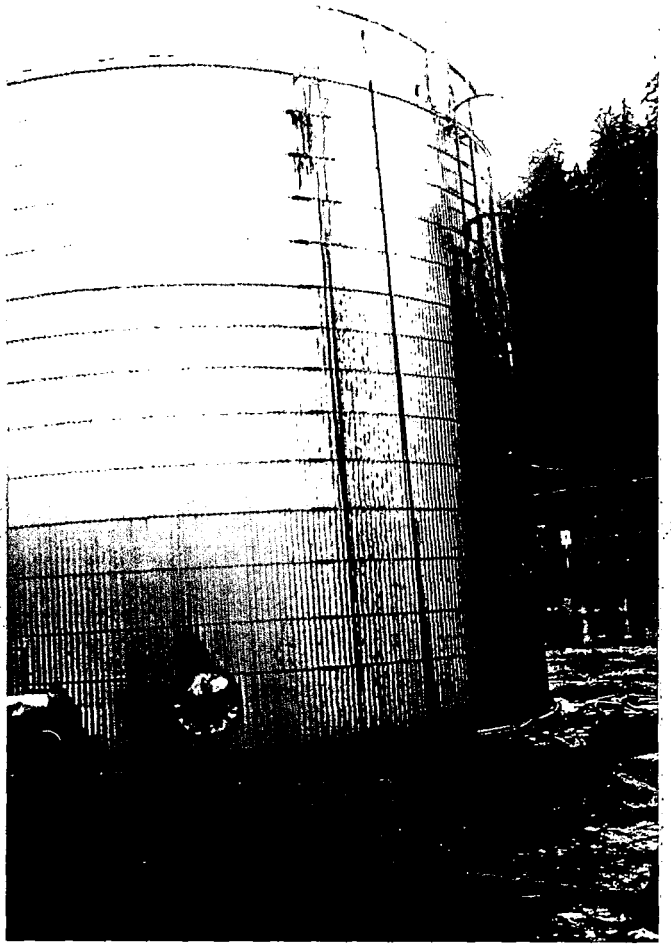
1883 N-2 N- 2L-1

8

1883 N-2 M- 2L-1



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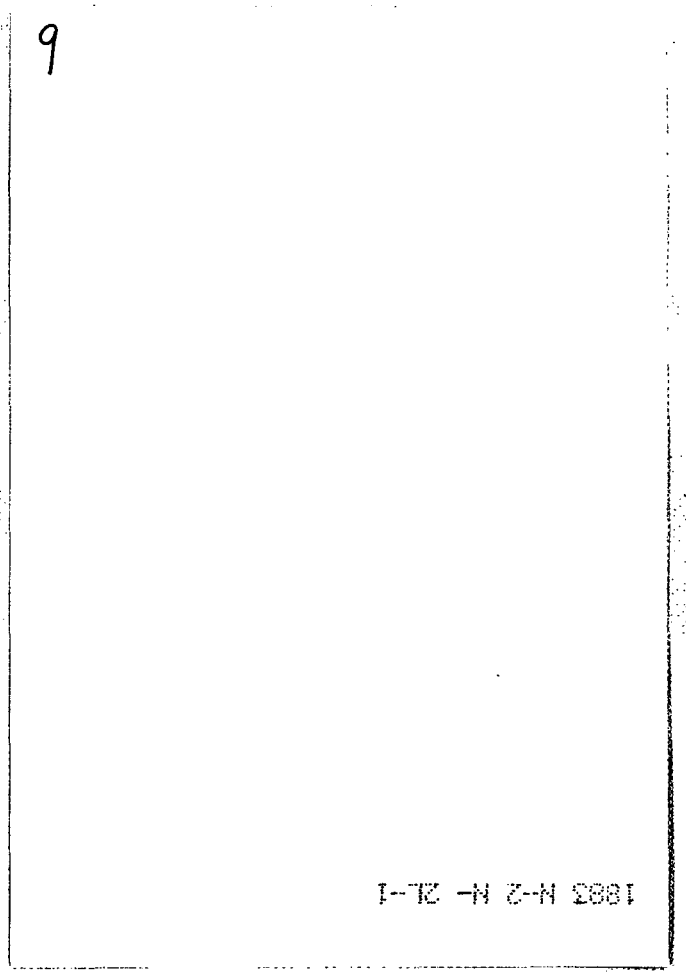

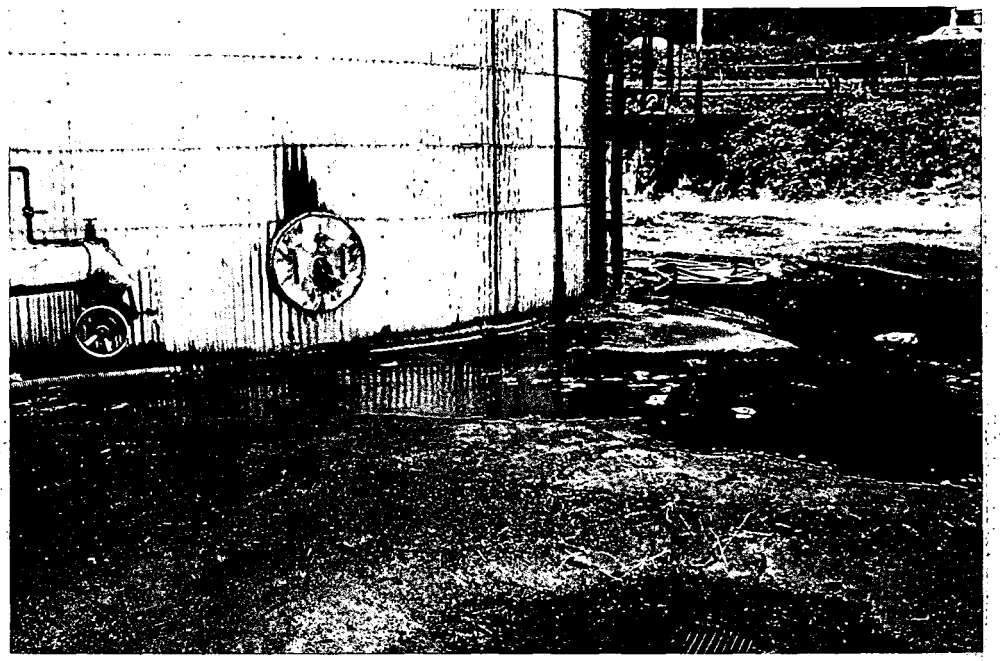

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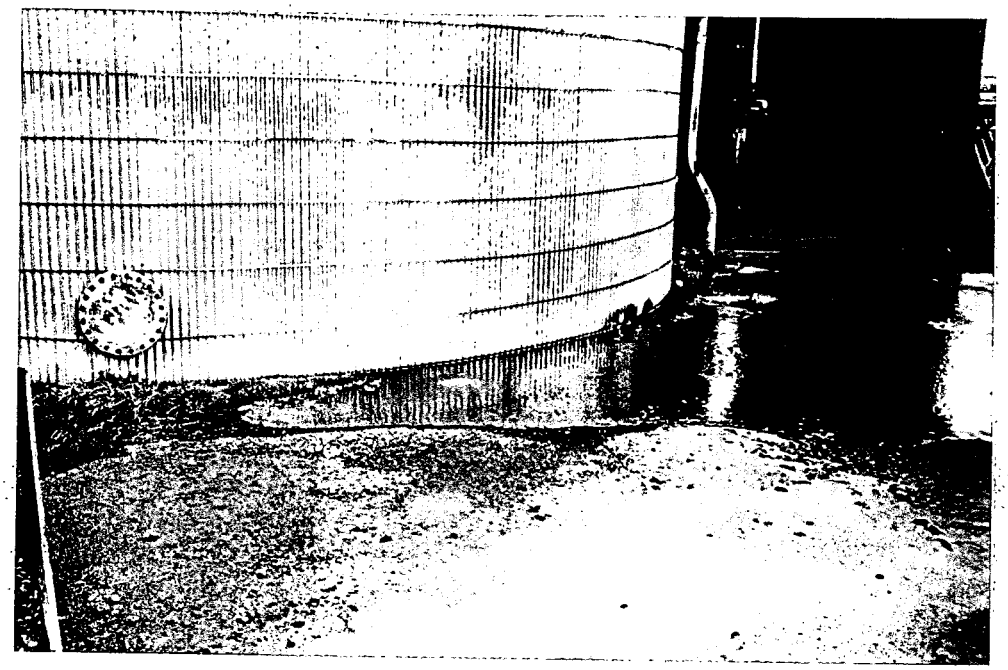
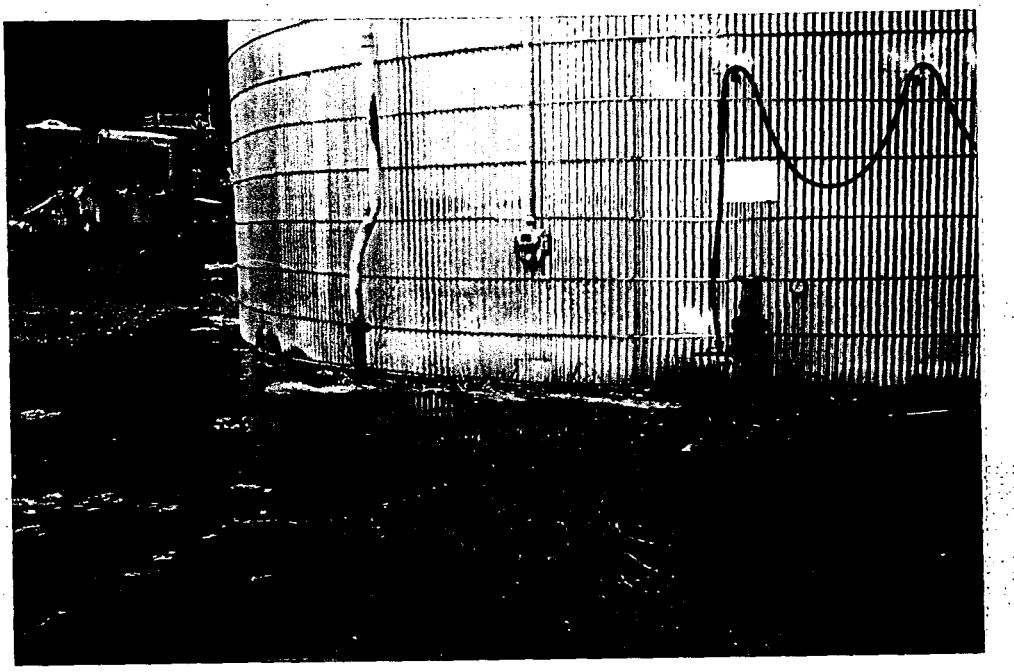


1883 M-2 M- 2L-1



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1883 M-2 M+ ML-1

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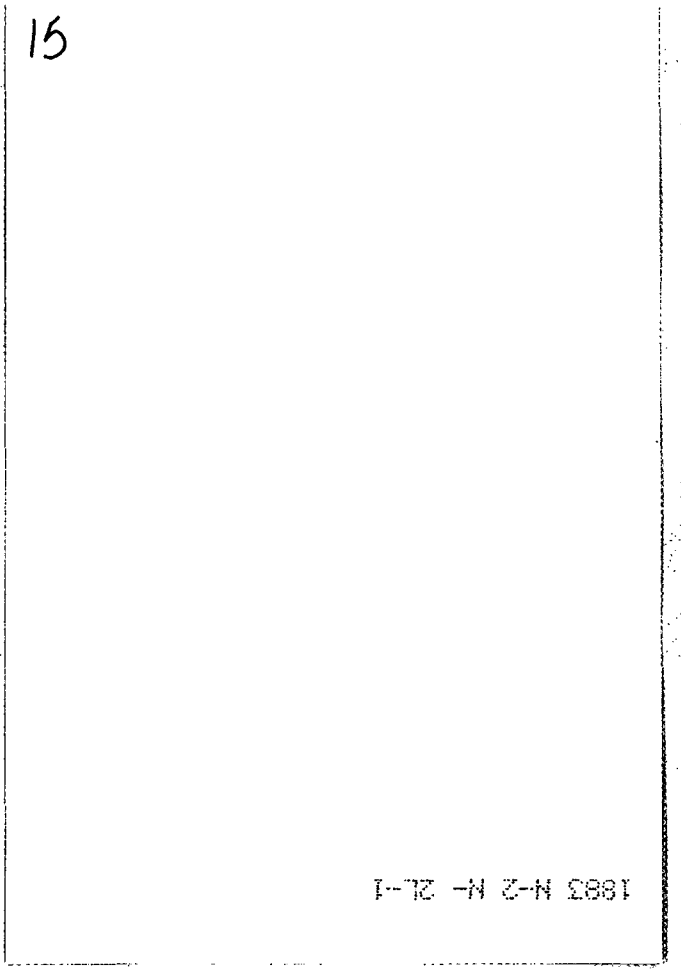
1883 N-2 N+ NL-1

14

1803 N-2 N- 2L-1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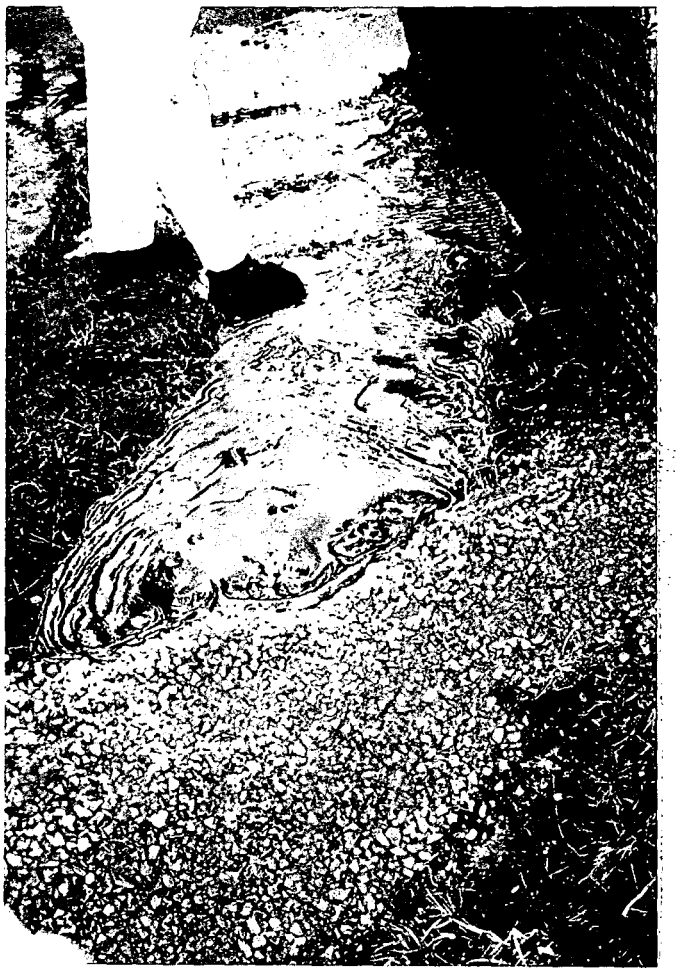
1883 N-2 N- 2L-1



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1883 N-2 N- 2L-1

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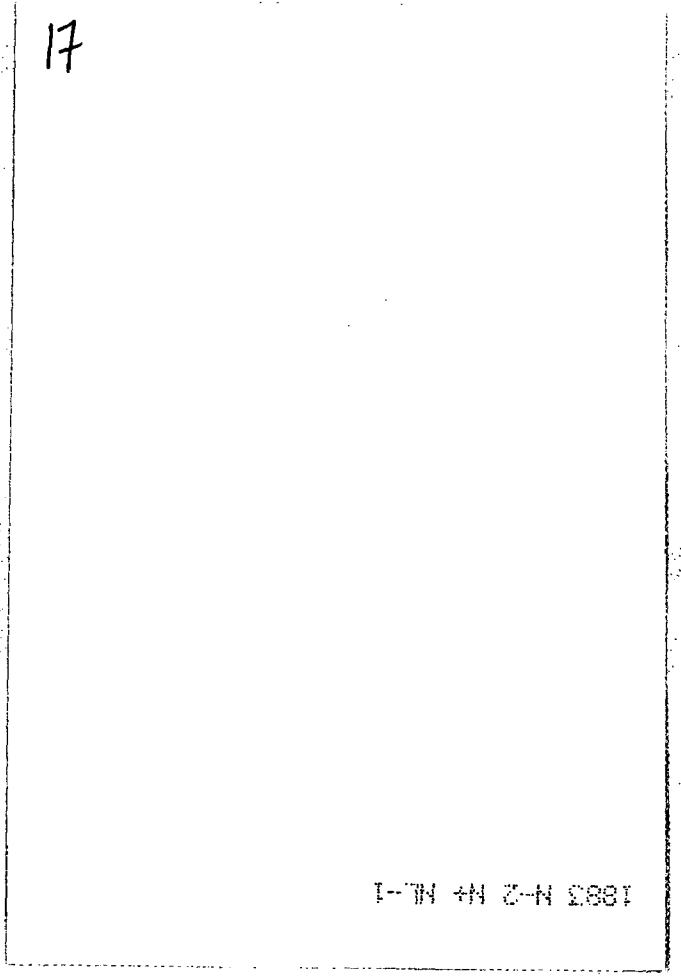

1883 N-2 N+ NL-1

Author: Walter Turner at PITT
Date: 1/29/98 7:25 AM
Priority: Normal
TO: Kevin Fitzgerald, Randy Collins, Bill Swearingen, John Marcinowski, JIM DIETZ at TECHCTR, Amos Kamerer
Subject: Re: PITCH REPORTABLE SPILL

Amos, please call me as soon as you arrive the office! Walt

---------- Reply Separator ----------
Subject: PITCH REPORTABLE SPILL
Author: AMOS KAMERER at PITT
Date: 1/28/98 8:25 PM

At about 1:15PM this afternoon, we had a reportable spill of liquid pitch. While pumping liquid pitch from the melter tank to the shipping tank, apparently, the float gauge on the shipping tank became stuck and we over filled the tank. We have calculated that the loss was 1270 gallons, or 6.985 tons of material. And, that about 6.5 tons was contained, with about .5 tons escaping on to the ground, thus this was a reportable incident.

Two things accrued to bring this incident to our attention. First, an employee from our next door neighbor, Wacker Siltronics, was returning from lunch, saw the spill, and came into the office and told us. Second, someone (we think it happened to be someone from the Coast Guard, who is also a neighbor) saw the tank over flowing from the highway and called 911. The Fire Dept. responded about 3 minutes later. We shut off the pump at 1:20PM and immediately started the containment process. Based on the pumping capabilities of the pump, and the volume of material lost,we were able to establish the time of the incident.

The Hazmat coordinator for the Fire Dept. responded, as did 2 representatives from the ODEQ. They were all satisfied that we had the situation under control, and I told them that once I had all of the facts, I would be reporting the spill to the proper authorities. I ultimately called both the National and Oregon emergency response numbers at about 5:45PM. The Oregon responder said that they already had received an earlier report, from the Coast Guard, thus my assumption that it was someone from the Coast Guard who called 911.

The utility man that was performing the pumping said that he had just checked the gauge at 1:05PM and the reading was at 21' 6", in. We were planning to fill to 27' 6", in. Thus our assumption that the float gauge was stuck. However,after the incident, the reading indicator was stuck at the 28' 0" level. Again, however, a part of the pitch spill came through the opening that the float measuring cable passes through, thus the cable, the measure board, and the reading indicator were all covered with pitch, thus making difficult to determine what actually happened. We will get a full written statement from this employee

I took a full set of pictures, that will be developed tomorrow, I will then send them to Kevin and Bill, with the incident report.

Our major concern at this time, is the fact that the pitch over flowed into, and through, the fume recovery line; in addition to the float gauge cable opening and the pressure relief manhead. We estimate that we have plugged 60' of the 6" diameter fume recovery line, and 40' of the 12" diameter fume recovery line, that the 6" line it feeds into. We have contacted our local maintenance contractor, who will be in the plant tomorrow AM, to assess the repairs and the cleaning of these lines. We have also ordered a drop box for the clean up material, and we are already permitted for the disposal of this material with our local land fill facility.

Obviously, we will be reviewing the operating procedures for this kind of function. However,two things come to mind immediately. First, when checking the gauge reading, you also test the float gauge reading board indicator, and the cable, pull on it to make sure the it is free. Second, we will develop a pumping time chart, that will show what the estimated time that it should take to pump various volumes of pitch between the two tanks. So that the employee can have this as a time reference, before he starts the pumping process.

Amos

Portland

HIGHLY CONFIDENTIAL

This is a brief summary of two incidents that occurred many years ago, according to reports that were given many years ago to T. J. Turner, the current General Foreman, by other employees, that are all now retired.

In the late 1970's, approximately 1978, there was a motor accident involving a truckload of KCO creosote. All of the cleaned up materials; creosote, dirt, absorbents, etc., were brought back to the terminal and were placed into tanks T – 53 and T – 74.

In the late 1980's, sometime during the summer of 1986 or 1987, the plant oil water separator was cleaned. The material that was removed, including some NSR distillate oil that was used to dilute the other existing materials that were in the separator, were all then placed into tank T – 1.

3/8/00

Post-it® Fax Note 7671	Date 3/9/00	# of pages ▶ 2
To Traci Self	From Amos	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

SPEED LETTER®

FROM K. Fitzgerald, F-1650
B. Swearingen, F-1800

TO Amos Kamerer

SUBJECT 1/29/98 Pitch Spill

FOLD NO. 9 or 10

MESSAGE

Enclosed please find the incident report, the final picture recap, pictures # 18 through # 38 And the USA, for your files.

Please Advise if you think we should make any changes or corrections.

DATE 2/11/98 SIGNED Amos

REPLY

FOLD FOR NO. 9

FOLD FOR NO. 10

DATE SIGNED

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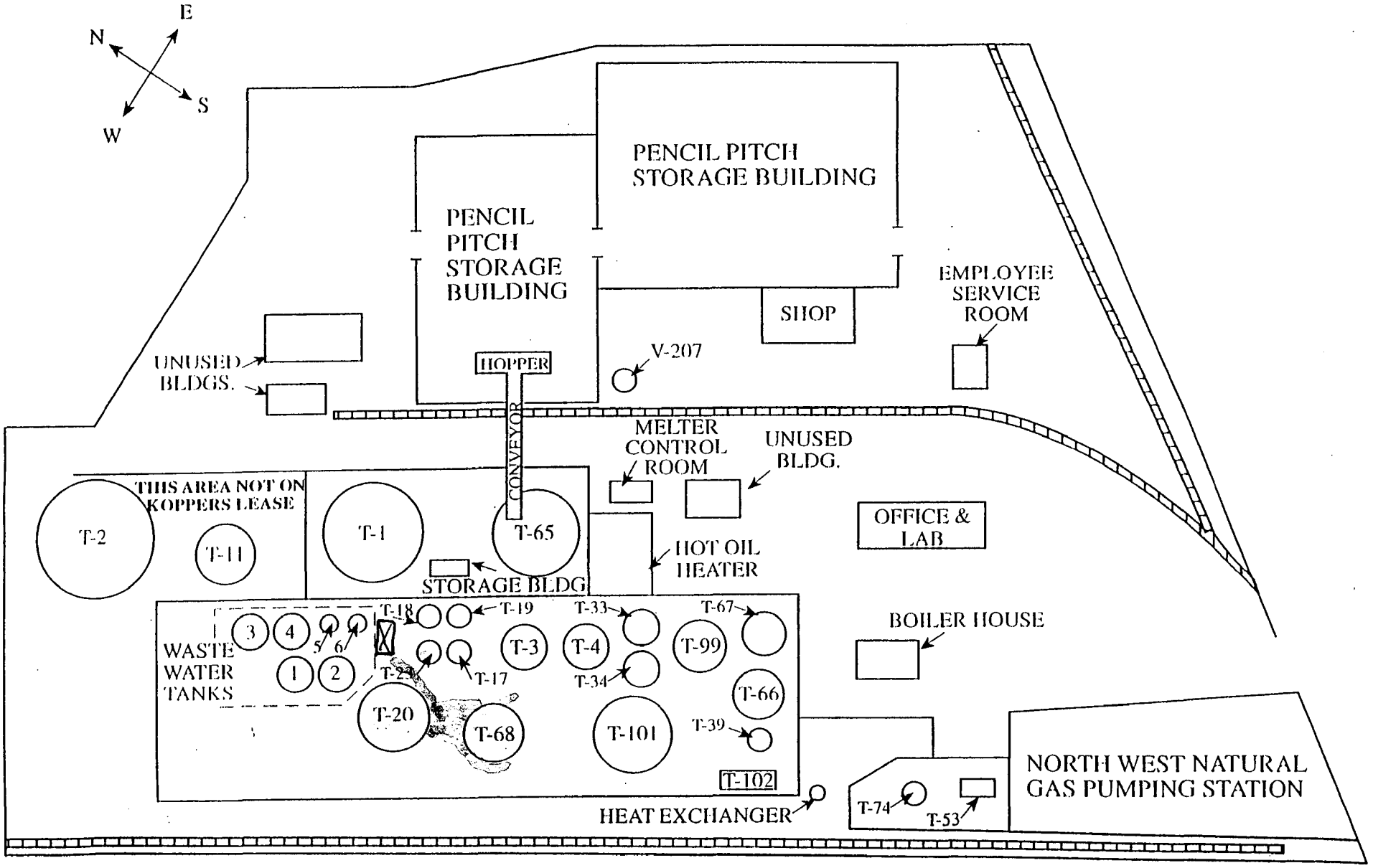
Koppers020295

1/28/98 PITCH SPILL
PORTLAND TERMINAL

PICTURE #	EXPLANATION	DIRECTION PICTURE WAS TAKEN FROM
1-	T-68 shipping tanks' gauge board	north
2-	T-68 shipping tanks' gauge board and base	north
3-	T-68 shipping tanks' gauge board and base	northwest
4-	T-68 shipping tanks south and southeast side	northeast
5-	T-68 shipping tanks south and southwest side	southwest
6-	T-68 shipping tanks south and west side	southwest
7-	T-68 shipping tanks south and west side	southwest
8-	Area between T-68 and T-20	south
9-	West side of T-68	northwest
10-	West side of T-68	north
11-	East side of T-20	south
12-	East side of T-20	east
13-	East side of T-20	southeast
14-	Area between T-20 and T-23	southeast
15-	Same as area above, this is a concrete drain That feeds into the sump (oil/water separator)	southeast
16-	Same as above, from the other end	northwest
17-	Same as above, a rock dam to stop the flow	north
18-27	Clean up in progress	various
28-37	Clean up completed	various
38	Pile of recovered pitch in the storage building	storage building



TANKS PICTURED

SPILL AREA

Sump

PROPERTY SITE PLAN

Koppers020297

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Portland Plant
Street Addr: 7540 N.W. St. Helens
City, St, ZIP: Portland, OR 97210-3663
Phone: 503-286-3681
EPA ID #: ORD 027734359

FACILITY: Same as above

DATE OF INCIDENT: 1/28/98 TIME OF INCIDENT: 1:15PM approximately

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle One) Hazardous Waste Spill, Injury Accident

Other: Pitch Spill

MATERIALS INVOLVED:

Name	Quantity
Coal Tar Pitch	6.985 tons

EXTENT OF INJURIES, IF ANY: None

ASSESSMENT OF ACTUAL OR POTENTIAL HAZARDS TO HUMAN HEALTH OR THE ENVIRONMENT, WHERE APPLICABLE: N/A

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored
Coal Tar Pitch	6.985 tons	100% recovered, 99% was recycled, and 1% was disposed of as a non-hazardous material.

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911	N/A	1/28/98 1:30PM
Oregon Emergency Management	1-800-452-0311	Tami	1/28/98 5:50PM
National Response Center	1-800-424-8802	Miss Ebner	1/28/98 5:40PM
Oregon OSHA	229-5910		Not notified
City Duty Officer (For Storm, Sewer, Drain Contamination, only)	823-7180		Not notified
Northwest Natural Gas	224-3532		Not notified
Wacker Siltronics	243-2020		Not notified
Security for FAB #1	Ext. 7420		
Security for FAB #2	Ext. 4300		
Pacific Northern Fuels	286-9621		Not notified

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Environmental Program

Manager - KII 412-227-2883 Bill Swearingen _____
or Home: 304-737-0627

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

Minimal impact to environment. All spilled material was contained on site. 100% was recovered, 99% was recycled, and 1% was disposed of, as a non-hazardous material.

REPORT BY (Name): A.S. Kamerer DATE 2/11/98
REPORT REVISED: _____ DATE _____
REPORT REVISED: _____ DATE _____

Table 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

While transferring molten pitch into our shipping tank, T-68, the tank over flowed due to mechanical failure of gauging device.

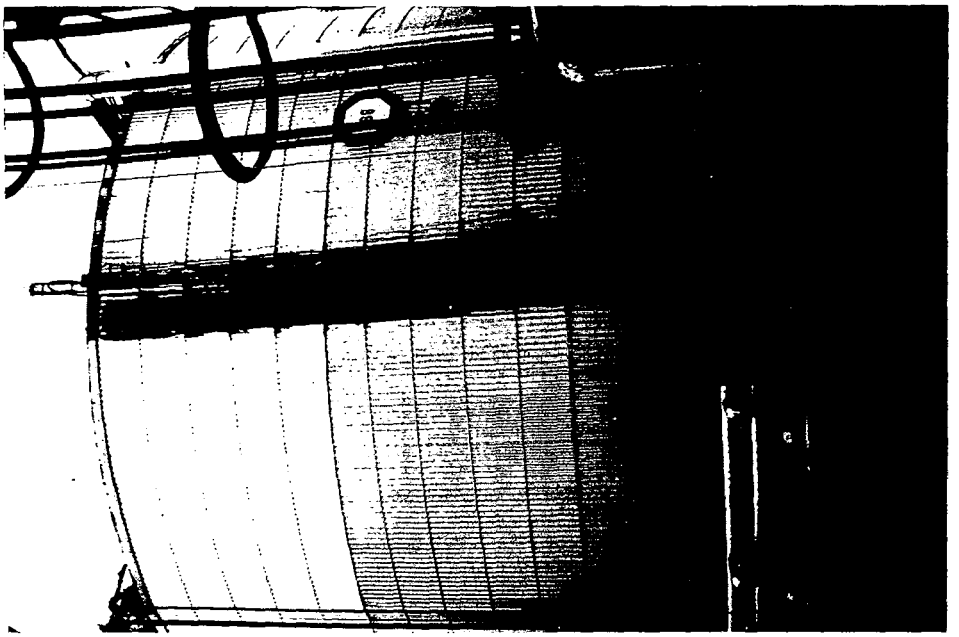
WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

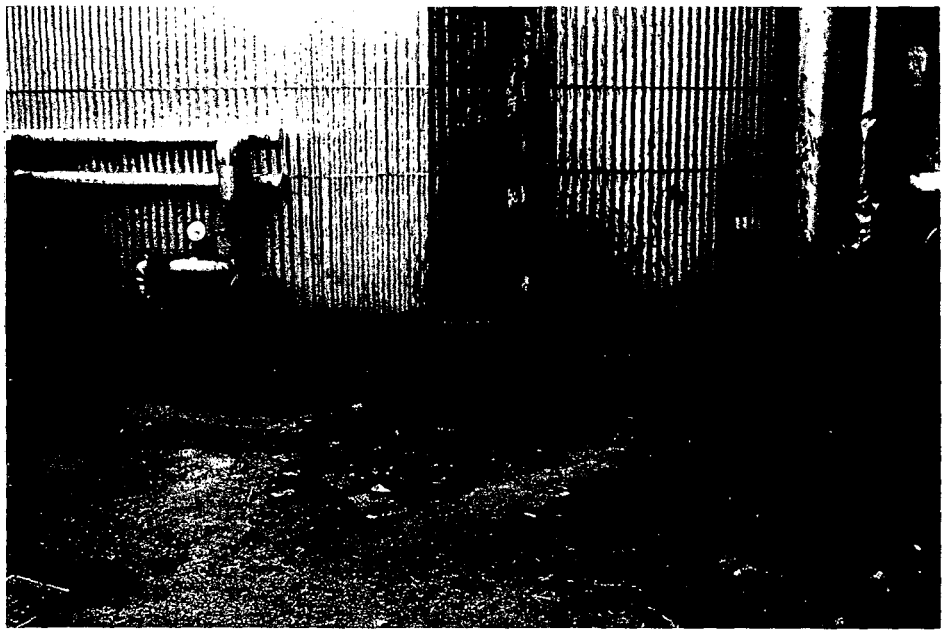
The mechanical failure of gauging device.

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

Minimal amount of pitch on soil, which solidified upon cooling. 100% was recycled or disposed of as a non-hazardous material.

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE OF PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND RESPONSE ACTIONS.





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1883 N-2 M- 2L-1

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1883 N-2 M- 2L-1

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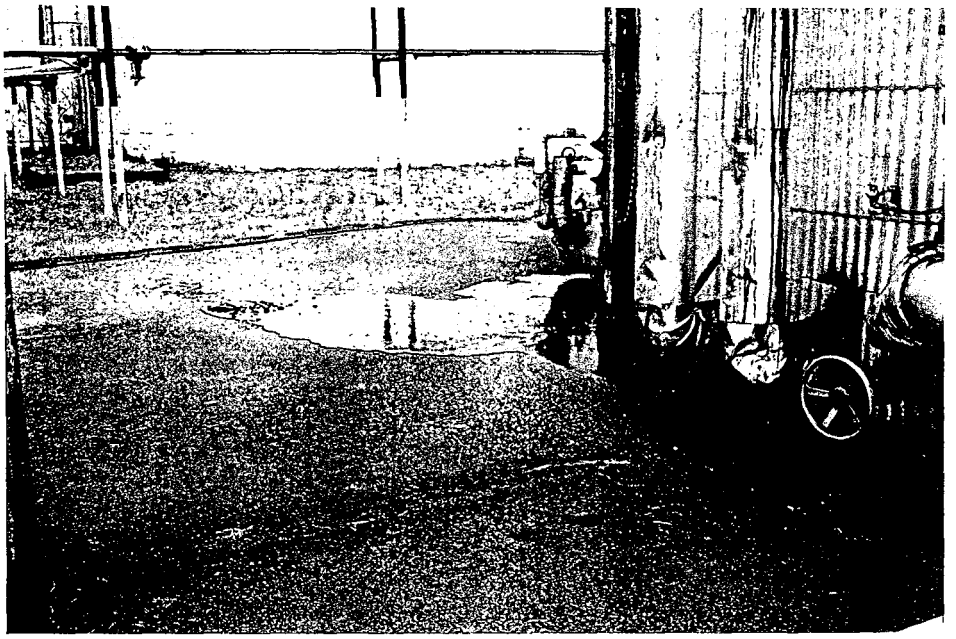

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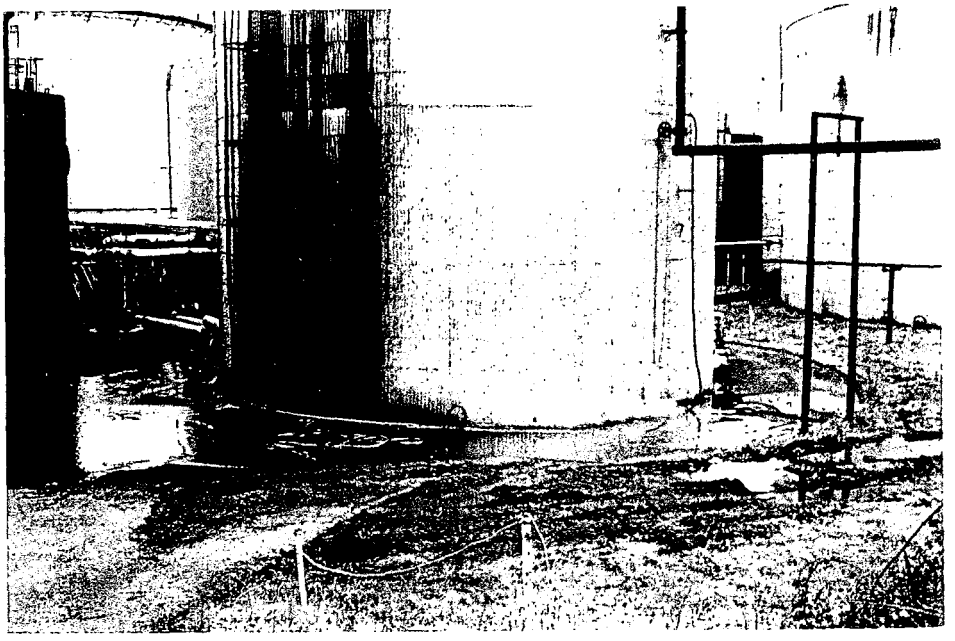

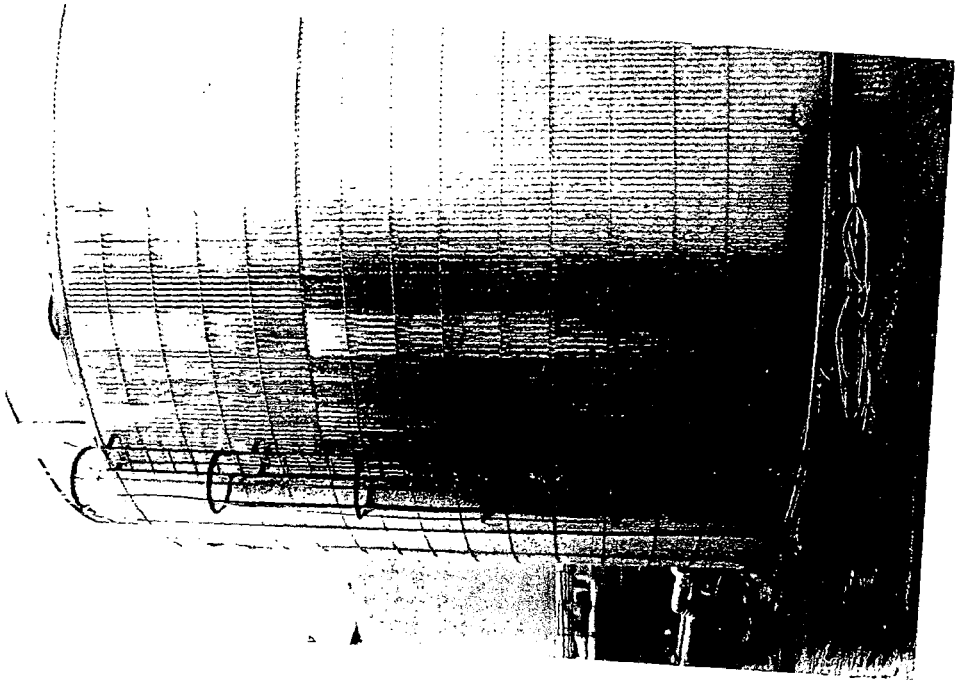

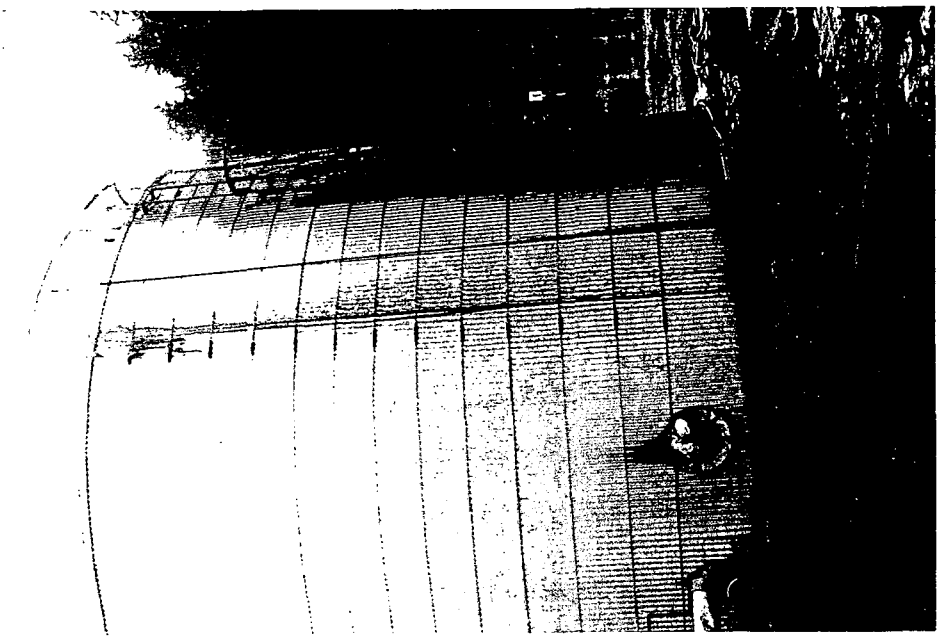

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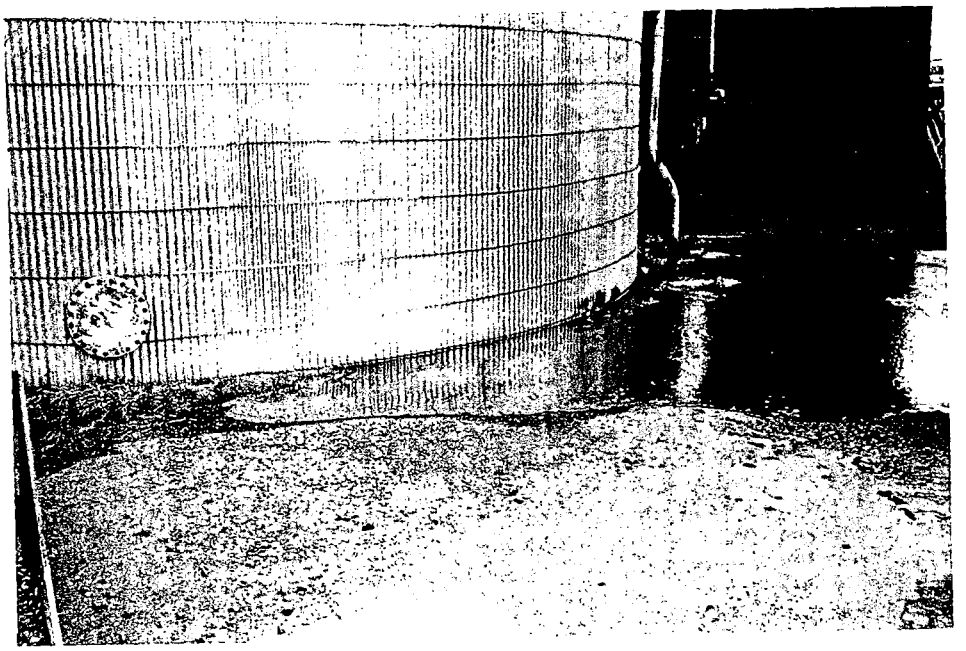

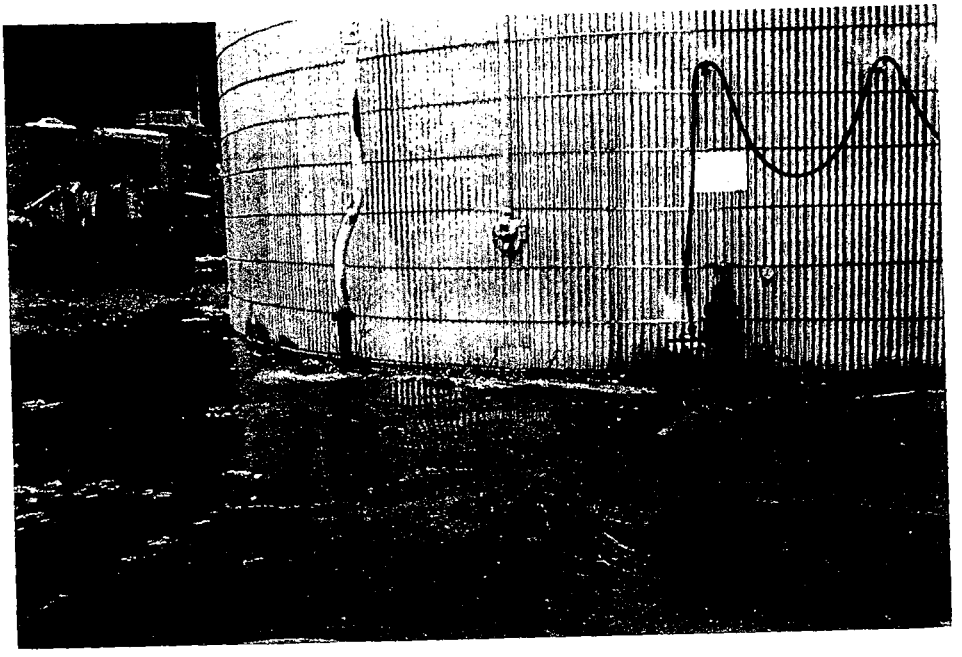

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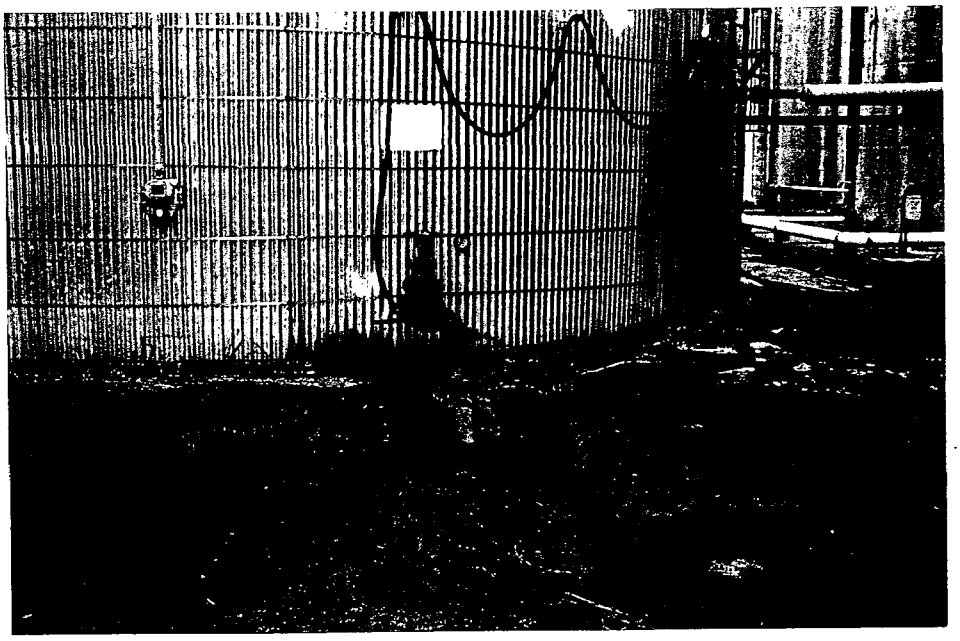

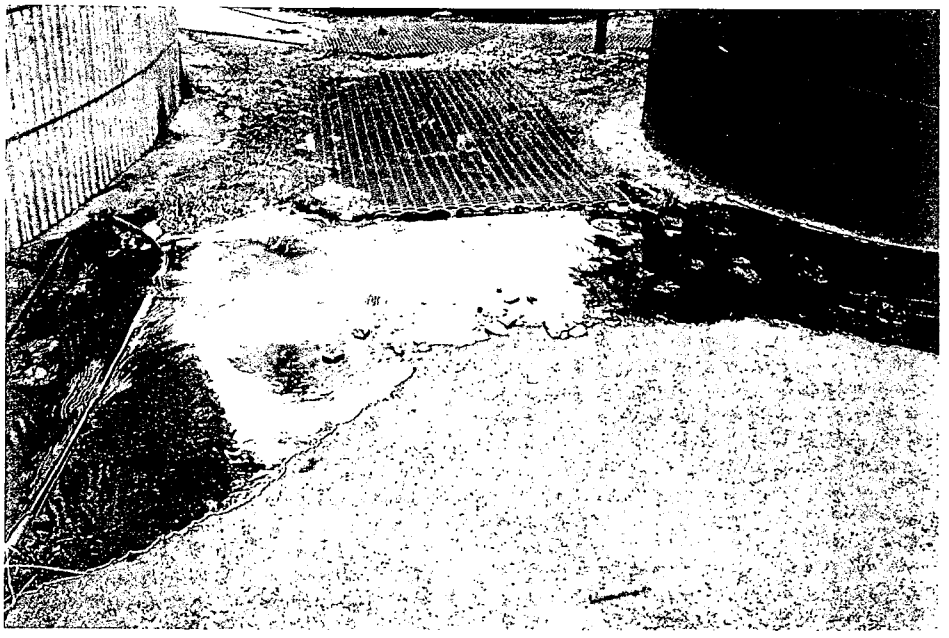

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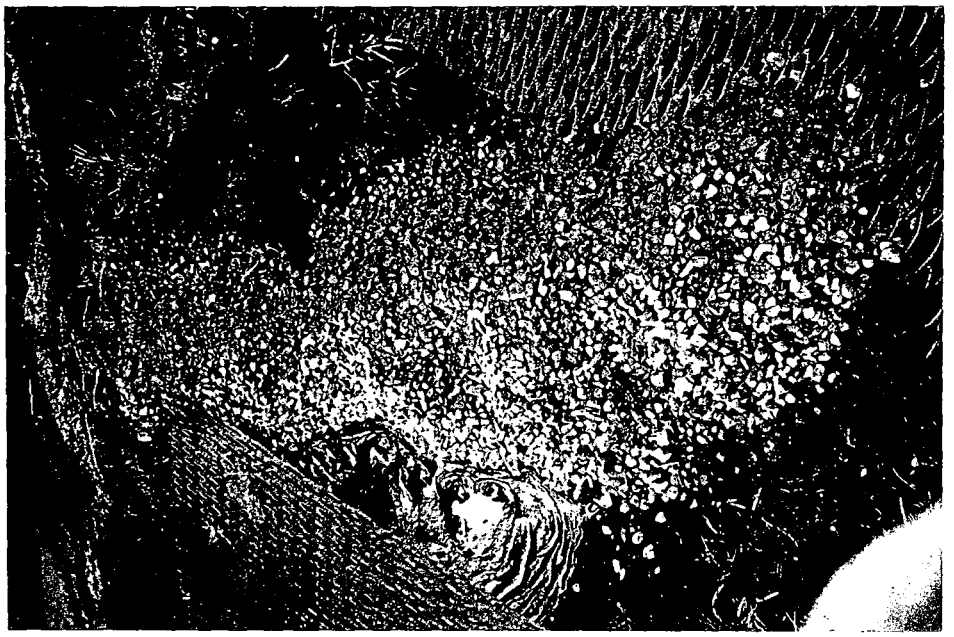

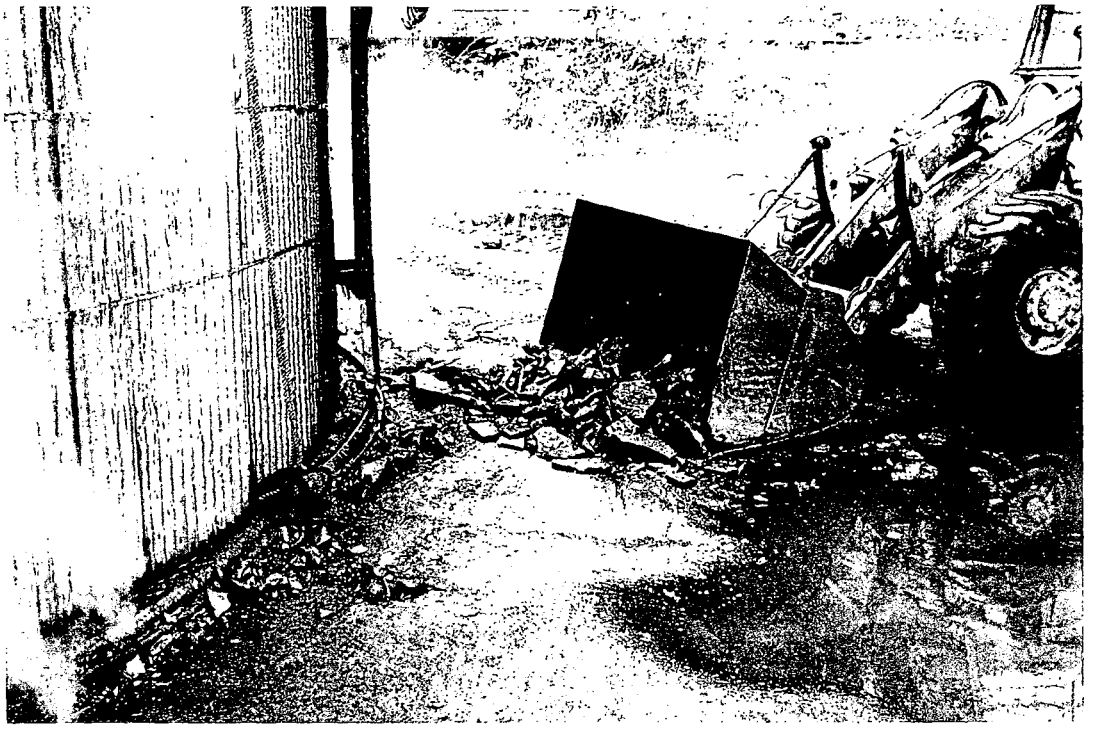

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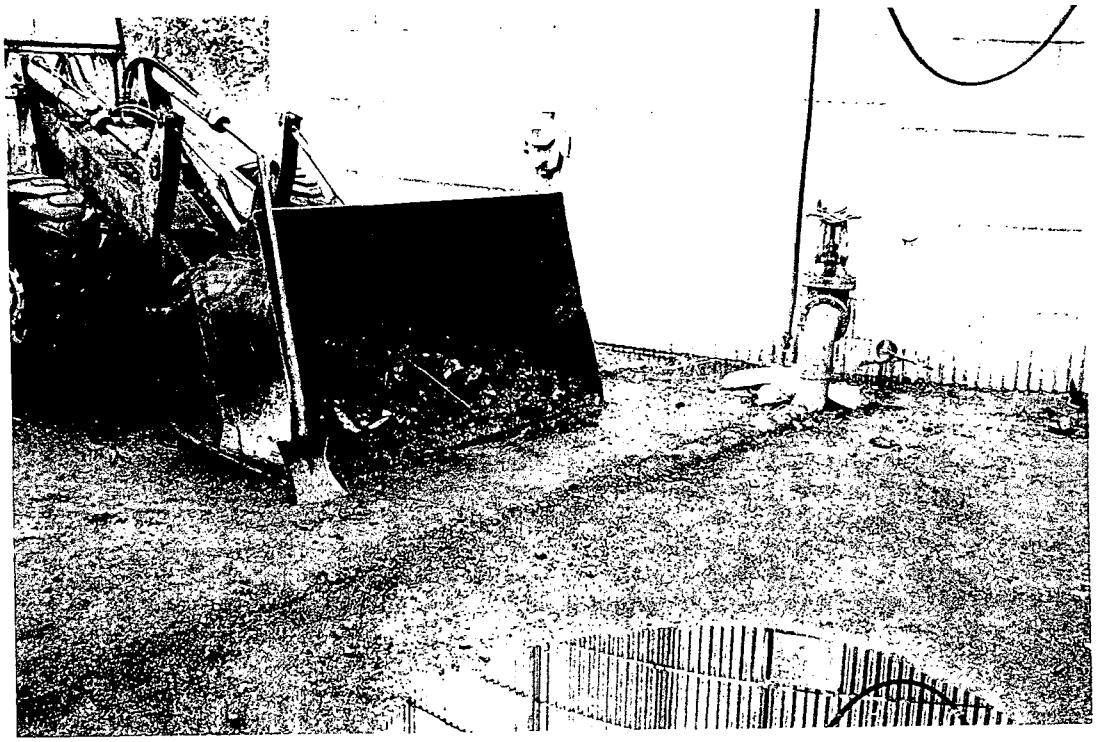

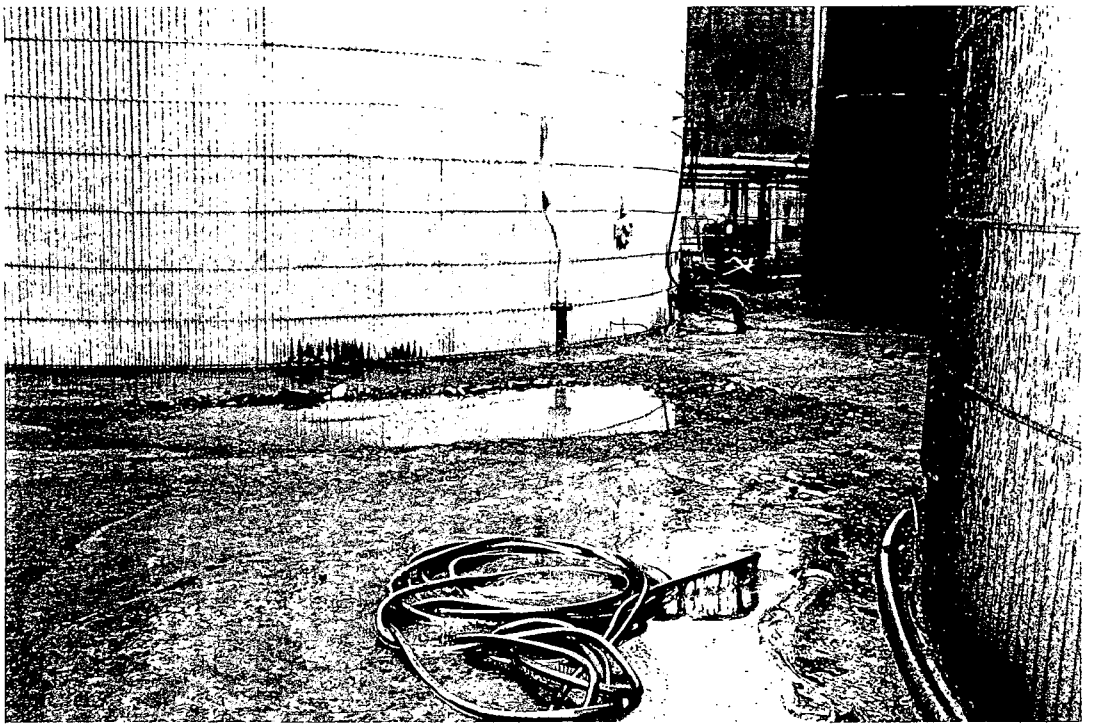

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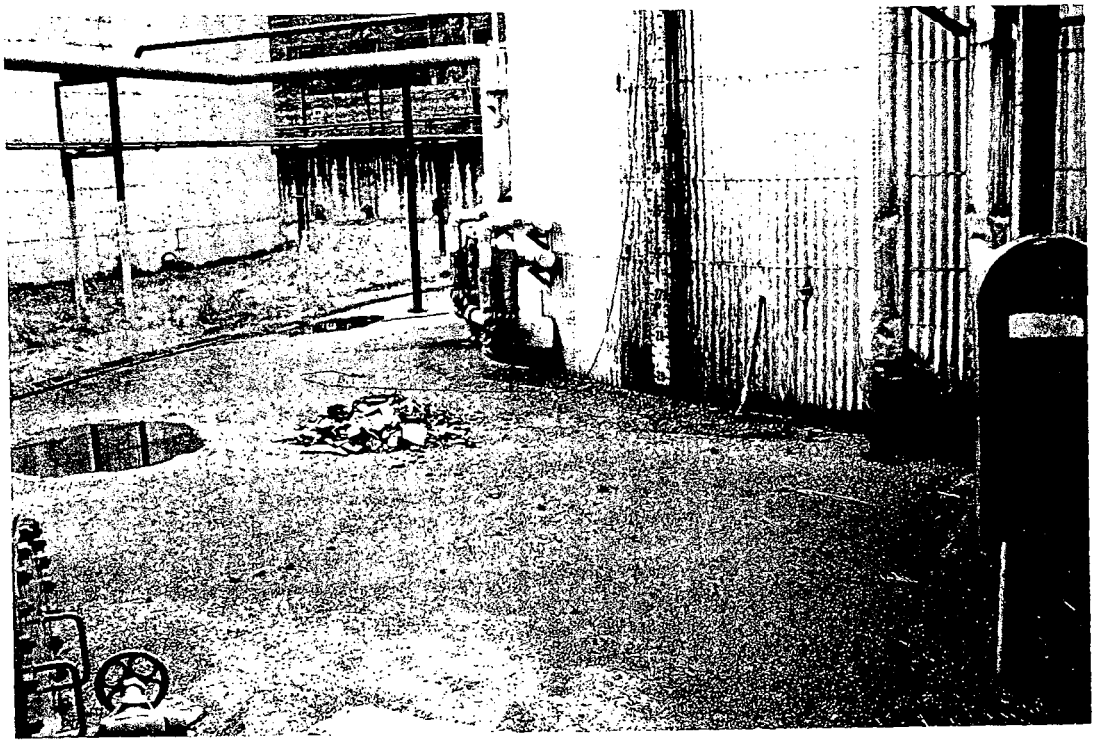

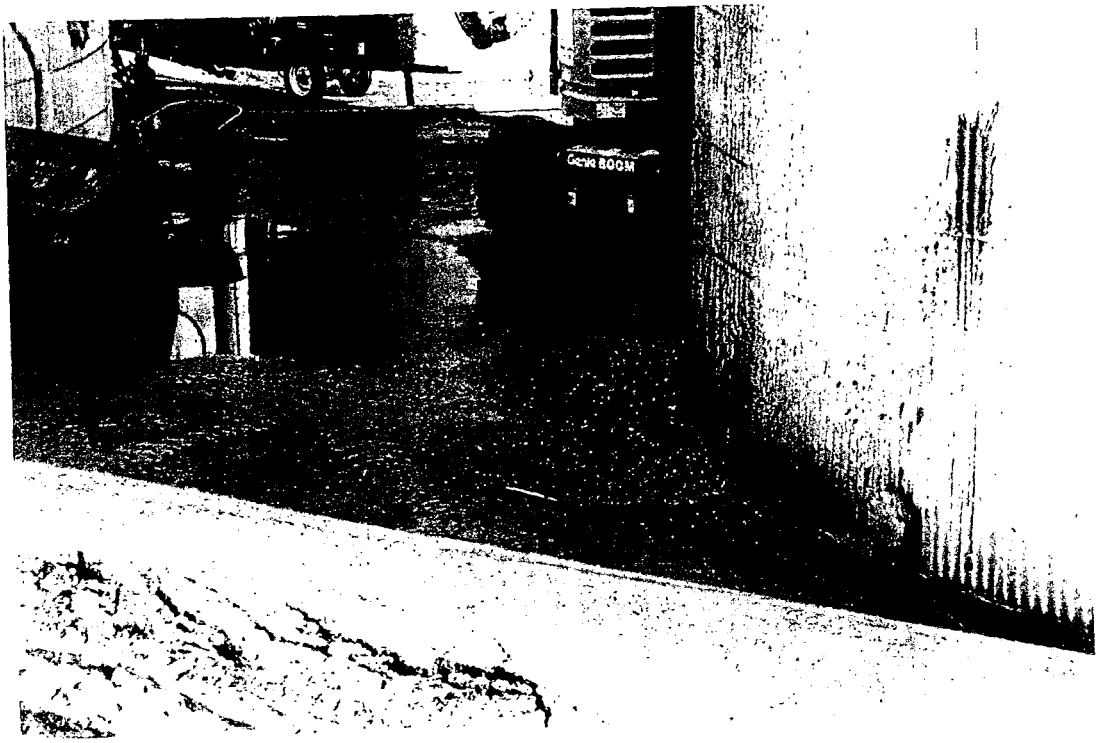
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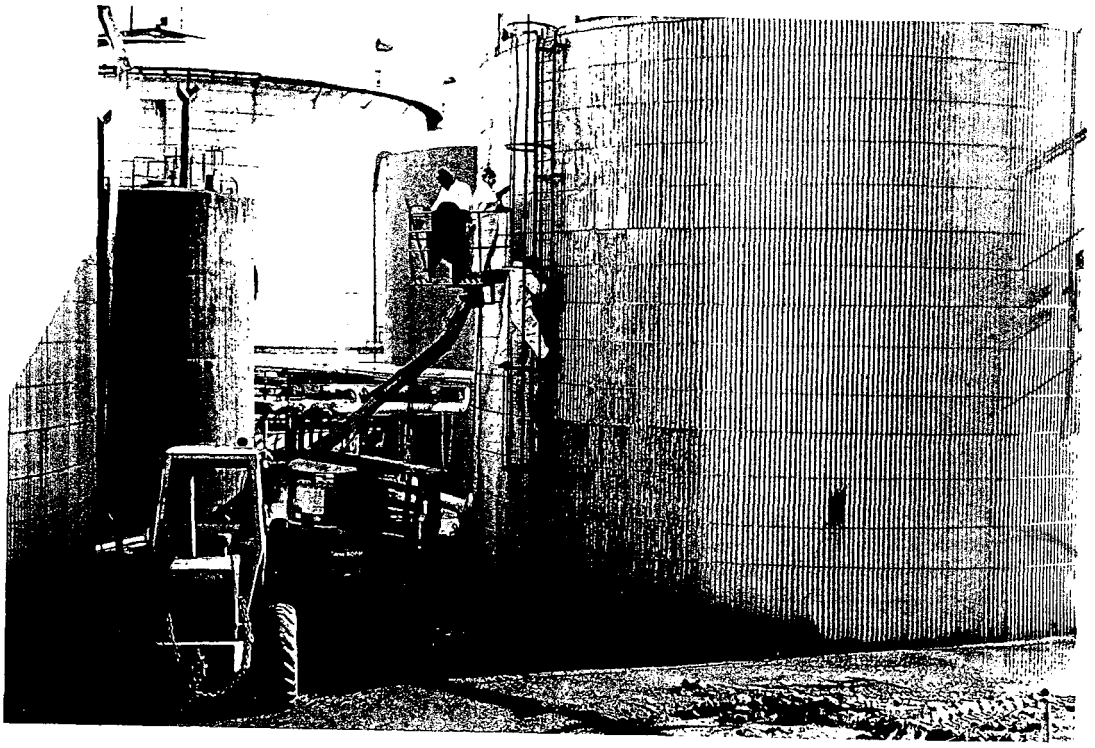

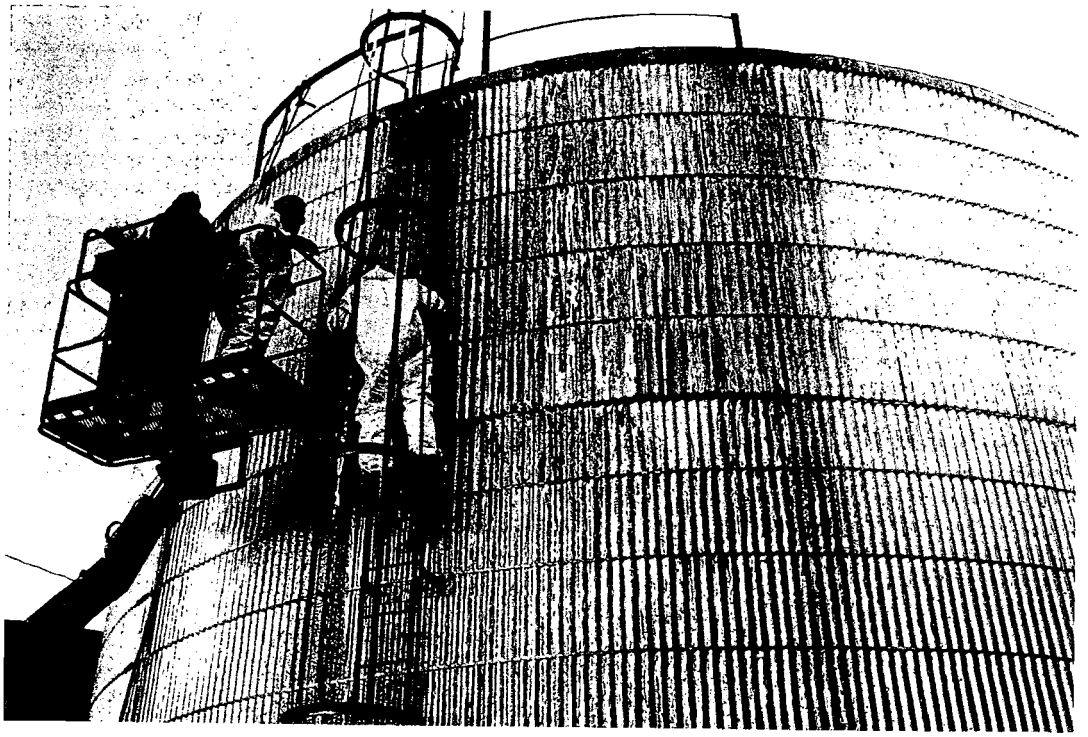

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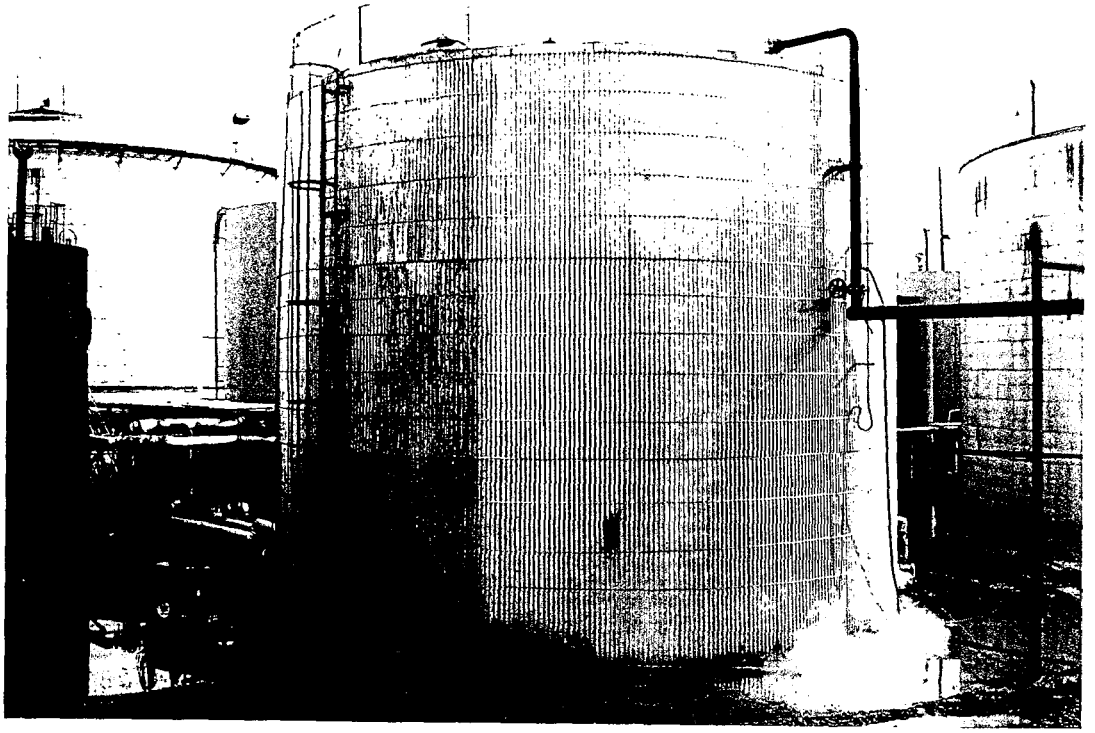

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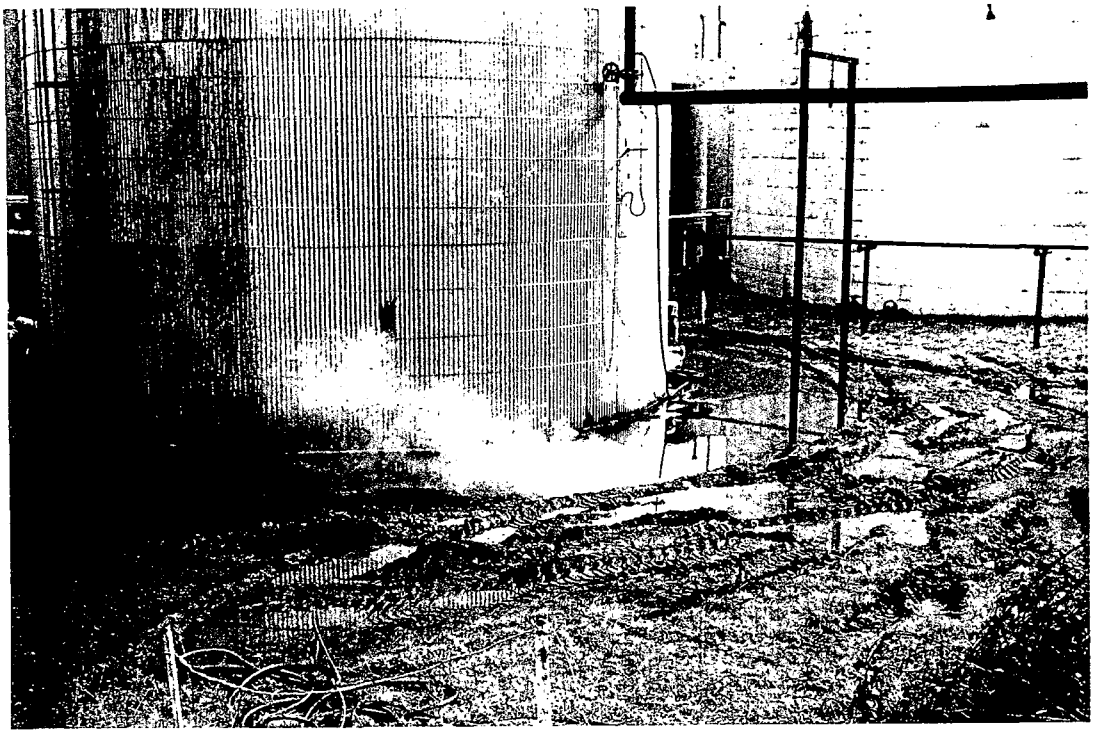

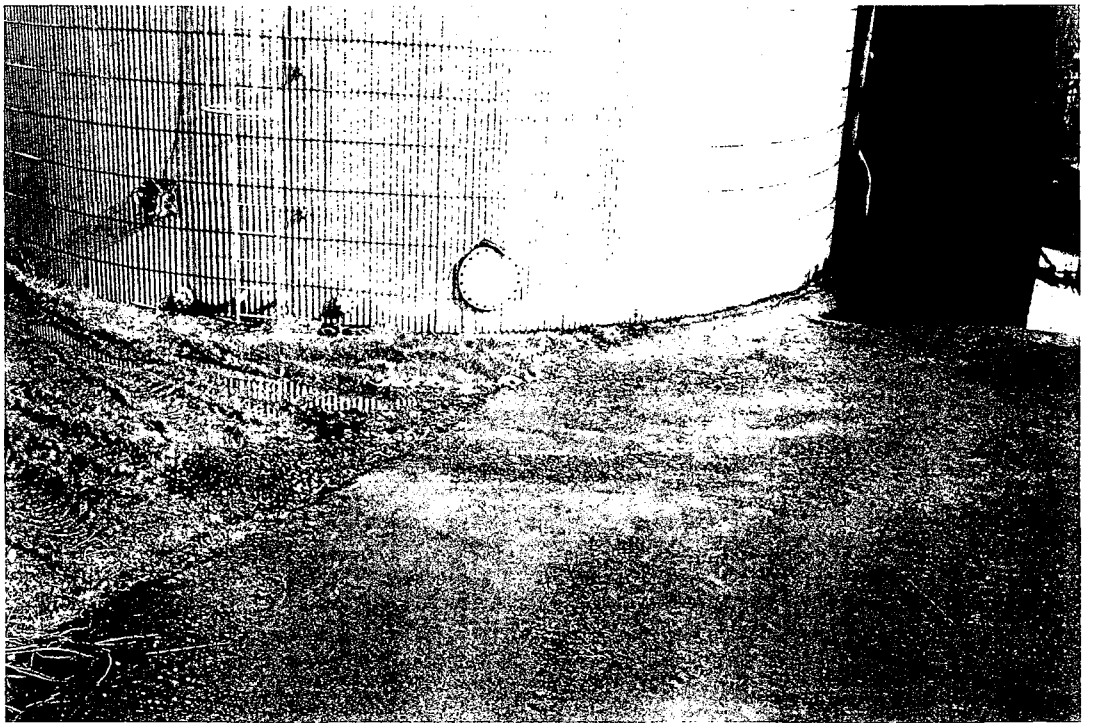

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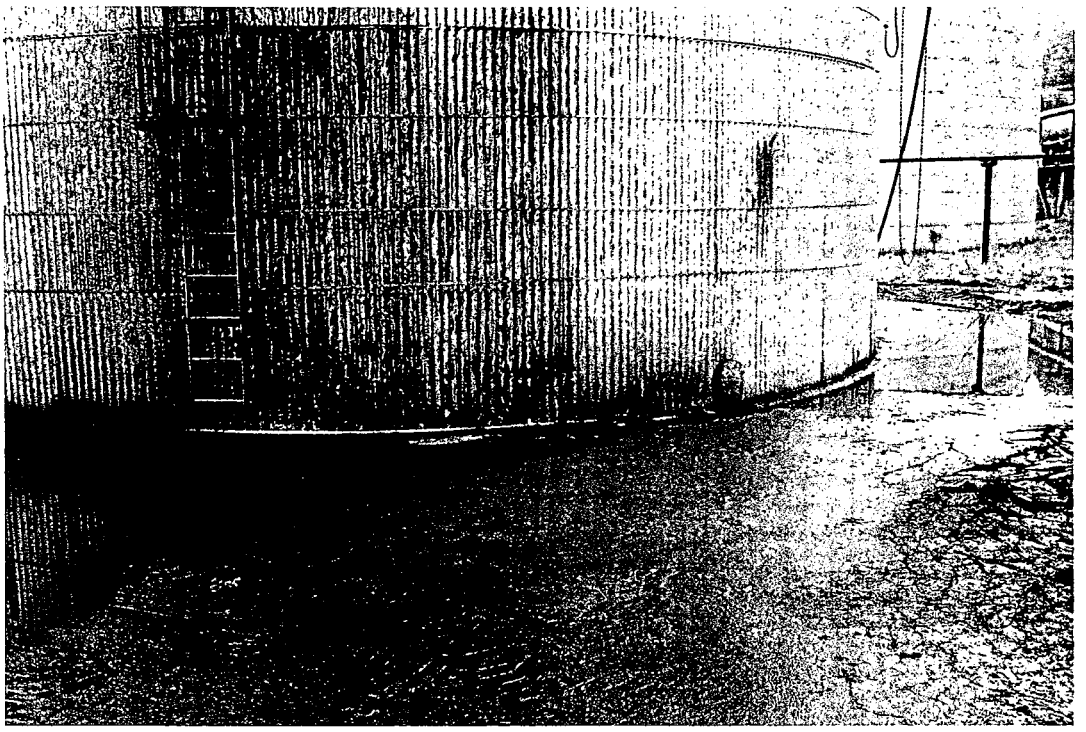

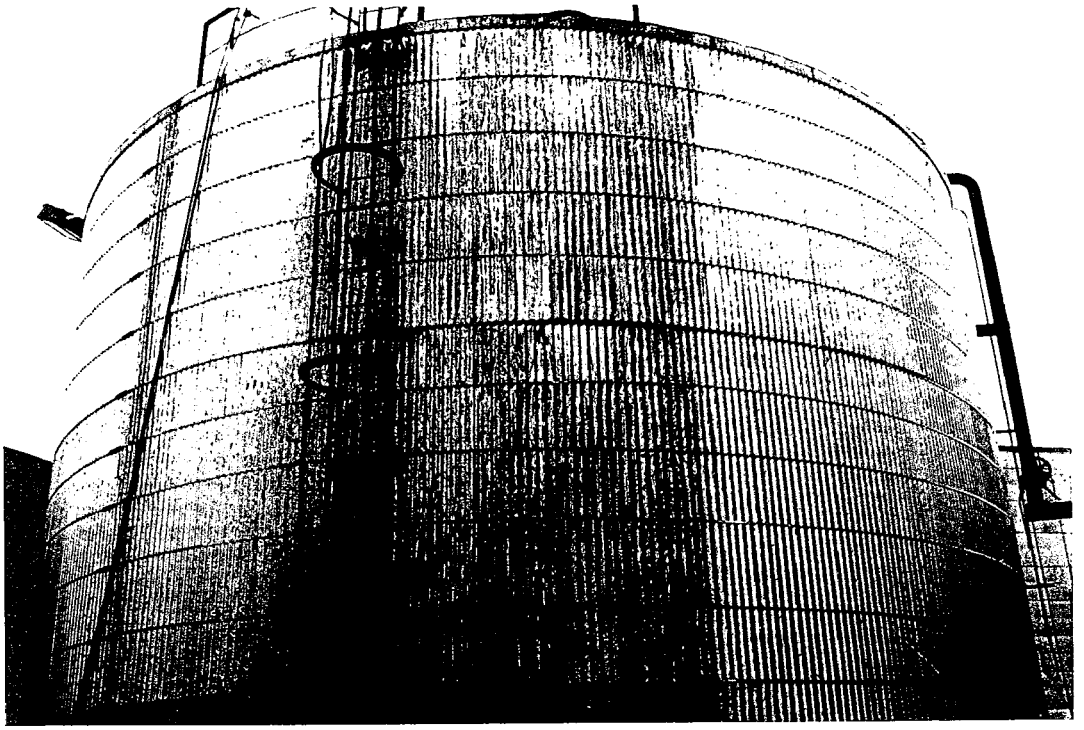

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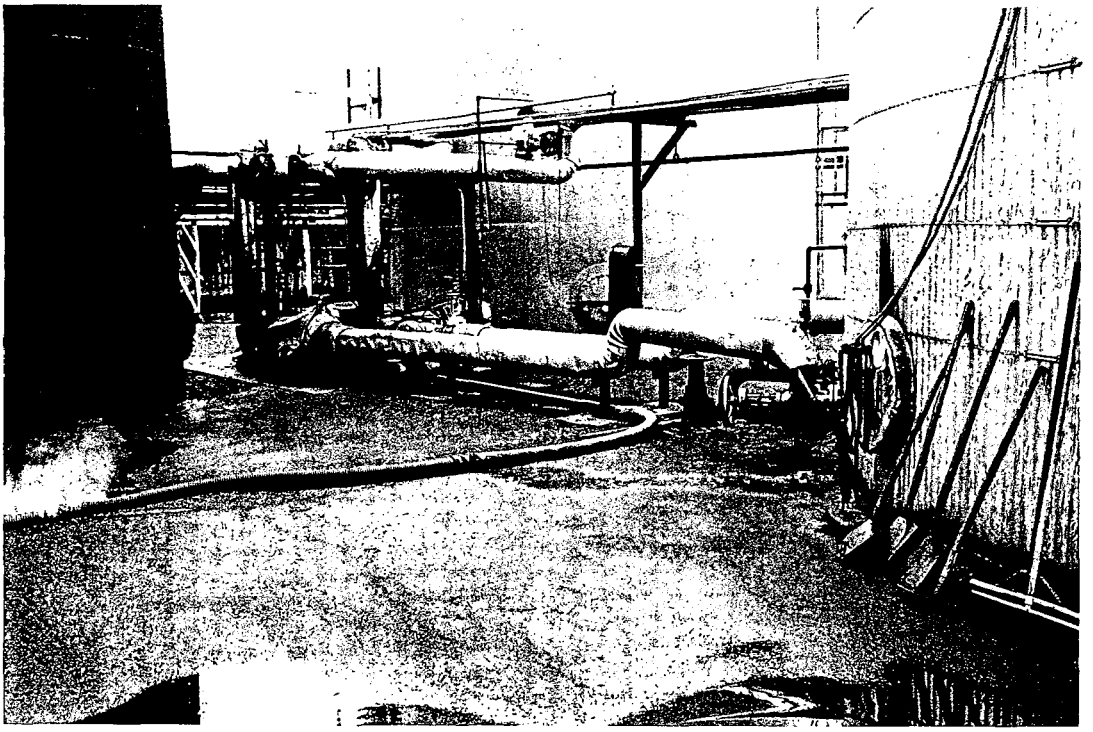

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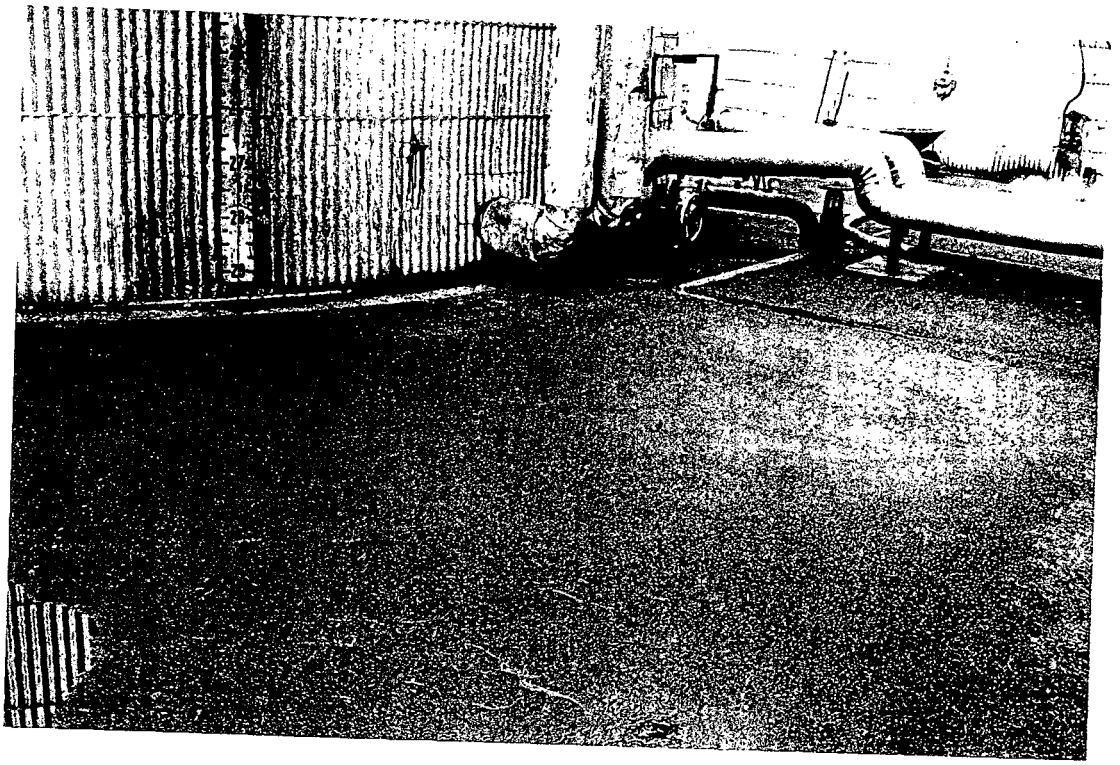

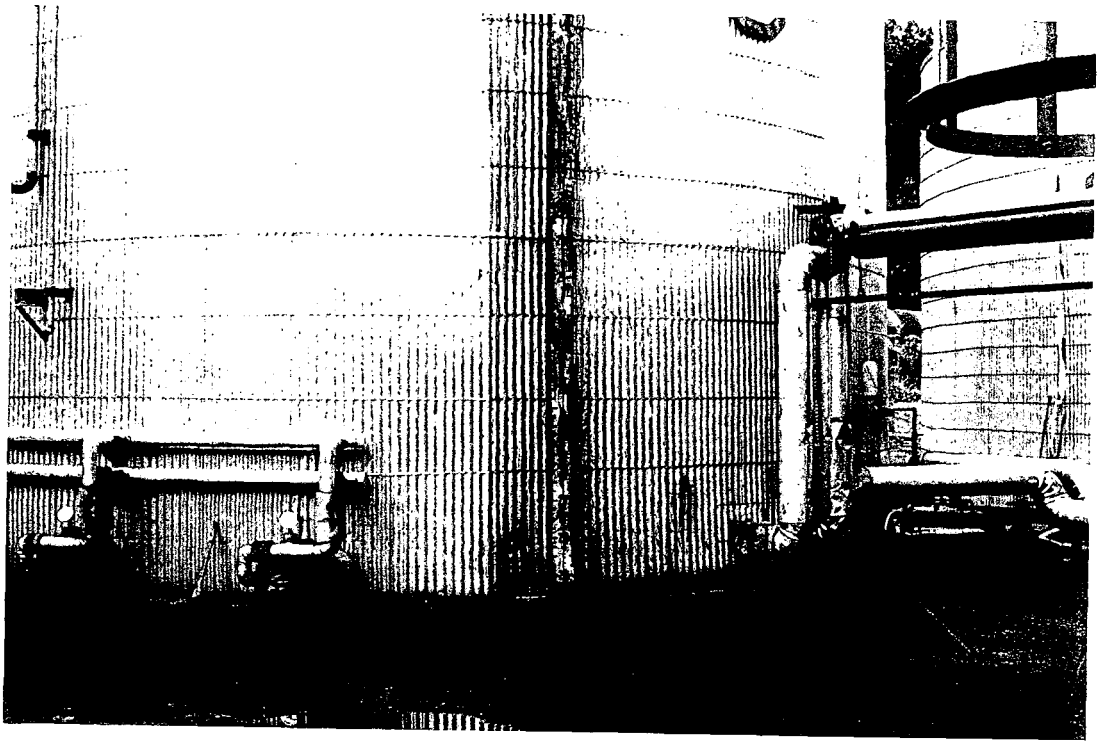

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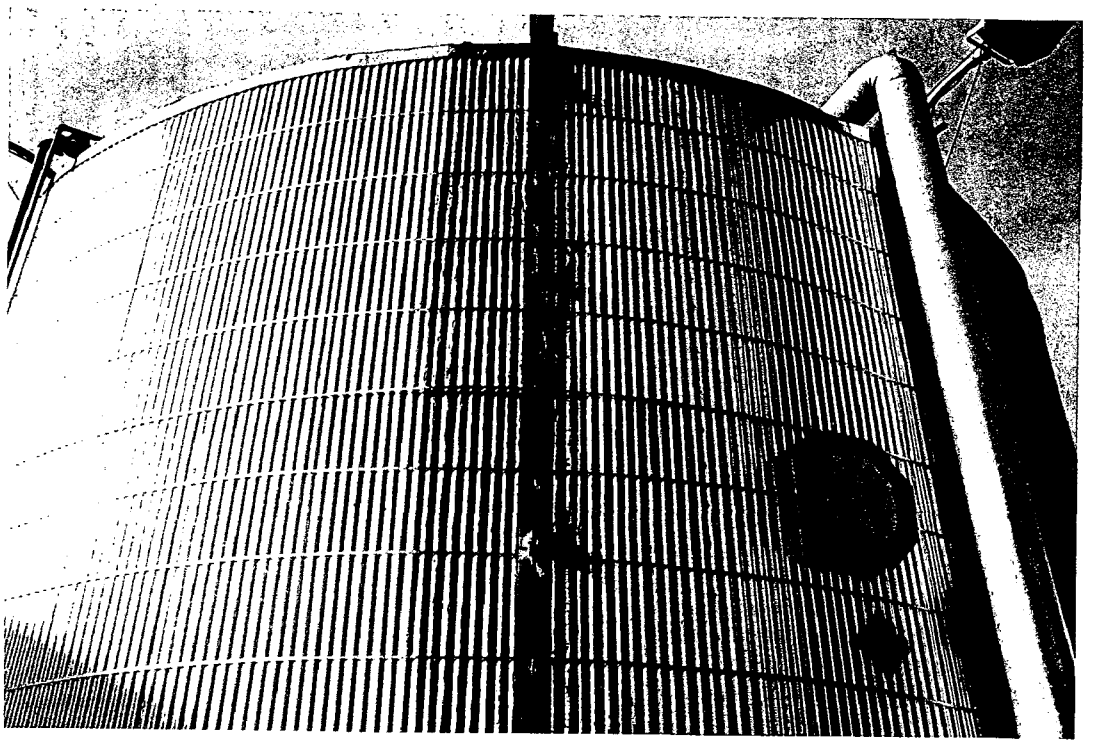

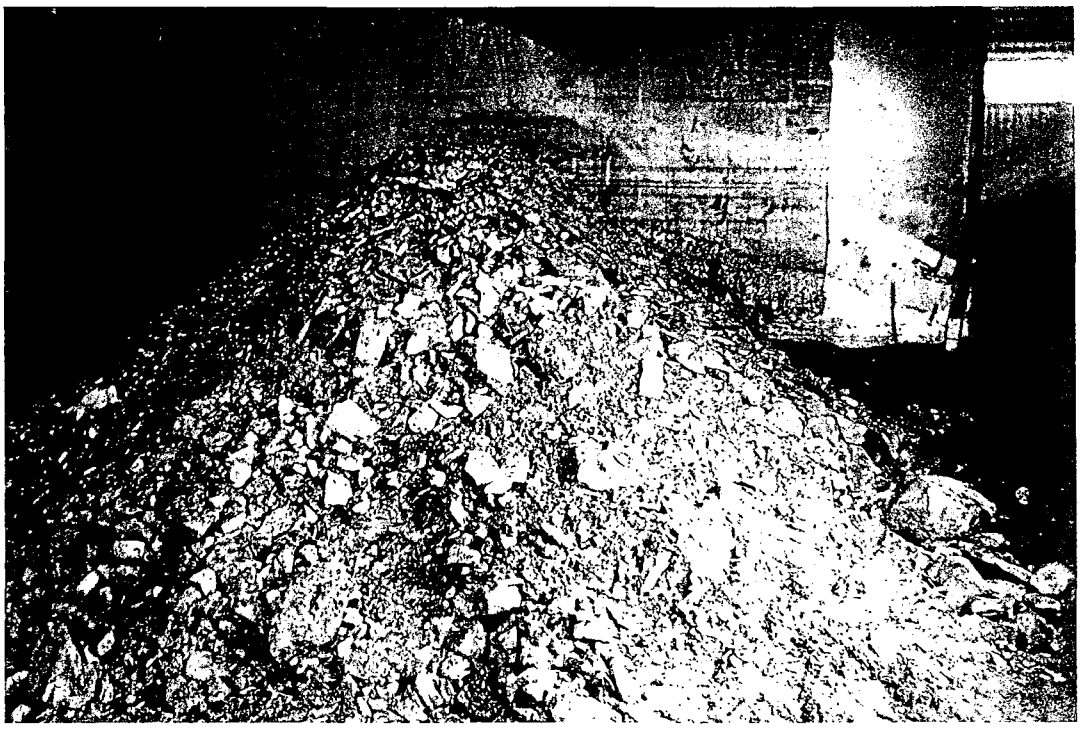

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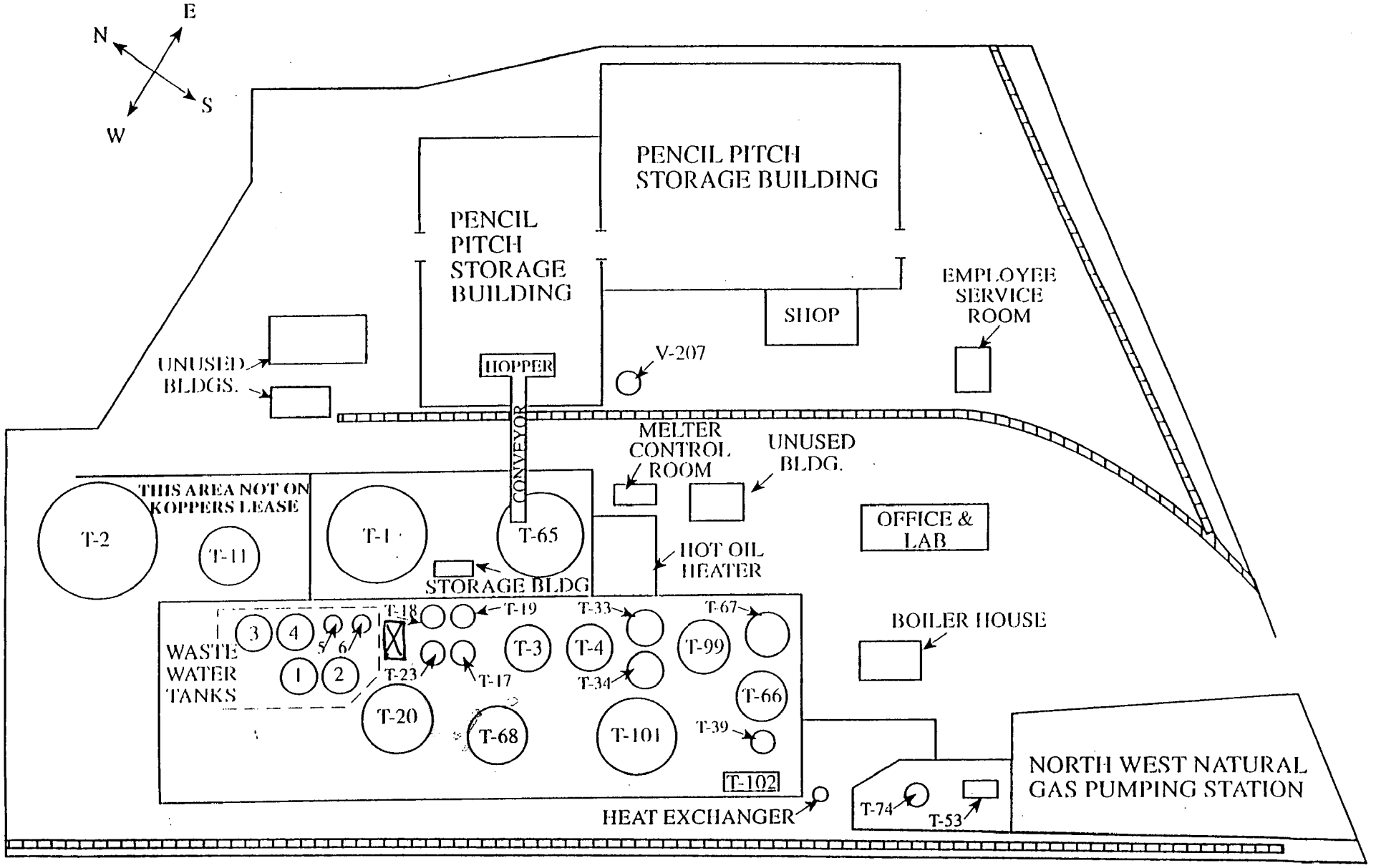

TANKS PICTURED
SPILL AREA
⊠ SUMP

PROPERTY SITE PLAN

Koppers020339

Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [1]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW2-61	010328-MW2-61-104	28-Mar-01	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	011009-MW2-61-104	9-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020403-MW2-61-103	3-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020924-MW2-61-103	24-Sep-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030318-MW2-61-104	18-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030930-MW2-61-103 [7]	30-Sep-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040813-MW2-61-002 [7]	13-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND=0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	050926-MW-2-61-111	26-Sep-05		ND>0.00943	ND>0.00943	ND>0.00943	ND>0.00943	ND>0.00943	ND>0.00943	ND>0.00943	ND>0.0283	ND>0.00943	0.0124	ND>0.00943	0.0111	ND>0.00943	0.0189	ND>0.00943	ND>0.0189	ND	0.0424
MW3-26	951206-MW3-26-01	6-Dec-95	15 - 25	2.8	4.7	1.5	4.1	4.6	0.54	2.8	1.5	2.7	2.3	3.9	8.5	1.2	30.	4.7	9.4	21.04	85.24
	960318-MW3-26-02	18-Mar-96	(fill WBZ)	0.29	0.35	0.14	0.39	0.3	ND [a]	0.24	2.5	1.4	1.1	0.34	1.1	0.58	32.	0.36	1.3	1.71	42.39
	960618-MW3-26-01	18-Jun-96		0.49	0.47	0.17	0.56	0.55	ND [a]	0.31	5.5	2.6	1.5	0.42	1.3	1.3	30.	0.79	1.9	2.55	47.86
	961001-MW3-26-01	1-Oct-96		29.	41.	12.	47.	30.	ND [a]	23.	ND [a]	9.5	ND [a]	34.	36.	ND [a]	10.	8.6	54.	182.	334.1
	970225-MW3-26-01	25-Feb-97		0.78	1.1	0.36	1.3	0.59	ND [a]	0.81	0.79	0.32	0.1	1.1	1.2	0.18	0.97	0.39	1.9	4.94	11.89
	970827-MW3-26-01	27-Aug-97		4.1	5.7	2.	7.7	3.9	ND [b]	4.2	1.3	1.7	1.1	5.6	6.7	ND [b]	ND [b]	1.4	7.8	27.6	53.2
	980217-MW3-26-01	17-Feb-98		0.68	1.5	0.39	1.8	0.44	0.35	1.9	0.18	0.5	0.24	2.4	1.	0.1	0.39	0.27	1.3	7.06	13.44
	980602-MW3-26-09	2-Jun-98		13.	24.	5.7	26.	11.	3.1	17.	0.3	1.6	1.5	25.	27.	0.47	1.8	3.8	43.	99.8	204.27
	980826-MW3-26-08	26-Aug-98		62.	130.	46.	160.	76.	16.	86.	ND [d]	19.	ND [d]	120.	90.	ND [d]	26.	21.	130.	576.	982.
	981117-MW3-26-12	17-Nov-98		3.9	7.1	2.1	9.2	3.7	0.93	5.3	ND [b]	1.7	ND [b]	7.5	6.6	ND [b]	1.8	0.9	8.1	32.23	58.83
	990216-MW3-26-010	16-Feb-99		0.24	0.22	ND [a]	0.22	0.29	ND [a]	ND [a]	ND [a]	ND [a]	0.11	0.17	1.1	ND [a]	ND [a]	ND [a]	1.21	0.97	3.56
	990514-MW3-26-23	14-May-99		0.46	1.04	0.26	1.14	0.42	0.15	0.95	1.57	0.4	0.3	1.36	1.04	0.93	1.25	0.5	1.44	4.42	13.21
	990824-MW3-26-12	24-Aug-99		0.12	0.2	0.17	0.38	0.17	0.3	0.33	0.71	0.21	0.21	0.46	0.59	0.48	ND [a]	ND [a]	0.36	1.67	4.69
	991027-MW3-26-14	27-Oct-99		0.77	1.14	0.94	1.9	1.08	0.23	1.17	ND [a]	0.3	0.18	1.57	1.14	0.33	0.19	0.17	1.45	7.23	12.56
	000330-MW3-26-113	30-Mar-00		0.27	0.37	0.32	0.63	0.3	ND [a]	0.55	0.59	0.27	0.22	0.76	0.72	0.36	ND [a]	0.19	0.77	2.44	6.32
	001005-MW3-26-11	5-Oct-00		0.22	0.69	0.24	0.89	0.26	0.11	0.55	0.13	0.29	0.24	0.71	0.65	0.16	0.2	0.11	0.7	2.96	6.15
	010328-MW3-26-113	28-Mar-01		0.78	1.25	0.74	1.72	0.93	ND [a]	ND [a]	0.1	0.44	ND [a]	2.08	1.35	0.19	0.15	0.4	1.77	5.42	11.9
	040823-MW3-26-010 [7]	23-Aug-04		ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.100	ND>0.100	ND>0.0050	ND>0.0500	ND>0.0500	ND>0.0500	0.0632 J	ND>0.0500	ND>0.0500	0.0681 J	0.0808 J	ND	0.2121
	050330-004 [7]	30-Mar-05		0.0925 J	0.137	0.0892 J	0.17	0.119	ND [a]	0.11	ND>0.050	0.0584 J	0.109	0.165	0.162	ND>0.0500	ND>0.0500	ND>0.0500	0.237	0.7177	1.4491
	050922-MW-3-26-105	22-Sep-05		0.403	0.472	0.425	0.843	0.565	0.116	0.588	0.0736	0.266	0.291	0.955	0.663	ND>0.0495	0.578	0.23	1.63	3.412	8.0986

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [4,5]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	#
MW3-56	951206-MW3-56-01	6-Dec-95	45 - 55	0.73	0.33	0.14	0.41	0.85	ND [a]	0.23	51.	46.	8.1	0.36	7.8	19.	1,200.	42.	7.8	2.69	1,384.75
	960319-MW3-56-01	19-Mar-96	(alluvial WBZ)	0.59	0.33	0.13	0.38	0.73	ND [a]	0.18	56.	70.	5.6	0.28	6.1	25.	1,700.	53.	8.3	2.34	1,926.62
	960620-MW3-56-01	20-Jun-96		0.45	0.22	ND [a]	0.26	0.51	ND [a]	0.15	47.	56.	6.4	0.21	5.8	27.	1,300.	39.	8.1	1.59	1,491.1
	961002-MW3-56-01	2-Oct-96		0.27	ND [a]	ND [a]	ND [a]	0.27	ND [a]	ND [a]	42.	62.	6.	ND [a]	6.7	27.	730.	58.	5.6	0.64	937.84
	970226-MW3-56-01	26-Feb-97		0.33	ND [a]	ND [a]	ND [a]	0.29	ND [a]	ND [a]	42.	51.	ND [a]	ND [a]	3.2	21.	440.	53.	7.5	0.62	618.32
	970828-MW3-56-01	28-Aug-97		0.28	0.13	ND [a]	0.13	0.28	ND [a]	ND [a]	21.	15.	7.3	ND [a]	7.	15.	85.	39.	5.4	0.82	195.52
	980218-MW3-56-01	18-Feb-98		0.28	0.1	ND [a]	ND [a]	0.2	ND [a]	ND [a]	25.	14.	3.7	ND [a]	4.8	13.	22.	41.	5.5	0.58	129.58
	980218-MW3-56-02	18-Feb-98		0.26	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	33.	17.	3.9	ND [a]	4.9	17.	26.	48.	5.3	0.46	155.56
	980602-MW3-56-14	2-Jun-98		5.3	4.9	1.7	5.1	4.6	ND [b]	2.9	57.	19.	12.	4.3	20.	28.	37.	86.	28.	24.5	315.8
	980602-MW3-56-15	2-Jun-98		5.1	4.7	1.9	5.3	4.5	ND [b]	2.8	54.	18.	12.	4.3	19.	28.	32.	86.	28.	24.3	305.6
	980826-MW3-56-12	26-Aug-98		0.72	0.61	0.22	0.66	0.82	ND [a]	0.31	37.	8.5	ND [a]	0.44	4.1	18.	16.	6.	8.2	3.34	101.58
	981118-MW3-56-16	18-Nov-98		0.33	0.16	ND [a]	0.16	0.32	ND [a]	ND [a]	35.	5.9	4.7	ND [a]	5.5	12.	9.3	40.	5.6	0.97	118.97
	981118-MW3-56-17	18-Nov-98		0.29	0.11	ND [a]	0.1	0.27	ND [a]	ND [a]	35.	6.2	4.5	ND [a]	5.4	12.	12.	40.	5.6	0.77	121.47
	990217-MW3-56-015	17-Feb-99		2.52	2.95	ND [a]	2.9	2.32	0.36	1.48	37.4	5.54	6.08	2.3	13.3	12.2	12.1	48.3	13.7	12.53	163.45
	990514-MW3-56-24	14-May-99		0.66	0.46	0.16	0.51	0.59	0.59	0.27	50.2	4.02	8.8	0.37	6.05	17.2	16.	44.8	6.53	3.24	157.21
	990824-MW3-56-16	24-Aug-99		0.26	ND [b]	ND [b]	ND [b]	0.34	ND [b]	ND [b]	33.	2.63	3.76	ND [b]	5.17	9.99	6.04	33.	5.47	0.6	99.66
	991028-MW3-56-17	28-Oct-99		0.27	ND [a]	ND [a]	ND [a]	0.32	ND [a]	ND [a]	35.4	2.49	4.59	ND [a]	5.32	11.4	4.35	29.5	5.34	0.59	98.98
	000330-MW3-56-117	30-Mar-00		0.87	0.43	0.38	0.73	1.	ND [a]	0.43	36.4	2.93	7.16	0.58	8.92	17.3	37.2	43.5	8.25	3.84	166.08
	001005-MW3-56-13	5-Oct-00		2.2	2.3	0.86	2.76	2.71	0.3	1.5	36.5	1.65	7.83	1.89	12.4	15.5	1.58	29.1	16.5	12.63	135.58
	010329-MW3-56-116	29-Mar-01		1.93	1.27	0.96	1.88	2.12	0.47	1.72	30.5	0.95	5.95	2.03	9.32	10.9	3.37	24.6	9.78	10.35	107.75
	020404-MW3-56-111	4-Apr-02		0.53	0.26	0.2	0.47	0.75	ND [a]	0.41	37.9	0.41	5.32	0.46	7.53	13.5	2.08	22.7	5.61	2.62	98.13
	030319-MW3-56-112[7]	19-Mar-03		0.46	0.2	ND [a]	0.23	0.52	ND [a]	0.11	38.	0.4	5.8	0.16	8.	12.	2.3	18.	8.2	1.52	94.38
	040823-MW3-56-011[7]	23-Aug-04		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND [b]	ND>0.500	25.8	ND>0.500	2.29	ND>0.500	6.76	10.2	0.554 J	3.94	6.62	ND	56.164
	050330-003[7]	30-Mar-05		0.289	ND>0.500	ND>0.500	0.0597 J	0.312	ND [a]	ND>0.500	31.4	ND>0.250	2.3	ND>0.050	6.08	10.7	1.16	7.63	6.29	0.6607	66.2207
	050922-MW-3-56-106	22-Sep-05		0.275	ND>0.243	ND>0.243	ND>0.243	0.357	ND>0.243	ND>0.243	23.1	ND>0.243	2.16	ND>0.243	4.5	7.45	0.92	8.23	5.22	0.632	52.212

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#	
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#	
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#	
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#	
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	
MW4-35	951206-MW4-35-01	6-Dec-95	24 - 34	0.34	ND [a]	ND [a]	ND [a]	0.35	ND [a]	ND [a]	13.	3.	2.5	ND [a]	9.7	6.1	2.	8.1	9.4	0.69	54.49	
	960318-MW4-35-01	18-Mar-96	(fill WBZ)	0.74	0.5	0.18	0.54	0.94	ND [a]	0.28	35.	2.7	2.7	0.42	8.4	11.	3.2	7.9	9.9	3.18	84.4	
	960318-MW4-35-02	18-Mar-96		0.62	0.36	0.14	0.4	0.7	ND [a]	0.19	34.	2.8	2.8	0.29	8.1	9.2	2.5	7.9	9.1	2.41	79.1	
	960618-MW4-35-01	18-Jun-96		0.66	0.37	0.12	0.43	0.71	ND [a]	0.22	25.	3.5	2.	0.3	7.8	8.5	0.59	1.9	9.3	2.51	61.4	
	961001-MW4-35-01	1-Oct-96		0.41	0.3	0.1	0.3	0.46	ND [a]	0.13	19.	2.	1.2	0.18	6.1	4.9	0.41	0.34	6.5	1.7	42.33	
	970225-MW4-35-01	25-Feb-97		0.22	ND [a]	ND [a]	ND [a]	0.19	ND [a]	ND [a]	24.	2.6	0.78	ND [a]	5.	6.	1.2	0.36	5.3	0.41	45.65	
	980827-MW4-57-01 [5]	27-Aug-97		0.21	0.1	ND [a]	ND [a]	0.22	ND [a]	ND [a]	16.	2.3	0.83	ND [a]	5.3	5.3	0.49	0.31	5.1	0.53	36.26	
	980217-MW4-35-01	17-Feb-98		0.15	ND [a]	ND [a]	ND [a]	0.1	ND [a]	ND [a]	16.	2.1	0.47	ND [a]	4.1	3.9	1.1	0.13	3.8	0.25	31.85	
	980601-MW4-35-06	1-Jun-98		0.25	ND [a]	ND [a]	ND [a]	0.23	ND [a]	ND [a]	20.	2.9	0.74	ND [a]	6.6	6.2	0.12	0.19	6.4	0.48	43.63	
	980826-MW4-35-06	26-Aug-98		0.58	0.63	0.21	0.64	0.64	ND [a]	0.32	28.	2.6	1.6	0.43	7.2	8.	2.	0.6	7.4	3.02	60.85	
	980826-MW4-35-07	26-Aug-98		0.78	0.94	0.35	0.95	0.91	ND [a]	0.44	29.	2.3	1.6	0.59	7.8	7.5	2.4	0.69	8.4	4.37	64.65	
	981117-MW4-35-11	17-Nov-98		0.91	1.1	0.33	1.2	0.96	0.13	0.69	17.	1.9	1.3	0.97	6.1	5.8	0.84	5.1	6.5	5.32	50.83	
	990216-MW4-35-009	16-Feb-99		0.21	ND [a]	ND [a]	ND [a]	0.19	ND [a]	ND [a]	9.33	1.12	0.69	ND [a]	3.57	2.65	1.87	ND [a]	3.78	0.4	23.41	
	990514-MW4-35-21	14-May-99		0.18	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	11.6	1.25	0.5	ND [a]	3.74	2.77	0.43	0.1	4.12	0.32	24.83	
	990824-MW4-35-11	24-Aug-99		0.24	0.12	0.121	0.19	0.31	ND [a]	0.12	14.9	2.28	0.81	0.18	4.47	3.91	0.86	0.18	4.59	1.101	33.261	
	991027-MW4-35-13	27-Oct-99		1.17	0.74	0.63	1.11	1.34	0.12	0.64	36.1	1.96	2.89	0.87	11.8	12.2	5.79	8.43	11.6	5.75	97.39	
	000330-MW4-35-114	30-Mar-00		0.21	ND [a]	ND [a]	ND [a]	0.21	ND [a]	ND [a]	19.7	2.54	1.15	ND [a]	6.03	6.29	2.46	1.33	5.34	0.42	45.26	
	001005-MW4-35-10	5-Oct-00		3.42	4.25	1.56	4.99	4.6	0.54	2.36	54.4	2.38	3.56	3.27	17.5	17.8	17.2	6.67	18.	21.72	162.5	
	010328-MW4-35-112	28-Mar-01		0.2	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	9.92	0.82	0.49	ND [a]	3.56	3.18	2.76	1.08	3.34	0.4	25.55	
	040823-MW4-35-012 [7]	23-Aug-04		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND [b]	ND>0.500	32.8	1.39	1.02	ND>0.500	7.46	11.4	1.44	2.46	7.36	ND	65.33	
	050331-005 [7]	31-Mar-05		0.106	ND [a]	ND [a]	ND>0.0500	0.104	ND>0.100	ND>0.050	5.24	0.33	0.185	ND>0.0500	2.29	1.41	0.0781 J	ND>0.0500	2.19	0.21	11.9331	
	050928-MW-4-35-123	28-Sep-05		0.115	ND>0.0510	ND>0.0510	0.057	0.129	ND>0.0510	ND>0.0510	24.3	0.778	0.634	ND>0.0510	2.71	5.36	0.786	0.357	2.71	0.301	37.936	

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs									Total Carcinogenic PAHs	Total PAHs
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene		
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW4-57	951205-MW4-57-01	5-Dec-95	46 - 56	0.56	0.22	ND [a]	0.21	0.65	ND [a]	0.09	49.	2.2	5.8	0.14	7.8	11.	1,200.	42.	8.6	1.73	1,328.27
	960321-MW4-57-01	21-Mar-96	(alluvial WBZ)	0.59	0.34	0.12	0.35	0.71	ND [a]	0.18	35.	1.9	4.9	0.27	6.9	9.2	1,000.	31.	6.3	2.29	1,097.76
	960620-MW4-57-01	20-Jun-96		0.45	0.19	ND [a]	0.21	0.46	ND [a]	0.11	39.	2.8	4.1	0.15	6.5	10.	540.	34.	8.5	1.42	646.47
	961002-MW4-57-01	2-Oct-96		0.35	ND [a]	ND [a]	ND [a]	0.29	ND [a]	ND [a]	48.	5.6	4.7	ND [a]	7.2	7.6	1,600.	27.	6.1	0.64	1,706.84
	970226-MW4-57-01	26-Feb-97		0.3	ND [a]	ND [a]	ND [a]	0.22	ND [a]	ND [a]	39.	3.3	3.4	ND [a]	6.2	6.	1,600.	24.	6.	0.52	1,688.42
	970828-MW4-35-01 [5]	28-Aug-97		0.24	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	49.	2.9	2.6	ND [a]	4.3	4.3	1,600.	24.	4.2	0.44	1,691.74
	980218-MW4-57-01	18-Feb-98		0.17	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	45.	2.	1.6	ND [a]	3.6	3.4	2,280.	19.	3.	0.28	2,357.88
	980603-MW4-57-18	3-Jun-98		0.35	0.1	ND [a]	ND [a]	0.32	ND [a]	ND [a]	51.	2.4	3.1	ND [a]	6.1	5.9	2,200.	23.	6.7	0.77	2,298.97
	980826-MW4-57-13	26-Aug-98		0.22	0.1	ND [a]	ND [a]	0.22	ND [a]	ND [a]	43.	2.2	1.7	ND [a]	3.5	3.7	2,400.	13.	3.7	0.54	2,471.34
	981119-MW4-57-20	19-Nov-98		0.18	ND [a]	ND [a]	ND [a]	0.16	ND [a]	ND [a]	42.	1.7	1.7	ND [a]	3.	3.3	1,900.	13.	2.9	0.34	1,967.94
	990217-MW4-57-016	17-Feb-99		0.18	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	26.2	1.15	1.4	ND [a]	2.57	2.36	1,530.	8.69	2.59	0.32	1,575.28
	990514-MW4-57-22	14-May-99		0.22	ND [a]	ND [a]	ND [a]	0.17	ND [a]	ND [a]		1.32	1.89	ND [a]	3.44	3.13	1,660.	10.7	3.45	0.39	1,684.32
	990825-MW4-57-17	25-Aug-99		0.19	ND [b]	ND [b]	ND [b]	0.21	ND [b]	ND [b]	34.	1.11	1.48	ND [b]	3.17	2.7	2,250.	9.46	3.08	0.4	2,305.4
	991028-MW4-57-21	28-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	42.	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	1,650.	ND [a]	ND [a]	ND	1,692.
	000403-MW4-57-121	3-Apr-00		0.24	ND [a]	ND [a]	ND [a]	0.23	ND [a]	ND [a]	38.8	1.42	2.34	ND [a]	3.95	3.21	2,700.	12.	3.55	0.47	2,765.74
	001006-MW4-57-19	6-Oct-00		0.2	ND [a]	ND [a]	ND [a]	0.18	ND [a]	ND [a]	32.	1.61	0.9	ND [a]	1.88	2.2	2,450.	6.31	2.83	0.38	2,498.11
	010329-MW4-57-120	29-Mar-01		0.23	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	32.6	1.35	1.43	ND [a]	2.52	3.08	3,010.	9.47	2.47	0.43	3,063.35
	020405-MW4-57-117	5-Apr-02		0.1	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	20.	0.86	0.74	ND [a]	1.22	1.78	2,220.	4.14	1.01	0.21	2,249.96
	030320-MW4-57-117	20-Mar-03		ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	28.	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	2,200.	5.4	ND [c]	ND	2,233.4
	040824-MW4-57-016[7]	24-Aug-04		0.275	0.168 J	0.167 J	0.207	0.275	ND>0.200	0.113 J	42.1	ND>5.00	ND>5.00	ND>5.00	ND>5.00	ND>5.00	3,780.	ND>5.00	ND>5.00	1.205	3,823.305
	050331-008[7]	31-Mar-05		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND [b]	ND>0.500	43.2	1.66	0.919 J	ND>0.500	1.94	3.08	2,850.	6.08	2.16	ND	2,909.039
	051003-MW4-57-133	3-Oct-05		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.5	ND>0.500	74.7	1.23	1.61	ND>0.500	2.06	4.06	178.	7.46	2.51	ND	271.63

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW4-101	981117-MW4-101-09	17-Nov-98	89.5 - 99.5	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	20.	ND [5]	ND [5]	ND	20.
	990216-MW4-101-007	16-Feb-99	(alluvial WBZ)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	8.3	ND [5]	ND [5]	ND	8.3
	990514-MW4-101-19	14-May-99		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.21	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	68.1	ND [5]	ND [5]	ND	68.31
	990514-MW4-101-20	14-May-99		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.2	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	62.3	ND [5]	ND [5]	ND	62.5
	990824-MW4-101-09	24-Aug-99		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.64	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	190.	ND [5]	ND [5]	ND	190.64
	991027-MW4-101-11	27-Oct-99		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.65	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	166.	ND [5]	ND [5]	ND	166.65
	000329-MW4-101-111	29-Mar-00		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.97	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	20.6	ND [5]	ND [5]	ND	21.57
	001005-MW4-101-09	5-Oct-00		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.72	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.64	ND [5]	ND [5]	ND	1.36
	010328-MW4-101-110	28-Mar-01		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.56	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.58	ND [5]	ND [5]	ND	1.14
	011009-MW4-101-103	9-Oct-01		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.47	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.71	ND [5]	ND [5]	ND	1.18
	020404-MW4-101-110	4-Apr-02		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.51	ND [5]	ND [5]	ND [5]	ND [5]	5.46	ND [5]	ND [5]	ND	5.97
	020924-MW4-101-102	24-Sep-02		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.63	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	12.	ND [5]	ND [5]	ND	12.63
	030318-MW4-101-109	18-Mar-03		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.63	ND [5]	ND [5]	ND [5]	ND [5]	15.	ND [5]	ND [5]	ND [5]	ND	15.63
	030930-MW4-101-105 [7]	30-Sep-03		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.59	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	14.	ND [5]	ND [5]	ND	14.59
	040816-MW4-101-007 [7]	16-Aug-04		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND>0.200	ND [5]	0.541	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	26.2	ND [5]	ND [5]	ND	26.741
	50330-002 [7]	30-Mar-05		ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND [5]	ND>0.0500	0.776	ND [5]	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	15.9	ND>0.0500	ND>0.0500	ND	16.676
	050928-MW4-101-122	28-Sep-05		ND>0.0204	ND>0.0204	ND>0.0204	ND>0.0204	ND>0.0204	ND>0.0204	ND>0.0204	0.539	ND	ND>0.0204	ND>0.0204	ND>0.0204	0.0208 J	6.77	ND>0.0204	ND>0.0408	ND	7.309
MW5-32	951205-MW5-32-01	5-Dec-95	21 - 31	1.8	1.	0.41	1.1	2.6	0.12	0.56	12.	9.2	18.	0.9	15.	28.	11.	88.	18.	7.59	207.69
	960319-MW5-32-01	19-Mar-96	(fill/alluvial WBZ)	5.7	4.7	1.7	5.5	8.5	0.61	3.1	4.2	2.1	20.	4.8	44.	10.	1.	100.	53.	29.81	268.91
	960319-MW5-32-01 (dissolved)	19-Mar-96		ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	2.5	1.1	4.4	ND [5]	0.96	5.3	0.61	29.	1.1	ND	44.97
	960620-MW5-32-01	20-Jun-96		2.6	2.2	0.93	2.7	3.4	0.34	1.5	2.	1.1	9.2	2.3	12.	2.1	0.42	20.	20.	13.67	82.79
	961001-MW5-32-01	1-Oct-96		50.	55.	18.	63.	51.	ND [4]	40.	ND [4]	ND [4]	47.	56.	160.	ND [6]	ND [6]	83.	150.	277.	773.
	970225-MW5-32-01	25-Feb-97		0.32	0.19	ND [5]	0.16	0.33	ND [5]	ND [5]	0.16	ND [5]	0.95	0.12	3.	0.23	0.16	0.29	3.8	1.	9.71
	970827-MW5-32-01	27-Aug-97		2.	1.9	ND [b]	2.4	2.7	ND [b]	1.4	ND [b]	ND [b]	ND [b]	1.8	5.8	ND [b]	ND [b]	ND [b]	6.3	10.4	24.3
	980217-MW-5-32-01	17-Feb-98		0.57	0.55	0.19	0.67	0.65	0.11	0.49	ND [5]	0.1	0.19	0.62	1.5	ND [5]	ND [5]	0.23	1.7	3.23	7.57
	980602-MW5-32-10	2-Jun-98		7.	7.	1.9	7.6	7.	0.91	4.3	1.2	0.47	1.6	6.3	20.	0.57	0.67	4.2	24.	35.71	94.72
	980826-MW5-32-09	26-Aug-98		42.	53.	17.	56.	58.	5.8	27.	ND [b]	4.5	8.5	36.	91.	1.2	3.4	17.	120.	258.8	540.4
	981118-MW5-32-13	18-Nov-98		0.27	0.26	0.1	0.27	0.37	ND [5]	0.15	ND [5]	ND [5]	ND [5]	0.21	1.4	ND [5]	ND [5]	ND [5]	1.7	1.42	4.73

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [4,5]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																						
	MCL[3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520[4]	#	#	#	#	620[4]	#	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV)[2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	#
MW5-32	990216-MW5-32-011	16-Feb-99	21 - 31	0.51	0.51	ND [a]	0.57	0.61	0.14	0.23	ND [a]	ND [a]	0.18	0.41	1.66	ND [a]	ND [a]	0.17	1.9	2.57	6.89
	990514-MW5-32-17	14-May-99	(fill WBZ)	0.1	ND [a]	ND [a]	ND [a]	0.11	0.59	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.95	ND [a]	0.63	0.8	2.38
	990824-MW5-32-13	24-Aug-99		1.43	0.93	0.93	1.69	2.08	0.47	1.29	ND [a]	0.19	0.33	1.79	4.03	ND [a]	0.12	0.51	5.36	8.82	21.15
	991027-MW5-32-15	27-Oct-99		1.19	0.79	0.73	1.33	1.68	0.16	0.8	ND [a]	0.12	0.2	1.07	3.2	ND [a]	ND [a]	0.32	4.57	6.68	16.16
	000330-MW5-32-115	30-Mar-00		0.72	0.58	0.49	0.93	1.	0.12	0.61	ND [a]	0.12	0.18	0.83	1.41	ND [a]	ND [a]	0.27	1.71	4.45	8.97
	001005-MW5-32-12	5-Oct-00		0.28	0.34	0.11	0.37	0.37	ND [a]	0.19	ND [a]	ND [a]	0.12	0.25	0.54	ND [a]	ND [a]	ND [a]	0.73	1.66	3.3
	010329-MW5-32-114	29-Mar-01		1.61	1.33	1.12	1.94	2.12	0.52	1.48	ND [a]	0.2	0.4	1.75	2.63	ND [a]	0.13	0.61	3.81	10.12	19.65
	040816-MW5-32-008[7]	16-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.269	ND	0.269
	050401-011[7]	1-Apr-05		0.255	0.199	0.219	0.33	0.38	ND [a]	0.207	ND>0.0500 B	0.183	0.483	0.302	0.442	ND [a]	0.136 B	0.107 B	1.17	1.59	4.413
	050927-MW-5-32-117	27-Sep-05		2.06	1.31	1.35	2.1	2.86	0.263	1.17	ND>0.100	0.31	0.587	1.82	4.05	0.103	0.999	0.863	7.01	11.113	26.855
MW5-100	981118-MW5-100-14	18-Nov-98	88 - 98	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	7.2	6.2	1.1	ND [a]	1.1	2.7	7,100.	7.2	1.2	ND	7,126.7
	990217-MW5-100-018	17-Feb-99	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	6.34	3.52	ND [a]	ND [a]	1.47	2.14	5,010.	7.87	1.39	ND	5,032.73
	990514-MW5-100-18	14-May-99		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	12.3	1.6	1.3	ND [b]	16.3	1.73	7,440.	6.9	2.	ND	7,482.13
	990825-MW5-100-18	25-Aug-99		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	18.	1.	1.	ND [b]	1.9	1.7	13,300.	6.7	ND [b]	ND	13,330.3
	991028-MW5-100-19	28-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	12.9	0.4	0.67	ND [a]	1.29	0.96	7,450.	4.28	1.29	ND	7,471.79
	000330-MW5-100-119	30-Mar-00		0.1	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	15.7	0.32	0.77	ND [a]	1.43	1.01	9,800.	4.42	1.31	0.1	9,825.06
	001006-MW5-100-15	6-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.31	0.27	ND [a]	0.64	0.68	10,100.	1.49	0.64	ND	10,104.03
	001006-MW5-100-16	6-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	15.	0.26	0.25	ND [a]	0.52	0.58	9,200.	1.27	0.53	ND	9,218.41
	010329-MW5-100-118	29-Mar-01		ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	19.8	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	9,600.	ND [c]	ND [c]	ND	9,619.8
	020405-MW5-100-114	5-Apr-02		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	1.1	17.5	ND [b]	ND [b]	1.	ND [b]	ND [b]	82,300.	ND [b]	ND [b]	1.1	82,319.6
	020405-MW5-100-115	5-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.14	0.11	8.9	ND [a]	0.14	ND [a]	0.36	0.49	4,310.	0.81	0.33	0.25	4,321.28
	030319-MW5-100-114	19-Mar-03		ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	14.	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	5,600.	ND [c]	ND [c]	ND	5,614.
	040824-MW5-100-015[7]	24-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	21.9	ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>2.50	11,900.	ND>2.50	ND>2.50	ND	11,921.9
	050401-012[7]	1-Apr-05		ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>5.00	ND>2.50	21.3 B	ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>2.50	8,730 B	ND>2.50 B	ND>2.50	ND	8,751.3
	050921-MW-5-100-102	21-Sep-05		0.0178	ND>0.00962	ND>0.00962	ND>0.00962	0.0191	ND>0.00962	ND>0.00962	18.5	ND>0.962	0.0888	ND>0.00962	0.126	ND>0.962	6,530.	0.314	0.164	0.0369	6,549.2297

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs									Total Carcinogenic PAHs	Total PAHs
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene		
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW5-175	981116-MW5-175-07	16-Nov-98	163 - 173	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	990215-MW5-175-003	15-Feb-99	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	990512-MW5-175-07	12-May-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	990823-MW5-175-03	23-Aug-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	ND	0.2
	991026-MW5-175-06	26-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	000329-MW5-175-106	29-Mar-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	001004-MW5-175-05	4-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	010328-MW5-175-105	28-Mar-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	011009-MW5-175-102	9-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020404-MW5-175-105	4-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020924-MW5-175-101	24-Sep-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030318-MW5-175-105	18-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030929-MW5-175-101	29-Sep-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040824-MW5-175-013	24-Aug-04		ND>0.050	ND>0.050	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.100	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	0.0883 J	ND>0.0500	ND>0.0500	ND	0.0883
	050921-MW-5-175-101	21-Sep-05		ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	ND>0.0098	0.0894	ND>0.0098	ND>0.0196	ND	0.0894
MW6-32	951207-MW6-32-01	7-Dec-95	21 - 31	2,400.	750.	280.	690.	3,100.	50.	200.	23,000.	220.	14,000.	280.	22,000.	4,600.	42,000.	61,000.	25,000.	7,470.	199,570.
	960319-MW6-32-01	19-Mar-96	(fill WBZ)	1.9	0.85	0.3	0.79	2.5	ND [a]	0.22	280.	2.6	24.	0.3	16.	61.	1,800.	140.	16.	6.56	2,346.46
	960319-MW6-32-01 (dissolved)	19-Mar-96		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	220.	2.	5.1	ND [a]	1.3	42.	1,600.	68.	1.7	ND	1,940.1
	960617-MW6-32-01	17-Jun-96		4.5	2.4	0.87	2.5	5.	0.23	0.74	310.	2.4	29.	0.9	27.	82.	1,200.	170.	40.	16.24	1,877.54
	960930-MW6-32-01	30-Sep-96		66.	32.	12.	29.	63.	1.5	ND [a]	620.	7.8	190.	6.4	320.	210.	1,900.	970.	330.	203.5	4,757.7
	970225-MW6-32-01	25-Feb-97		ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	260.	2.7	13.	ND [c]	ND [c]	64.	830.	130.	8.5	ND	1,308.2
	970826-MW6-32-01	26-Aug-97		4.4	2.2	0.82	2.2	4.8	ND>0.5	0.58	350.	ND>5	29.	0.65	33.	97.	1,300.	220.	25.	15.	2,069.65
	980216-MW6-32-01	16-Feb-98		48.	27.	7.	24.	47.	1.7	7.2	560.	7.1	96.	9.2	220.	170.	1,200.	840.	290.	161.9	3,554.2
	980601-MW6-32-04	1-Jun-98		6.2	3.	0.85	2.6	6.4	0.19	0.74	410.	ND [d]	50.	0.98	38.	100.	1,300.	280.	46.	19.98	2,244.96

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [4,5]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [a]	#	#	#	#	620 [a]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW6-61	951206-MW6-61-01	6-Dec-95	50 - 60 (alluvial WBZ)	2.7	0.77	0.34	0.73	3.4	ND [a]	0.23	160.	1.4	29.	0.32	24.	48.	250.	200.	24.	8.17	744.89
	960319-MW6-61-01	19-Mar-96		1.1	0.33	0.13	0.33	1.4	ND [a]	ND [a]	29.	0.24	8.6	0.13	13.	9.7	66.	53.	13.	3.29	196.96
	960620-MW6-61-01	20-Jun-96		1.4	0.48	0.25	0.5	1.5	ND [a]	0.14	21.	0.3	6.1	0.21	9.9	7.5	44.	30.	16.	4.27	139.28
	961001-MW6-61-01	1-Oct-96		2.	ND [b]	ND [b]	ND [b]	1.8	ND [b]	ND [b]	16.	ND [b]	4.8	ND [b]	9.9	5.4	76.	25.	12.	3.8	152.9
	970225-MW6-61-01	25-Feb-97		ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [c]	ND [a]	32.	ND [c]	4.	ND [c]	3.5	7.7	290.	23.	4.9	ND	365.1
	970828-MW6-61-01	28-Aug-97		1.5	0.66	0.23	0.62	1.7	ND [a]	0.17	210.	2.4	17.	0.22	17.	47.	1,000.	130.	23.	4.88	1,451.5
MW8-29	951207-MW8-29-01	7-Dec-95	18 - 28 (fill WBZ)	65.	34.	16.	44.	81.	50.	25.	94.	200.	110.	36.	230.	83.	6,000.	400.	220.	315.	7,688.
	960321-MW8-29-01	21-Mar-96		28.	23.	9.8	31.	33.	2.9	16.	140.	260.	56.	23.	98.	89.	6,700.	270.	100.	143.7	7,879.7
	960620-MW8-29-01[7]	20-Jun-96		1.2	0.88	0.3	1.1	1.2	0.12	0.61	100.	310.	15.	0.88	15.	70.	1,400.	150.	21.	5.41	2,087.29
	960620-MW8-29-02	20-Jun-96		2.5	2.4	0.82	3.	2.7	0.3	1.6	26.	49.	5.1	2.3	9.4	14.	2,000.	32.	15.	13.32	2,166.12
	961002-MW8-29-01	2-Oct-96		5.4	4.4	1.6	6.2	4.8	ND [b]	3.5	120.	240.	29.	4.5	30.	71.	5,400.	140.	26.	25.9	6,086.4
	970226-MW8-29-01	26-Feb-97		3.1	2.1	ND [b]	2.	2.7	ND [b]	ND [b]	120.	250.	17.	ND [b]	22.	52.	5,600.	110.	23.	9.9	6,203.9
	970828-MW8-29-01	28-Aug-97		32.	29.	11.	39.	38.	4.7	18.	370.	230.	56.	25.	150.	120.	10,000.	380.	210.	171.7	11,712.7
	980218-MW8-29-01	18-Feb-98		4.3	3.7	1.2	4.9	4.1	0.69	3.3	340.	110.	13.	4.	24.	65.	11,000.	150.	32.	22.19	11,760.19
	980603-MW8-29-19	3-Jun-98		37.	37.	13.	45.	39.	3.8	21.	420.	130.	51.	30.	140.	120.	10,700.	440.	180.	195.8	12,406.8
	981119-MW8-29-22	19-Nov-98		2.2	1.9	0.69	2.6	2.3	0.22	1.2	190.	85.	15.	1.8	17.	47.	4,900.	91.	19.	11.11	5,376.91
	990513-MW8-29-14	13-May-99		2.57	1.98	0.64	2.13	2.21	0.19	1.01	311.	31.2	262.	1.39	21.	64.5	5,580.	133.	30.	10.73	6,444.82
	991029-MW8-29-23	29-Oct-99		ND [e]	ND [e]	ND [e]	ND [e]	ND [e]	ND [e]	ND [e]	210.	42.	28.	ND [e]	20.	54.	2,790.	138.	20.	ND	3,302.
	000403-MW8-29-123	3-Apr-00		1.78	0.93	0.79	1.47	1.66	0.14	0.65	320.	6.46	20.1	0.75	18.3	68.7	6,550.	143.	23.5	7.42	7,158.23
	010330-MW8-29-123	30-Mar-01		8.97	6.4	5.16	10.	10.9	1.93	5.76	173.	4.84	22.6	6.48	31.2	47.	1,770.	151.	36.	49.12	2,291.24
	040825-MW8-29-022[7]	25-Aug-04		7.49	4.95	4.24	8.19	9.56	ND [b]	4.09	234.	2.82	16.1	6.01	27.8	56.6	2,520.	136.	34.6	38.52	3,072.45
	050929-MW8-29-127	29-Sep-05		5.32	2.54	2.46	5.16	9.96	0.563	2.64	331.	3.61	25.1	4.11	28.7	54.8	4,960.	117.	39.9	26.643	5,592.863

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#	
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#	
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#	
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520[4]	#	#	#	#	620[4]	#	#	#	#	
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	
MW8-56	951207-MW8-56-01	7-Dec-95	45 - 55	25.	14.	60.	17.	30.	ND [c]	10.	130.	250.	53.	15.	110.	86.	20,000.	290.	110.	156.	21,200.	
	960321-MW8-56-01	21-Mar-96	(alluvial WBZ)	68.	66.	23.	74.	83.	7.1	40.	220.	300.	110.	60.	200.	130.	13,300.	580.	240.	361.1	15,501.1	
	960620-MW8-56-01 [6]	20-Jun-96		6.6	5.7	2.2	7.9	7.3	0.81	4.3	28.	66.	9.8	6.	21.	17.	1,500.	56.	30.	34.81	1,768.61	
	961002-MW8-56-01	2-Oct-96		26.	24.	ND [d]	27.	22.	ND [d]	15.	120.	230.	42.	20.	92.	74.	10,700.	250.	100.	114.	11,742.	
	970226-MW8-56-01	26-Feb-97		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	120.	240.	34.	ND [a]	34.	60.	13,000.	160.	44.	ND	13,692.	
	970828-MW8-56-01	28-Aug-97		4.1	3.7	1.4	4.4	4.1	ND [b]	2.3	160.	240.	16.	3.	24.	80.	17,400.	170.	28.	20.	18,141.	
	980218-MW8-56-01	18-Feb-98		2.6	2.	0.58	2.4	1.8	0.3	1.5	130.	220.	18.	1.7	20.	67.	12,300.	150.	27.	11.18	12,944.88	
	980603-MW8-56-21	3-Jun-98		13.	13.	5.	15.	13.	1.3	7.5	190.	310.	31.	11.	61.	100.	16,600.	280.	69.	67.8	17,719.8	
	981119-MW8-56	19-Nov-98		ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [c]	130.	180.	15.	ND [d]	12.	64.	10,500.	110.	13.	ND	11,024.	
	990513-MW8-56-15	13-May-99		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	128.	168.	10.2	ND [b]	9.2	52.3	11,500.	88.2	9.9	ND	11,965.8	
	991029-MW8-56-24	29-Oct-99		0.97	0.52	0.45	0.81	1.04	-	0.44	148.	179.	19.1	0.56	8.94	58.8	12,000.	110.	8.54	4.23	12,537.17	
	000403-MW8-56-124	3-Apr-00		12.2	ND>11.1	ND>11.1	ND>11.1	18.9	ND>11.1	ND>11.1	188.	207.	50.	ND>11.1	66.7	82.2	13,000.	294.	97.8	31.1	14,016.8	
	010330-MW8-56-122	30-Mar-01		8.28	5.07	4.23	7.84	8.57	1.5	4.93	169.	165.	29.8	5.62	32.9	71.7	14,200.	202.	37.1	40.42	14,953.54	
	020405-MW8-56-118	5-Apr-02		0.45	0.19	0.21	0.35	0.53	ND [a]	0.21	91.6	77.6	9.61	0.27	7.61	48.6	6,830.	69.6	6.17	1.94	7,143.	
	030320-MW8-56-120	20-Mar-03		2.2	ND [c]	ND [c]	ND [c]	2.	ND [c]	ND [c]	99.	61.	11.	ND [c]	9.2	42.	7,400.	77.	8.8	4.2	7,712.2	
	040825-MW8-56-021[7]	25-Aug-04		ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>5.00	ND>2.50	165.	57.2	11.7	ND>2.50	14.7	59.8	10,400.	108.	16.3	ND	10,832.7	
	050929-MW8-56-128	29-Sep-05		4.81	3.23	3.58	5.74	6.37	ND>1.03	3.24	152.	44.4	15.3	4.91	25.9	49.3	8,290.	120.	31.1	26.97	8,759.88	
MW9-29	951205-MW9-29-01	5-Dec-95	18 - 28	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.1	0.15	ND [a]	0.12	ND [a]	0.44	0.37	0.11	ND	1.29	
	960318-MW9-29-01	18-Mar-96	(fill WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.11	ND [a]	0.18	ND [a]	0.29	0.15	ND [a]	0.6	0.27	ND	1.6	
	960618-MW9-29-01	18-Jun-96		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.15	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.15	
	961001-MW9-29-01	1-Oct-96		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.12	ND [a]	ND [a]	ND [a]	0.28	ND [a]	ND [a]	ND	0.4	
	970225-MW9-29-01	25-Feb-97		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	
	970827-MW9-29-01	27-Aug-97		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	
	980217-MW9-29-01	17-Feb-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	
	980602-MW9-29-07	2-Jun-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	
	981116-MW9-29-02	16-Nov-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	
	990511-MW9-29-03	11-May-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND	

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [8,9]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,9]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	#
MW9-29	991026-MW9-29-02	26-Oct-99	18 - 28	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	000328-MW9-29-102	28-Mar-00	(fill WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	010327-MW9-29-102	27-Mar-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020403-MW9-29-101	3-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030318-MW9-29-103	18-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040812-MW9-29-001 [7]	12-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	050926-MW-9-29-109	26-Sep-05		ND>0.01	ND>0.01	ND>0.01	ND>0.01	ND>0.01	ND>0.01	ND>0.01	ND>0.01	ND>0.01	0.0308	ND>0.01	0.036	ND>0.01	ND>0.02	0.0179	0.0346	ND	0.1193
MW10-25	951207-MW10-25-01	7-Dec-95	14 - 24	4.	2.9	1.3	3.4	4.6	ND [b]	1.8	31.	88.	16.	2.5	21.	33.	13,000.	85.	22.	18.	13,316.5
	960320-MW10-25-01	20-Mar-96	(fill WBZ)	1.3	1.2	0.55	1.4	0.78	ND>0.3	0.67	70.	98.	11.	0.91	8.8	39.	8,800.	86.	6.7	5.9	9,126.31
	960617-MW10-25-01	17-Jun-96		1.1	1.2	0.62	1.8	0.87	0.25	0.95	75.	130.	14.	1.1	1.6	49.	9,900.	82.	6.6	6.79	10,266.09
	960930-MW10-25-01	30-Sep-96		20.	12.	3.9	15.	19.	1.7	7.	140.	87.	39.	9.9	95.	90.	9,600.	310.	80.	78.6	10,529.5
	970225-MW10-25-01	25-Feb-97		21.	13.	3.4	15.	16.	ND [b]	5.9	210.	81.	30.	11.	ND [b]	95.	9,000.	340.	ND [b]	74.3	9,841.3
	970827-MW10-25-01	27-Aug-97		4.4	3.5	1.2	4.3	4.2	ND [b]	2.	72.	59.	11.	2.5	22.	41.	6,700.	100.	20.	19.6	7,047.1
	980216-MW10-25-01	16-Feb-98		14.	11.	3.6	12.	11.	1.1	5.4	100.	87.	19.	8.1	59.	62.	8,500.	210.	62.	58.1	9,165.2
	980601-MW10-25-02	1-Jun-98		8.2	6.7	1.9	7.	7.2	0.7	3.4	140.	150.	26.	4.8	45.	82.	11,400.	230.	49.	35.1	12,161.9
MW10-61	951206-MW10-61-01	6-Dec-95	50 - 60	0.39	ND [a]	ND [a]	ND [a]	0.33	ND [a]	ND [a]	39.	17.	12.	ND [a]	12.	28.	620.	90.	11.	0.72	829.72
	960321-MW10-61-01	21-Mar-96	(alluvial WBZ)	0.75	0.34	0.12	0.36	0.8	ND [a]	0.18	5.8	2.2	4.7	0.28	7.3	1.5	43.	28.	7.1	2.55	102.43
	960620-MW10-61-01	20-Jun-96		0.54	0.24	0.12	0.28	0.68	ND [a]	0.14	2.1	0.98	2.2	0.22	4.4	0.22	13.	15.	5.4	2.	45.52
	961002-MW10-61-01	2-Oct-96		0.48	0.23	ND [a]	0.25	0.42	ND [a]	0.12	0.88	0.54	1.5	0.17	4.1	0.16	4.6	8.5	3.2	1.5	25.15
	970226-MW10-61-01	26-Feb-97		0.41	0.15	ND [a]	0.13	0.35	ND [a]	ND [a]	0.73	0.45	1.	ND [a]	3.5	0.1	3.3	4.1	3.8	1.04	18.02
	970828-MW10-61-01	28-Aug-97		0.21	ND [a]	ND [a]	ND [a]	0.18	ND [a]	ND [a]	0.33	0.11	0.55	ND [a]	2.2	ND [a]	0.78	1.1	2.3	0.39	7.76
	980218-MW10-61-01	18-Feb-98		0.24	0.16	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.13	ND [a]	0.12	ND [a]	1.1	ND [a]	0.29	0.22	1.5	0.4	3.76
	980603-MW10-61-16	3-Jun-98		0.42	0.27	0.11	0.27	0.36	ND [a]	0.12	0.18	ND [a]	0.13	0.21	1.7	ND [a]	0.26	0.15	2.	1.55	6.18
	981117-MW10-61-08	17-Nov-98		0.56	0.61	0.2	0.78	0.57	ND [a]	0.34	ND [a]	0.15	ND [a]	0.58	0.86	ND [a]	0.1	ND [a]	1.1	3.06	5.85
	990512-MW10-61-06	12-May-99		0.18	0.1	ND [a]	0.11	0.18	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.73	ND [a]	ND [a]	ND [a]	ND [a]	0.57	1.3
	991026-MW10-61-05	26-Oct-99		0.11	ND [a]	ND [a]	ND [a]	0.13	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.54	ND [a]	ND [a]	ND [a]	0.58	0.24	1.36
	000329-MW10-61-105	29-Mar-00		0.11	ND [a]	ND [a]	ND [a]	0.13	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.48	ND [a]	ND [a]	ND [a]	0.37	0.24	1.09
	011010-MW10-61-109	10-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.28	ND [a]	ND [a]	ND [a]	0.33	ND	0.61

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs									Total Carcinogenic PAHs	Total PAHs
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene		
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW10-61	020404-MW10-61-109	4-Apr-02	50 - 60	ND [a]	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.43	ND [a]	ND [a]	ND [a]	0.3	0.11	0.84
	020924-MW10-61-104	24-Sep-02	(alluvial WBZ)	0.11	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.53	ND [a]	ND [a]	ND [a]	0.6	0.25	1.38
	030319-MW10-61-111	19-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.45	ND [a]	ND [a]	ND [a]	0.5	ND	0.95
	031003-MW10-61-108 [7]	3-Oct-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040813-MW10-61-005 [7]	13-Aug-04		ND [a]	ND [a]	ND [a]	0.104	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	0.111	0.135	ND [a]	ND [a]	ND [a]	ND [a]	0.177	0.104	0.527
	050928-MW10-61-121	28-Sep-05		0.184	0.228	0.162	0.358	0.22	0.049	0.229	0.0182	0.103	0.0517	0.362	0.168	0.0118	0.0803	0.0382	0.306	1.43	2.5692
MW11-32	951207-MW11-32-01	7-Dec-95	21 - 31	5.5	2.6	1.3	2.8	6.3	ND [b]	1.5	340.	340.	32.	2.2	48.	190.	21,000.	360.	33.	20.	22,365.2
	960320-MW11-32-01	20-Mar-96	(fill WBZ)	1.6	1.2	0.49	1.2	1.3	ND>0.5	0.54	200.	180.	20.	0.75	16.	90.	14,000.	150.	13.	6.33	14,676.08
	960617-MW11-32-01	17-Jun-96		2.9	2.3	1.	2.8	2.8	0.31	1.4	160.	160.	19.	1.8	19.	90.	11,000.	120.	25.	13.51	11,608.31
	960930-MW11-32-01	30-Sep-96		31.	22.	9.9	27.	27.	2.	13.	270.	220.	62.	20.	150.	150.	16,000.	430.	170.	131.9	17,603.9
	960930-MW11-32-02	30-Sep-96		41.	36.	14.	40.	33.	3.	22.	270.	250.	74.	31.	200.	180.	17,000.	510.	190.	189.	18,894.
	970225-MW11-32-01	25-Feb-97		4.2	3.2	ND [b]	ND [b]	3.3	ND [b]	ND [b]	150.	140.	1.4	ND [b]	ND [b]	68.	11,000.	140.	26.	10.7	11,536.1
	970826-MW11-32-01	26-Aug-97		4.6	3.7	1.3	4.3	4.1	0.5	2.	260.	190.	21.	2.3	37.	120.	16,200.	200.	25.	20.5	17,075.8
	980216-MW11-32-01	16-Feb-98		4.1	3.1	1.	3.2	2.9	ND [b]	1.6	150.	120.	16.	2.3	25.	65.	9,200.	140.	25.	15.9	9,759.2
	980601-MW11-32-03	1-Jun-98		26.	25.	ND [d]	24.	24.	ND [d]	13.	510.	360.	56.	18.	130.	250.	30,200.	580.	160.	112.	32,376.
MW12-36	951207-MW12-36-01	7-Dec-95	25 - 35	1.5	0.36	0.17	0.22	1.4	ND [a]	ND [a]	400.	7.8	21.	0.1	28.	170.	2,500.	230.	17.	3.65	3,377.55
	960321-MW12-36-01	21-Mar-96	(fill/alluvial WBZ)	0.38	ND [a]	ND [a]	ND [a]	0.35	ND [a]	ND [a]	250.	3.3	16.	ND [a]	18.	110.	1,400.	200.	12.	0.73	2,010.03
	960620-MW12-36-01	20-Jun-96		0.4	ND [a]	ND [a]	ND [a]	0.4	ND [a]	ND [a]	160.	2.4	11.	ND [a]	18.	81.	1,200.	130.	18.	0.8	1,621.2
	961002-MW12-36-01	2-Oct-96		0.47	ND [a]	ND [a]	ND [a]	0.33	ND [a]	ND [a]	140.	2.	10.	ND [a]	25.	59.	990.	130.	18.	0.8	1,374.8
	970226-MW12-36-01	26-Feb-97		0.63	ND [a]	ND [a]	ND [a]	0.31	ND [a]	ND [a]	100.	1.7	ND [a]		ND [a]	24.	40.	760.	88.	18.	0.94	1,032.64
	970828-MW12-36-01	28-Aug-97		0.43	ND [a]	ND [a]	ND [a]	0.24	ND [a]	ND [a]	79.	1.4	7.7	ND [a]	19.	33.	620.	61.	18.	0.67	839.77
	980218-MW12-36-01	18-Feb-98		0.51	ND [a]	ND [a]	ND [a]	0.18	ND [a]	ND [a]	71.	0.78	2.6	ND [a]	17.	25.	530.	52.	9.2	0.69	708.27
	980603-MW12-36-17	3-Jun-98		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	77.	1.1	5.9	ND [b]	22.	30.	480.	62.	19.	ND	697.
	981119-MW12-36-18	19-Nov-98		0.49	ND [a]	ND [a]	ND [a]	0.3	ND [a]	ND [a]	52.	0.64	2.4	ND [a]	14.	21.	350.	38.	8.3	0.79	487.13
	990513-MW12-36-12	13-May-99		0.53	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	47.9	0.79	2.28	ND [a]	7.47	19.2	374.	31.3	7.93	0.53	491.4
	991028-MW12-36-18	28-Oct-99		0.35	ND [a]	ND [a]	ND [a]	0.25	ND [a]	ND [a]	60.	0.95	2.2	ND [a]	7.52	23.7	409.	35.9	6.06	0.6	545.93
	000330-MW12-36-118	30-Mar-00		0.59	0.14	0.16	0.21	0.51	ND [a]	0.13	63.8	1.21	3.9	0.18	9.51	25.5	490.	45.9	7.24	1.74	648.98
	010329-MW12-36-117	29-Mar-01		0.4	ND [a]	ND [a]	ND [a]	0.29	ND [a]	ND [a]	51.5	0.69	3.11	ND [a]	7.34	21.6	284.	39.4	6.71	0.69	415.04
	020404-MW12-36-112	4-Apr-02		0.28	ND [a]	ND [a]	ND [a]	0.22	ND [a]	ND [a]	37.5	0.46	1.98	ND [a]	5.14	16.6	287.	23.5	3.2	0.5	375.88
	030319-MW12-36-113	19-Mar-03		0.31	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	35.	0.47	2.1	ND [a]	5.9	16.	280.	24.	5.4	0.31	369.18
	040825-MW12-36-017 [7]	25-Aug-04		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND [b]	ND>0.500	62.	ND [b]	2.66	ND>0.500	6.34	29.6	554.	36.2	5.51	ND	696.31
	050927-MW-12-36-116	27-Sep-05		0.111	0.0167	0.0176	0.0197	0.0879	ND>0.0102	ND>0.0102	37.4	0.212	1.13	0.0103	2.9	15.3	293.	19.1	2.69	0.2529	371.9952

Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [6,9]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [6,9]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	#	#	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	#
MW13-30	980217-MW13-30-01	17-Feb-98	19 - 29	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	190.	1.6	7.3	ND [a]	3.5	52.	69.	100.	2.7	ND	426.1
	980602-MW13-30-12	2-Jun-98	(fill WBZ)	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	300.	ND [b]	16.	ND [b]	5.1	85.	610.	160.	4.8	ND	1,180.9
	980826-MW13-30-11	26-Aug-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	160.	1.8	11.	ND [a]	3.7	45.	420.	98.	2.8	ND	742.3
	981119-MW13-30-19	19-Nov-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	210.	1.4	16.	ND [a]	2.8	59.	7.6	100.	2.2	ND	399.
	990217-MW13-30-014	17-Feb-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	144.	1.13	9.6	ND [a]	2.54	34.8	506.	70.6	1.92	ND	770.59
	990513-MW13-30-13	13-May-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	163.	1.59	10.6	ND [a]	2.73	51.8	735.	68.4	2.5	ND	1,035.62
	991028-MW13-30-20	28-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	130.	ND [a]	132.	ND [a]	ND [a]	42.	460.	56.	ND [a]	ND	820.
	000403-MW13-30-120	3-Apr-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	297.	1.62	8.39	ND [a]	3.09	77.3	240.	90.5	2.94	ND	720.84
	001005-MW13-30-18	5-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	142.	0.96	6.3	ND [a]	2.7	46.	146.	64.	2.34	ND	410.3
	010329-MW13-30-119	29-Mar-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	147.	1.11	6.11	ND [a]	2.3	46.6	241.	77.3	1.54	ND	522.96
	020405-MW13-30-116	5-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	149.	0.9	6.77	ND [a]	3.19	44.8	188.	57.1	1.89	ND	451.65
	030319-MW13-30-115	19-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	160.	1.6	9.2	ND [a]	3.9	48.	700.	83.	2.7	ND	1,008.4
	040825-MW13-30-018[7]	25-Aug-04		ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND>0.500	ND [b]	171.	ND>1.50	6.46	ND>0.500	2.94	35.9	78.6	57.1	2.41	ND	354.41
MW13-61	980218-MW13-61-01	18-Feb-98	50 - 60	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	980602-MW13-61-13	2-Jun-98	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	980825-MW13-61-03	25-Aug-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	981116-MW13-61-03	16-Nov-98		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	ND	0.2
	990512-MW13-61-04	12-May-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.26	ND [a]	ND [a]	ND	0.26
	991026-MW13-61-03	26-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	ND [a]	ND [a]	0.48	ND [a]	ND>0.1	ND	0.62
	000328-MW13-61-104	28-Mar-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	001004-MW13-61-03	4-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.57	ND [a]	ND [a]	ND	0.68
	010327-MW13-61-103	27-Mar-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	011009-MW13-61-106	9-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.17	ND [a]	ND [a]	ND	0.28
	020403-MW13-61-102	3-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020924-MW13-61-106	24-Sep-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030317-MW13-61-101	17-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	031003-MW13-61-109 [7]	3-Oct-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040813-MW13-61-003[7]	13-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	0.115	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.168	ND [a]	ND [a]	ND	0.283
	050937-MW-13-61-114	27-Sep-05		0.187	0.235	0.192	0.244	0.24	ND>0.102	0.165	6.61	ND>0.204	0.478	0.225	0.685	2.17	ND>0.204	2.79	0.706	1.263	14.927

Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#	
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#	
Drinking Water																						
	MCL[3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#	
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#	
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520[4]	#	#	#	#	620[4]	#	#	#	#	
	Oak Ridge National Laboratory (Tier II SCV)[2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	
MW14-110	981116-MW14-110-06	16-Nov-98	98 - 108	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	990216-MW14-110-005	16-Feb-99	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.11	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.11
	990512-MW14-110-09	12-May-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	ND	0.28
	990823-MW14-110-06	23-Aug-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.29	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.12	ND [a]	ND [a]	ND	0.41
	991027-MW14-110-09	27-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.26	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.26
	991027-MW14-110-09	27-Oct-99		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.26	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.26
	000329-MW14-110-109	29-Mar-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.42	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.42
	000329-MW14-110-110	29-Mar-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.42	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.42
	000615-MW14-110-102	15-Jun-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.18	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.18
	001005-MW14-110-06	5-Oct-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	001220-MW14-110-102	20-Dec-00		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.14	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.14
	010328-MW14-110-108	28-Mar-01		ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	0.23	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND[a]	ND	0.23
	011009-MW14-110-105	9-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	011213-MW14-110-101	13-Dec-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020404-MW14-110-108	4-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.1	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.1
	020711-MW14-110-101	11-Jul-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020924-MW14-110-105	24-Sep-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.1	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.1
	021217-MW14-110-102	17-Dec-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030318-MW14-110-108	18-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030602-MW14-110-101	2-Jun-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	031003-MW14-110-110[7]	3-Oct-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030112-MW14-110-101[7]	12-Jan-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	040824-MW14-110-014[7]	24-Aug-04		ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	0.0828 J	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND	0.0828
	050922-MW-14-110-104	22-Sep-05		ND>0.00962	ND>0.00962	ND>0.00962	ND>0.00962	ND>0.00962	ND>0.00962	ND>0.0962	0.0658	ND>0.0192	ND>0.0192	ND>0.00962	ND>0.00962	ND>0.00962	0.135	ND>0.00962	ND>0.0192	ND	0.2008

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,3]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW15-50	990728-MW15-50-04	28-Jul-99	40 - 50	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	50.	8,510.	ND [d]	ND [d]	ND [d]	83.	9,700.	117.	ND [d]	ND	18,460.
	991029-MW15-50-25	29-Oct-99	(silt/alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	20.	ND [a]	ND [a]	ND [a]	ND [a]	716.	26.	ND [a]	ND	762.
	000403-MW15-50-125	3-Apr-00		0.79	0.51	0.49	0.55	0.73	ND [a]	0.24	22.	41.6	2.91	0.25	6.01	23.6	5,480.	25.9	5.16	3.31	5,610.74
	000615-MW15-50-105	15-Jun-00		43.6	45.5	38.5	57.1	40.5	8.95	33.5	2.91	0.59	4.11	41.8	69.7	1.66	1.23	25.	60.1	267.65	474.75
	000615-MW15-50-106	15-Jun-00		40.	44.1	36.3	53.5	38.3	8.87	32.6	2.96	0.77	4.1	40.2	65.2	1.71	1.23	23.8	57.3	253.67	450.94
	001005-MW15-50-14	5-Oct-00		10.7	19.7	6.97	16.4	9.88	2.52	8.21	1.51	0.96	1.47	8.14	15.5	1.06	2.8	6.44	16.7	74.38	128.96
	001221-MW15-50-105	21-Dec-00		26.1	39.6	14.8	32.2	20.8	4.13	21.3	43.5	66.1	6.14	24.	40.1	74.6	9,200.	10.9	36.9	158.93	9,661.17
	001221-MW15-50-106	21-Dec-00		33.1	48.7	18.1	40.8	26.5	4.96	27.	52.4	70.6	6.58	30.3	50.3	78.	8,180.	12.6	50.7	199.16	8,730.64
	010330-MW15-50-124	30-Mar-01		11.2	11.8	18.9	13.4	12.4	5.4	14.4	35.4	59.	9.58	15.1	22.7	45.7	6,860.	76.1	22.4	87.5	7,233.48
	011010-MW15-50-111	10-Oct-01		2.47	2.62	2.08	2.95	2.37	0.47	1.56	18.1	29.7	2.19	1.77	5.33	26.	3,700.	37.2	4.26	14.52	3,839.07
	011010-MW15-50-112	10-Oct-01		7.6	8.4	7.4	9.3	8.	1.8	5.7	44.6	60.4	4.2	6.4	12.7	53.9	59,100.	78.3	14.6	48.2	59,423.3
	011214-MW15-50-104	14-Dec-01		0.35	0.1	0.1	0.1	0.33	ND [a]	ND [a]	26.8	43.8	3.	ND [a]	3.29	34.3	4,510.	42.8	2.27	0.98	4,667.24
	011214-MW15-50-105	14-Dec-01		0.42	0.14	0.13	0.17	0.41	ND [a]	ND [a]	27.8	45.9	3.1	ND [a]	3.28	36.1	5,870.	45.6	2.33	1.27	6,035.38
	020405-MW15-50-119	5-Apr-02		1.57	1.33	1.39	1.76	1.81	0.61	1.29	20.	30.	3.29	1.5	5.75	26.	4,220.	34.	3.67	9.76	4,353.97
	020711-MW15-50-104	11-Jul-02		2.5	2.6	2.7	2.9	3.1	ND [b]	1.7	19.7	31.3	4.	2.1	7.9	26.6	3,640.	41.2	7.6	15.5	3,795.9
	020711-MW15-50-105	11-Jul-02		3.4	3.6	5.4	4.4	5.6	ND [c]	2.4	27.6	41.6	ND [c]	3.4	11.6	35.8	5,580.	52.6	10.6	24.8	5,788.
	020925-MW15-50-110	25-Sep-02		10.	11.	10.	15.	12.	ND [b]	7.3	38.	55.	8.	9.1	21.	47.	7,700.	82.	19.	65.3	8,044.4
	020925-MW15-50-111	25-Sep-02		3.3	2.6	3.	3.2	3.7	ND [b]	1.4	40.	58.	6.3	1.8	12.	50.	7,700.	76.	10.	17.2	7,971.3
	021218-MW15-50-107	18-Dec-02		ND>5.0	ND>5.0	ND>5.0	22.	ND>5.0	ND>5.0	20.	50.	78.	ND>5.0	25.	36.	70.	7,000.	160.	33.	42.	7,494.
	030321-MW15-50-122	21-Mar-03		ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	ND [d]	24.	36.	ND [d]	ND [d]	ND [d]	32.	4,900.	50.	ND [d]	ND	5,042.
	030603-MW15-50-105	3-Jun-03		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	18.	32.	ND [b]	ND [b]	1.9	22.	3,300.	29.	2.1	ND	3,405.
	031006-MW15-50-113 [7]	6-Oct-03		ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	ND [b]	17.	26.	ND [b]	ND [b]	1.9	22.	4,700.	36.	1.4	ND	4,804.3
	030113-MW-15-50-105 [7]	13-Jan-04		ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	4,700.	65.	ND [f]	ND	4,765.
	030113-MW-15-50-106 [7]	13-Jan-04		ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	ND [f]	3,600.	50.	ND [f]	ND	3,650.
	040825-MW15-50-020 [7]	25-Aug-04		ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>2.50	ND>5.00	ND>2.50	35.3	50.9	4.23 J	ND>2.50	4.44 J	51.9	6,130.	78.8	3.93 J	ND	6,359.5
	050929-MW15-50-126	29-Sep-05		6.21	7.48	7.4	9.13	7.49	2.19	6.33	15.2	19.3	3.12	8.31	9.62	18.2	2,130.	40.1	10.	46.23	2,300.08

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,3]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0013	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW15-66	990728-MW15-66-03	28-Jul-99	60.5 - 66	0.15	0.26	ND [a]	0.16	0.15	ND [a]	0.11	0.11	ND [a]	ND [a]	0.14	0.3	ND [a]	0.57	0.17	0.34	0.83	2.46
	991026-MW15-66-07	26-Oct-99	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	000329-MW15-66-108	29-Mar-00		0.57	0.59	0.6	0.77	0.67	0.18	0.53	ND [a]	ND [a]	0.11	0.66	0.96	ND [a]	ND [a]	0.33	0.96	3.91	6.93
	000615-MW15-66-104	15-Jun-00		1.93	1.96	1.61	2.64	1.91	0.57	1.55	0.14	ND [a]	0.39	2.04	3.32	ND [a]	ND [a]	1.07	2.92	12.17	22.05
	001005-MW15-66-08	5-Oct-00		0.23	0.4	0.17	0.32	0.24	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.41	ND [a]	ND [a]	0.14	0.43	1.36	2.34
	001221-MW15-66-104	21-Dec-00		0.14	0.19	0.1	0.15	0.12	ND [a]	0.1	ND [a]	ND [a]	ND [a]	0.13	0.21	ND [a]	ND [a]	ND [a]	0.2	0.8	1.34
	010328-MW15-66-107	28-Mar-01		0.11	0.11	0.12	0.14	0.13	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.2	ND [a]	ND [a]	0.1	0.19	0.61	1.1
	011010-MW15-66-110	10-Oct-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	011213-MW15-66-103	13-Dec-01		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020404-MW15-66-107	4-Apr-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.12	ND [a]	ND [a]	ND [a]	ND [a]	ND	0.12
	020711-MW15-66-103	11-Jul-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	020925-MW15-66-109	25-Sep-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	021218-MW15-66-105	18-Dec-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	021218-MW15-66-106	18-Dec-02		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030318-MW15-66-107	18-Mar-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.1	ND	0.1
	030603-MW15-66-104	3-Jun-03		0.6	0.64	0.77	0.85	0.69	ND [a]	0.45	ND [a]	ND [a]	ND [a]	0.77	1.2	ND [a]	ND [a]	0.34	1.1	4.	7.41
	031006-MW15-66-112 [7]	6-Oct-03		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	030113-MW15-66-104 [7]	13-Jan-04		0.36	0.4	0.13	0.13	0.15	ND [a]	0.16	ND [a]	ND [a]	ND [a]	0.16	0.18	ND [a]	ND [a]	ND [a]	0.15	1.33	1.82
	040813-MW15-66-006 [7]	13-Aug-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	050929-MW15-66-125	29-Sep-05		0.0274	0.0332	0.037	0.0417	0.0348	ND>0.0103	0.0291	ND>0.0103	ND>0.0103	ND>0.0103	0.0383	0.0555	ND>0.0103	0.0732	0.018	0.06	0.2032	0.4482

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																	
				Carcinogenic PAHs							Non-carcinogenic PAHs										
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [5,6]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																					
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [5,6]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#
MW-16-45	040826-MW16-45-028[7]	26-Aug-04	30 - 45	2.64	2.57	ND>1.25	2.23 J	3.33	ND>2.50	ND>1.25	137.	17.8 J	22.4	ND [d]	19.6 J	60.7	7,500.	154.	23.9	10.77	7,946.17
	041222-MW16-45-103[7]	22-Dec-04	(alluvial WBZ)	3.6	1.8	1.87	3.01	4.35	ND [c]	1.45	115.	14.5	16.4	2.03	16.1	43.1	8,140.	110.	18.9	16.08	8,492.11
	050401-013	1-Apr-05		1.83	1.29	ND>0.500	1.18	1.98	ND [b]	0.612 J	106 B	10.5	11.6	0.887 J	10.3	42.7	6,060 B	93.0 B	11.3	6.892	6,353.791
	0506-22-MW-16-45-05	21-Jun-05		10.8	4.71	5.52	8.66	11.4	ND>4.0	3.86	147.	ND>50.0	30.	-	38.6	76.7	10,400.	214.	46.2	44.95	10,997.45
	051003-MW-16-45-136	3-Oct-05		51.7	22.	28.6	44.7	61.9	5.8	22.1	278.	32.6	120.	32.5	177.	154.	7,820.	687.	237.	236.8	9,774.9
	040826-MW16-65-026[7]	26-Aug-04		0.241	ND>0.200	ND>0.200	ND>0.200	0.3	ND>0.400	ND>0.200	91.	ND [d]	10.3	ND>5.00	5.54 J	42.8	3,600.	81.1	6.84 J	0.541	3,838.121
	040826-MW16-65-027[7]	26-Aug-04		0.343	ND>0.250	ND>0.250	ND>0.250	0.413	ND>0.500	ND>0.250	85.6	ND [d]	10.3	ND>5.00	5.62 J	39.5	3,870.	80.2	6.70 J	0.756	4,098.676
	041222-MW16-65-102[7]	22-Dec-04		ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND	ND
	050331-006	31-Mar-05		0.548 J	ND>0.500	ND>0.500	ND>0.500	0.664 J	ND [a]	ND>0.500	88.4	7.07	7.86	ND>0.500	5.3	36.2	4,840.	67.2	5.88	1.212	5,059.122
	0506-21-MW-16-65-04	21-Jun-05		ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	92.2	ND>25.0	8.94	-	6.24	41.9	5,700.	71.4	7.38	ND	5,928.06
	051003-MW-16-65-134	3-Oct-05		ND>2.06	ND>2.06	ND>2.06	ND>2.06	ND>2.06	ND>2.06	ND>2.06	68.7	6.18	5.65	ND>2.06	3.09	27.7	2,900.	49.6	ND>4.12	ND	3,060.92
MW-16-125	040826-MW16-125-025[7]	26-Aug-04	115 - 125	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	1.74	ND>0.500	0.676 J	ND>0.500	0.621	1.14	26.5	5.39	0.816 J	ND	36.883
	041221-MW16-125-100[7]	21-Dec-04	(alluvial WBZ)	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	0.655	ND [a]	0.31	ND [a]	0.613	0.476	4.88	2.62	0.662	ND	10.216
	50330-001	30-Mar-05		ND>0.0500	ND>0.0500	ND>0.0500	ND>0.0500	ND>0.050	ND [a]	ND>0.0500	0.74	ND [a]	0.287	ND>0.5000	0.517	0.527	5.41	2.64	0.529	ND	10.65
	0506-21-MW-16-125-03	21-Jun-05		ND>0.100	ND>0.100	ND>0.100	ND>0.100	ND>0.100	ND>0.200	ND>0.100	0.432	ND>0.100	0.214	-	0.421	0.361	0.828	1.9	0.514	ND	4.67
	050930-MW-16-125-130	30-Sep-05		0.0328	ND>0.0102	ND>0.0102	ND>0.0102	0.0163 J	ND>0.0102	ND>0.0102	0.545	ND>0.0306	0.272	ND>0.0102	0.466	0.403	0.577	2.21	0.537	0.0463	5.0563
MW-17-79	050926-MW-17-79-110	9/26/025	38.5 - 78.5 (alluvial WBZ)	ND>0.100	ND>0.100	ND>0.100	ND>0.100	ND>0.100	ND>0.100	ND>0.100	5.51	0.662	0.879	ND>0.100	1.23	1.88	32.4	5.48	1.49	ND	49.531

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Table 3b - Summary of Historical Analytical Results for Groundwater Samples: PAHs by EPA Method 8270
December 1995 to Present

PAHs by EPA Method 8270 (SIM)				Analytical Results ug/l (ppb)																		
				Carcinogenic PAHs							Non-carcinogenic PAHs											
Well Number	HAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Chrysene	Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (g,h,i) perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total Carcinogenic PAHs	Total PAHs
HUMAN HEALTH SCREENING LEVEL VALUES [2,9]																						
Fish Consumption																						
	EPA 2004 NRWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
	Portland Harbor specific fish consumption rate			0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	99	#	4,000	#	14	530	#	#	400	#	#
	DEQ 2004 AWQC (organism only)			0.018	0.018	0.018	0.018	0.018	0.018	0.018	990	#	40,000	#	140	5,300	#	#	4,000	#	#
Drinking Water																						
	MCL [3]			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	#	#
	Tap Water PRGs			0.092	0.092	0.92	0.0092	9.2	0.0092	0.092	370	#	1,800	#	1,500	240	6.2	#	180	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,9]																						
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	#	#	#	#	520 [4]	#	#	#	#	#	620 [4]	#	#	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.027	#	#	0.014	#	#	#	#	#	0.73	#	#	3.9	12	#	#	#	#	#
Temporary Well Point Samples 1995 (fill WBZ)																						
B-01	950921-BW1-01	21-Sep-95	20 - 23	ND [a]	ND [a]	ND [a]	ND [a]	0.09	ND [a]	ND [a]	7.4	0.22	1.5	ND [a]	1.3	4.5	140.	19.	1.7	0.09	175.71
B-05	950929-BW05-01	29-Sep-95	25 - 28	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	13.	0.14	1.2	ND [a]	1.4	9.8	0.94	6.9	1.4	ND	34.78
B-19	950920-BW19-02	20-Sep-95	25 - 28	0.26	0.16	ND [a]	ND [a]	0.28	ND [a]	ND [a]	39.	7.7	3.1	ND [a]	5.1	20.	6,500.	29.	5.6	0.7	6,610.2
B-21	951003-BW21-01	3-Oct-95	15.5 - 19.5	0.53	0.66	0.27	0.34	0.79	0.07	0.27	110.	1.83	2.66	0.37	5.04	21.	560.	17.	5.42	2.93	726.25
B-31	950925-BW31-01	25-Sep-95	26 - 29	2.4	2.1	0.97	2.4	3.9	0.21	1.3	96.	2.7	15.	1.6	16.	29.	420.	76.	25.	13.28	694.58
Temporary Well Point Samples 2004																						
B-56	040602-101	2-Jun-04	18 - 22	7.99	7.03	6.04	9.45	10.2	ND>4.	4.81	54.1	4.08	14.1	6.89	44.2	23.3	21.	53.7	50.7	45.52	317.59
	040603-102	3-Jun-04	40 - 44	0.0239	0.0234	0.0188	0.0196	0.0345	ND>0.010	0.0167	0.342	ND [a]	ND [a]	ND [a]	0.168	0.132	3.61	0.33	0.223	0.1369	4.9419
	040603-103	3-Jun-04	60 - 64	ND>0.010	ND>0.010	ND>0.010	ND>0.010	ND>0.010	ND>0.010	ND>0.010	0.103	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.100	63.8	ND [a]	ND [a]	ND	63.903
	040603-104	3-Jun-04	80 - 84	0.0315	0.0236	0.0166	0.0313	0.0416	ND>0.010	0.0154	0.126	ND [a]	ND [a]	ND [a]	0.165	ND>0.150	358.	0.28	0.23	0.16	358.961
	040603-105	3-Jun-04	80 - 84	ND>0.030	ND>0.030	ND>0.030	ND>0.030	ND>0.030	ND>0.030	ND>0.030	ND>0.150	ND>0.150	ND>0.100	ND>0.100	0.132	ND>0.150	405.	0.214	0.184	ND	405.53
	040604-106	4-Jun-04	100 - 104	0.0167	0.0121	0.0113	0.017	0.0216	ND>0.010	0.0108	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.85	ND [a]	ND [a]	0.0895	0.9395
	040614-115	14-Jun-04	136 - 140	0.17	ND [a]	ND [a]	0.137	0.214	ND>0.200	ND [a]	0.646	ND [a]	ND [a]	ND [a]	1.1	0.449	2.58	2.99	1.31	0.521	9.596
	040614-116	14-Jun-04	174 - 178	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND>0.200	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	ND [a]	0.92	0.144	0.106	ND	1.17

Note: '-' = not analyzed
# = Reference Level not established
AWQC = Ambient Water Quality Criteria
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
J = Estimated Concentration
MCL = Maximum Contaminant Level
ND = not detected above detection limit indicated
NRWQC = National Recommended Water Quality Criteria
PAHs = polynuclear aromatic hydrocarbons
ppb = parts per billion
PRG = Preliminary Remediation Goal
SCV = Secondary Chronic Value
ug/l = micrograms per liter
a = detection limit is 0.1 ug/l (ppb)
b = detection limit is 1. ug/l (ppb)
c = detection limit is 2. ug/l (ppb)
d = detection limit is 10. ug/l (ppb)
e = detection limit is 20. ug/l (ppb)
f = detection limit is 50. ug/l (ppb)

1 = Sample number prefix: 2708-
2 = Tier II SCV values were taken from Suter II, G.W. and Tasco, C.L., 1996. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota*: 1996 Revision. ORNL publication ES/ER/TM-96/R2
3 = MCL is based on benzo(a)pyrene
4 = Values were taken from Table 33c (OAR 340-41), which are Water Quality Guidance Values, not criteria, that can be used in application of Oregon's Narrative Toxics Criteria to waters of the state in order to protect aquatic life
5 = Due to mislabeling in the field or due to laboratory misidentification, the laboratory report transposed results for MW4-35 and MW-4-57 in August 1997. Tables attribute data to the correct well.
6 = Results for sample 960620-MW-8-56-01 should be considered qualitative due to an apparent error concerning sample identity with respect to PAH container
7 = Monitoring well purged & sampled with low-flow protocol as per EPA/540/S-95/504 (April 1996)
8 = Screening Level Values are from *Portland Harbor Joint Service Control Strategy, Final*, December 2005
9 = EPA, under CERCLA authority, has identified the Safe Drinking Water Acts MCLs and AWQCs (federal and state once approved) as potential ARARs under CERCLA. The final determination will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to The EPA Portland Harbor ROD, due to an exceedance of an SLV in upland stormwater will be evaluated and prioritized on a case by case basis.

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,13]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW1-22	951207-MW1-22-01	7-Dec-95	11 - 21	-	-	-	-	-	-	-	-	-	0.041	ND>0.005	-	-	-	-	-	-	-	-
	960319-MW1-22-01	19-Mar-96	(fill WBZ)	ND>0.005	-	ND>0.002	ND>0.002	-	0.01	-	ND>0.005	-	0.007	ND>0.005	ND>0.0002	0.14	0.23	ND>0.002	ND>0.002	ND>0.01	0.066	-
	960618-MW1-22-01	18-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.039	-	-	-	-	0.024	-
	961001-MW1-22-01	1-Oct-96		ND>0.005	-	-	-	-	0.023	0.022	ND>0.005	-	ND>0.005	ND>0.005	-	0.16	0.14	-	-	-	0.17	-
	970225-MW1-22-01	25-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.045	-	-	-	-	0.028	-
	970225-MW1-22-02	25-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.044	-	-	-	-	0.024	-
	970827-MW1-22-01	27-Aug-97		0.012	-	-	-	-	0.018	-	0.01	-	0.027	ND>0.005	-	0.1	0.083	-	-	-	0.16	-
	970827-MW1-22-02	27-Aug-97		ND>0.05	-	-	-	-	ND>0.05	-	ND>0.05	-	ND>0.05	ND>0.005	-	0.12	0.081	-	-	-	0.53	-
	980217-MW1-22-01	17-Feb-98		0.009	-	-	-	-	ND>0.005	-	0.007	-	0.015	ND>0.005	-	0.011	-	-	-	-	0.05	-
	980602-MW1-32-11	2-Jun-98		0.031	-	-	-	-	0.006	-	-	-	0.03	ND>0.005	-	0.026	-	-	-	-	0.13	-
	980826-MW1-22-10	26-Aug-98		-	-	-	-	-	-	-	-	-	ND>0.005	-	-	0.041	-	-	-	-	ND>0.005	-
	981118-MW1-22-15	18-Nov-98		0.03	ND>0.005	-	-	-	0.008	-	0.022	-	0.091	-	-	0.11	-	-	-	-	0.086	-
	990216-MW1-22-012	16-Feb-99		-	-	-	-	-	-	-	-	-	0.006	-	-	ND>0.005	-	-	-	-	0.051	-
	990513-MW1-22-11	13-May-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.025	-
	990824-MW1-22-15	24-Aug-99		0.061	-	-	-	-	0.02	-	0.044	-	0.15	-	-	0.19	-	-	-	-	0.52	-
	991028-MW1-22-16	28-Oct-99		ND>0.005	ND>0.005	-	-	-	0.011	0.009	ND>0.005	ND>0.005	0.0081	ND>0.005	-	0.046	0.025	-	-	-	0.063	0.027
	000330-MW1-22-116	30-Mar-00		ND>0.005	ND>0.005	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	ND>0.005	-	0.0329	-	-	-	-	0.0341	-
	010329-MW1-22-115	29-Mar-01		0.0178	-	-	-	-	ND>0.005	-	ND>0.01	-	0.0101	-	-	0.0128	-	-	-	-	0.0503	-
	040825-MW1-22-019[5]	25-Aug-04		0.00302	-	-	-	-	0.0315	-	ND>0.00200	-	0.0182	-	-	0.168	-	-	-	-	0.23	-
	050401-014	1-Apr-05		0.00142	-	-	-	-	ND>0.00100	-	0.00118	-	ND>0.00100	-	-	0.00250	-	-	-	-	ND>0.0100	-
MW2-32	951206-MW2-32-01	6-Dec-95	21.5 - 31.5	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-	-	-	-
	960618-MW2-32-01	18-Jun-96	(fill WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.008	-	-	-	-	ND>0.005	-
	961001-MW2-32-01	1-Oct-96		ND>0.005	-	-	-	-	ND>0.005	-	0.008	-	ND>0.005	-	-	0.005	-	-	-	-	0.01	-
	970225-MW2-32-01	25-Feb-97		0.008	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.011	-	-	-	-	0.007	-
	970827-MW2-32-01	27-Aug-97		0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.008	-	-	-	-	0.008	-
	980217-MW2-32-01	17-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980601-MW2-32-05	1-Jun-98		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	0.006	-	-	-	-	-	-
	981117-MW2-32-10	17-Nov-98		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	0.005	-	-	-	-	-	-
	990513-MW2-32-10	13-May-99		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	991027-MW2-32-12	27-Oct-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000329-MW2-32-112	29-Mar-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0053	-	-	-	-	0.0158	-
	010328-MW2-32-111	28-Mar-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0147	-	-	-	-	ND>0.005	-
	040816-MW2-32-009[6]	16-Aug-04		0.00108	-	-	-	-	ND>0.00100	-	ND>0.0020	-	ND>0.0010	-	-	0.00621	-	-	-	-	ND>0.0050	-
	050331-009	31-May-05		0.00247	-	-	-	-	ND>0.00100	-	0.00138	-	ND>0.00100	-	-	0.00838	-	-	-	-	ND>0.0100	-
	050927-MW-2-32-118	27-Sep-05		0.00486	-	-	-	-	0.00886	-	0.0218	-	ND>0.00100	-	-	0.0065	-	-	-	-	0.0577	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [9,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00148	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [9,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW2-61	981116-MW2-61-04	16-Nov-98	50 - 60	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990216-MW2-61-006	16-Feb-99	(alluvial WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND >0.03	-
	990512-MW2-61-05	12-May-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990823-MW2-61-07	23-Aug-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991026-MW2-61-04	26-Oct-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000328-MW2-61-104	28-Mar-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001004-MW2-61-04	4-Oct-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010328-MW2-61-104	28-Mar-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	011009-MW2-61-104	9-Oct-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	020403-MW2-61-103	3-Apr-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0091	-
	020924-MW2-61-103	24-Sep-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.01	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	030318-MW2-61-104	18-Mar-03		ND>0.010	-	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030930-MW2-61-103 [6]	30-Sep-03		ND>0.020	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040813-MW2-61-002 [6]	13-Aug-04		0.00161	-	-	-	-	0.00169	-	ND>0.00200	-	ND>0.00100	-	-	0.0105	-	-	-	-	ND>0.00500	-
	050926-MW-2-61-111	26-Sep-05		0.00324	-	-	-	-	ND>0.0010	-	0.0031	-	ND>0.00100	-	-		-	-	-	-		-
MW3-26	951206-MW3-26-01	6-Dec-95	15 - 25	-	-	-	-	-	-	-	-	-	0.007	ND>0.005	-	-	-	-	-	-	-	-
	960318-MW3-26-02	18-Mar-96	(fill WBZ)	ND>0.005	-	-	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.36	0.4	-	-	-	0.005	-
	960618-MW3-26-01	18-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.33	0.39	-	-	-	0.014	-
	961001-MW3-26-01	1-Oct-96		0.026	-	-	-	-	0.44	ND>0.005	0.41	-	0.11	ND>0.005	-	1.5	0.15	-	-	-	0.98	-
	970225-MW3-26-01	25-Feb-97		ND>0.005	-	-	-	-	0.006	-	ND>0.005	-	ND>0.005	-	-	0.27	0.2	-	-	-	0.017	-
	970827-MW3-26-01	27-Aug-97		0.031	-	-	-	-	0.39	ND>0.005	0.38	-	0.099	ND>0.005	-	1.4	0.05	-	-	-	0.71	-
	980218-MW3-26-01	18-Feb-98		ND>0.005	-	-	-	-	0.017	-	0.009	-	0.007	-	-	0.21	0.15	-	-	-	0.04	-
	980602-MW3-26-09	2-Jun-98		ND>0.005	-	-	-	-	ND>0.005	-	0.008	-	0.005	-	-	0.29	-	-	-	-	0.028	-
	980826-MW3-26-08	26-Aug-98		-	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.083	-	-	-	-	0.005	-
	981117-MW3-26-12	17-Nov-98		0.024	ND>0.005	-	-	-	0.22	ND>0.005	0.25	-	0.08	ND>0.005	-	1.2	0.1	-	-	-	0.61	-
	990216-MW3-26-010	16-Feb-99		-	-	-	-	-	0.0078	-	0.041	-	ND>0.005	-	-	0.15	-	-	-	-	0.063	-
	990514-MW3-26-23	14-May-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	0.0097	-	-	0.14	-	-	-	-	0.024	-
	990824-MW3-26-12	24-Aug-99		-	-	-	-	-	0.096	-	0.023	-	0.0054	-	-	0.21	-	-	-	-	0.064	-
	991027-MW3-26-14	27-Oct-99		0.02	ND>0.005	-	-	-	1.	ND>0.005	0.28	ND>0.005	0.079	ND>0.005	-	1.5	0.079	-	-	-	0.59	ND>0.005
	000330-MW3-26-113	30-Mar-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	ND>0.005	-	0.085	0.0592	-	-	-	0.0713	-
	001005-MW3-26-11	5-Oct-00		ND>0.005	-	-	-	-	0.0386	-	0.0296	-	0.0107	-	-	0.187	-	-	-	-	0.0696	-
	010328-MW3-26-113	28-Mar-01		0.0051	-	-	-	-	0.0149	-	0.0116	-	ND>0.005	-	-	0.191	-	-	-	-	0.0304	-
	048023-MW3-26-010 [6]	23-Aug-04		ND>0.00100	-	-	-	-	ND>0.00100	-	ND>0.00200	-	ND>0.00100	-	-	0.0983	-	-	-	-	0.00692	-
	050330-004	30-Mar-05		ND>0.00100	-	-	-	-	ND>0.00100	-	0.00185	-	ND>0.00100	-	-	0.190	-	-	-	-	ND>0.0100	-
	050922-MW-3-26-105	22-Sep-05		0.00369	-	-	-	-	ND>0.005	-	0.00742	-	0.0039	-	-	0.131	-	-	-	-	0.029	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	28	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW3-56	951206-MW3-56-01	6-Dec-95	45 - 55	ND>0.005	-	ND>0.002	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.0002	0.007	-	ND>0.005	ND>0.005	ND>0.01	0.005	-
	960319-MW3-56-01	19-Mar-96	(alluvial WBZ)	ND>0.005	-	-	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.013	-	-	-	-	ND>0.005	-
	980602-MW3-56-14	2-Jun-98		ND>0.005	-	-	-	-	0.007	-	-	-	-	-	-	0.017	-	-	-	-	-	-
	981118-MW3-56-16	18-Nov-98		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	990514-MW3-56-24	14-May-99		ND>0.005	-	-	-	-	0.0084	-	-	-	-	-	-	0.019	-	-	-	-	-	-
	990824-MW3-56-16	24-Aug-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0087	-	-	-	-	ND>0.01	-
	991028-MW3-56-17	28-Oct-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0058	-	-	-	-	ND>0.005	-
	000330-MW3-56-117	30-Mar-00		0.0084	-	-	-	-	0.0457	-	0.0276	-	0.0121	-	-	0.0865	-	-	-	-	0.0631	-
	001005-MW3-56-13	5-Oct-00		ND>0.005	ND>0.005	-	-	-	0.0064	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	-	0.0151	ND>0.005	-	-	-	0.0129	0.0119
	010329-MW3-56-116	29-Mar-01		0.0056	-	-	-	-	0.0053	-	ND>0.01	-	ND>0.005	-	-	0.013	-	-	-	-	0.0072	-
	020404-MW3-56-111	4-Apr-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0096	-	-	-	-	0.0082	-
	030319-MW3-56-112	19-Mar-03		ND>0.010	ND>0.011	-	-	-	ND>0.0030	-	ND>0.0030	-	ND>0.0060	ND>0.0067	-	0.0053	ND>0.0056	-	-	-	ND>0.020	-
	040823-MW3-56-01 [6]	23-Aug-04		0.00345	-	-	-	-	0.00177	-	ND>0.00200	-	ND>0.00100	-	-	0.0042	-	-	-	-	ND>0.00500	-
	050330-003	30-Mar-05		0.00395	-	-	-	-	ND>0.00100	-	ND>0.00100	-	ND>0.00100	-	-	0.00226	-	-	-	-	ND>0.0100	-
	050922-MW-3-56-106	22-Sep-05		0.004	-	-	-	-	ND>0.005	-	ND>0.00200	-	ND>0.00100	-	-	0.00386	-	-	-	-	ND>0.0250	-
MW4-35	951206-MW4-35-01	6-Dec-95	24 - 34	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-	-	-	-
	960618-MW4-35-01	18-Jun-96	(fill WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	961001-MW4-35-01	1-Oct-96		0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.008	-
	970225-MW4-35-01	25-Feb-97		0.008	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980827-MW4-57-01 [5]	27-Aug-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980217-MW4-35-01	17-Feb-98		ND>0.005	-	-	-	-	0.007	-	ND>0.005	-	ND>0.005	-	-	0.005	-	-	-	-	0.005	-
	980601-MW4-35-06	1-Jun-98		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	981117-MW4-35-11	17-Nov-98		0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	990514-MW4-35-21	14-May-99		ND>0.005	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	991027-MW4-35-13	27-Oct-99		0.0084	-	-	-	-	0.044	-	0.033	-	0.016	-	-	0.037	-	-	-	-	0.067	-
	000330-MW4-35-114	30-Mar-00		0.0063	0.0058	-	-	-	ND	-	ND	-	ND	-	-	ND	-	-	-	-	ND	-
	001005-MW4-35-10	5-Oct-00		0.0134	-	-	-	-	0.111	-	0.123	-	0.0511	-	-	0.105	-	-	-	-	0.252	-
	010328-MW4-35-112	28-Mar-01		0.0055	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	040823-MW4-35-012 [6]	23-Aug-04		0.00672	-	-	-	-	ND>0.0010	-	ND>0.00200	-	ND>0.0010	-	-	0.0073	-	-	-	-	ND>0.00500	-
	050331-005	31-Mar-05		0.00336	-	-	-	-	ND>0.00100	-	ND>0.00100	-	ND>0.00100	-	-	0.00154	-	-	-	-	ND>0.0100	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	#	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [4]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW4-57	951205-MW4-57-01	5-Dec-95	46 - 56	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-	-	-	-
	960321-MW4-57-01	21-Mar-96	(alluvial WBZ)	0.005	-	-	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	960620-MW4-57-02	20-Jun-96		0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.005	-	-	-	-	ND>0.005	-
	961002-MW4-57-01	2-Oct-96		0.013	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970226-MW4-57-01	26-Feb-97		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970828-MW4-35-01 [5]	28-Aug-97		0.013	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980218-MW4-57-01	18-Feb-98		0.011	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980603-MW4-57-18	3-Jun-98		0.011	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	981119-MW4-57-20	19-Nov-98		0.01	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	990514-MW4-57-22	14-May-99		0.011	-	-	-	-	ND>0.005	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	990825-MW4-57-17	25-Aug-99		0.013	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991028-MW4-57-21	28-Oct-99		0.013	ND>0.005	-	-	-	0.015	ND>0.005	0.008	ND>0.005	ND>0.005	ND>0.005	-	0.012	ND>0.005	-	-	-	0.014	ND>0.005
	000403-MW4-57-121	3-Apr-00		0.0157	0.015	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0259	-
	001006-MW4-57-19	6-Oct-00		0.0137	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010329-MW4-57-120	29-Mar-01		0.0183	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020405-MW4-57-117	5-Apr-02		0.0128	0.0107	-	-	-	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	-	0.0079	ND>0.005	-	-	-	ND>0.005	ND>0.005
	030320-MW4-57-117	20-Mar-03		0.016	0.02	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040824-MW4-57-016 [6]	24-Aug-04		0.0126	-	-	-	-	0.00108	-	ND>.00200	-	ND>0.0010	-	-	0.00788	-	-	-	-	ND>.00500	-
	050331-008	31-Mar-05		0.0129	-	-	-	-	ND>0.00100	-	ND>0.00100	-	ND>0.00100	-	-	0.00617	-	-	-	-	ND>0.0100	-
	051003-MW-4-57	3-Oct-05		0.011	-	-	-	-	ND>0.002	-	ND>.00200	-	ND>0.0010	-	-	0.0058	-	-	-	-	ND>0.020	-
MW4-101	981117-MW4-101-09	17-Nov-98	89.5 - 99.5	0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990216-MW4-101-007	16-Feb-99	(alluvial WBZ)	0.0098	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.03	-
	990514-MW4-101-20	14-May-99		0.011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	990514-MW4-101-20	14-May-99		0.0082	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND[9]	-
	990824-MW4-101-09	24-Aug-99		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991027-MW4-101-11	27-Oct-99		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000329-MW4-101-111	29-Mar-00		0.0108	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0069	-
	001005-MW4-101-09	5-Oct-00		0.0069	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010328-MW4-101-110	28-Mar-01		0.0157	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	011009-MW4-101-103	9-Oct-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	020404-MW4-101-110	4-Apr-02		0.0138	0.0115	-	-	-	ND>0.005	ND>0.005	ND>0.005	ND>0.015	ND>0.005	ND>0.01	-	ND>0.005	ND>0.005	-	-	-	0.0054	ND>0.015
	020924-MW4-101-102	24-Sep-02		0.014	0.018	-	-	-	ND>0.005	ND>0.0056	ND>0.01	ND>0.011	ND>0.01	0.0073	-	ND>0.005	ND>0.0056	-	-	-	0.0077	0.0086
	030318-MW4-101-109	18-Mar-03		0.017	0.018	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030930-MW4-101-106 [6]	30-Sep-03		0.04	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040818-MW4-101-007 [6]	16-Aug-04		0.0142	-	-	-	-	ND>0.0010	-	ND>0.0020	-	ND>0.0010	-	-	ND>0.0020	-	-	-	-	ND>0.0050	-
	050330-002	30-Mar-05		0.0138	-	-	-	-	ND>0.00100	-	0.00158	-	ND>0.00100	-	-	0.00147	-	-	-	-	ND>0.0100	-
	050928-MW4-101-122	28-Sep-05		0.0139	-	-	-	-	ND>0.00100	-	ND>0.00200	-	ND>0.00100	-	-	0.00334	-	-	-	-	ND>0.005	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [3,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [3,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [5]			0.0031 [2]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW5-32	951205-MW5-32-01	5-Dec-95	21 - 31	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-	-	-	-
	960620-MW5-32-01	20-Jun-96	(fill/alluvial WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	961001-MW5-32-01	1-Oct-96		0.008	-	-	-	-	0.11	ND>0.005	0.22	-	0.029	ND>0.005	-	0.086	-	-	-	-	0.4	-
	970225-MW5-32-01	25-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.006	-
	970827-MW5-32-01	27-Aug-97		ND>0.005	-	-	-	-	0.011	-	0.012	-	ND>0.005	-	-	0.012	-	-	-	-	0.024	-
	980217-MW5-32-01	17-Feb-98		ND>0.005	-	-	-	-	0.022	-	0.01	-	ND>0.005	-	-	0.011	-	-	-	-	0.016	-
	980602-MW5-32-10	2-Jun-98		ND>0.005	-	-	-	-	0.022	-	-	-	-	-	-	0.023	-	-	-	-	-	-
	981118-MW5-32-13	18-Nov-98		0.008	-	-	-	-	0.099	-	-	-	-	-	-	0.091	-	-	-	-	-	-
	990514-MW5-32-17	14-May-99		ND>0.005	-	-	-	-	ND>0.005	ND>0.005	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	991027-MW5-32-15	27-Oct-99		0.018	ND>0.005	-	-	-	0.28	ND>0.005	0.38	ND>0.005	0.071	ND>0.005	-	0.23	0.0055	-	-	-	0.54	ND>0.005
	000330-MW5-32-115	30-Mar-00		ND>0.005	ND>0.005	-	-	-	0.014	ND>0.005	0.0177	-	ND>0.005	-	-	0.0161	-	-	-	-	0.0407	-
	001005-MW5-32-12	5-Oct-00		ND>0.005	-	-	-	-	0.0458	-	0.0533	-	0.0129	-	-	0.0409	-	-	-	-	0.0963	-
	010329-MW5-32-114	29-Mar-01		0.0083	-	-	-	-	0.061	-	0.0651	-	0.0163	-	-	0.0524	-	-	-	-	0.117	-
	040816-MW5-32-008 [6]	16-Aug-04		ND>0.0010	-	-	-	-	ND>0.0010	-	ND>0.0020	-	ND>0.0010	-	-	0.00359	-	-	-	-	ND>0.0050	-
	050401-011	1-Apr-05		0.00103	-	-	-	-	ND>0.00100	-	0.00178	-	ND>0.00100	-	-	0.00356	-	-	-	-	ND>0.0100	-
	050927-MW-5-32-117	27-Sep-05		ND>0.0010	-	-	-	-	0.00411	-	0.0107	-	0.00172	-	-	0.00782	-	-	-	-	0.0131	-
MW5-100	981118-MW5-100-14	18-Nov-98	88 - 98	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.008	-	-	-	-	0.006	-
	990217-MW5-100-017	17-Feb-99	(alluvial WBZ)	0.0071	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.028	-
	990514-MW5-100-18	14-May-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0091	-
	990825-MW5-100-18	25-Aug-99		0.0055	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991028-MW5-100-19	28-Oct-99		0.0052	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000330-MW5-100-119	30-Mar-00		0.0069	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001006-MW5-100-15	6-Oct-00		0.0057	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001006-MW5-100-16	6-Oct-00		0.0058	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010329-MW5-100-118	29-Mar-01		0.0095	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020405-MW5-100-114	5-Apr-02		0.0073	0.0053	-	-	-	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	-	ND>0.005	ND>0.005	-	-	-	0.0051	ND>0.005
	020405-MW5-100-115	5-Apr-02		0.0073	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0072	-
	030319-MW5-100-114	19-Mar-03		0.011	-	-	-	-	ND>0.0030	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040824-MW5-100-015 [6]	24-Aug-04		0.00865	-	-	-	-	ND>0.0010	-	ND>0.0020	-	ND>0.0010	-	-	0.002	-	-	-	-	ND>0.0050	-
	050401-012	1-Apr-05		0.00766	-	-	-	-	ND>0.00100	-	ND>0.0100	-	ND>0.00100	-	-	0.00121	-	-	-	-	ND>0.0100	-
	050921-MW-5-100-102	21-Sep-05		0.00944	-	-	-	-	ND>0.005	-	ND>0.0020	-	ND>0.0010	-	-	0.00224	-	-	-	-	ND>0.0250	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [4,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000148	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00148	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [7]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW5-175	981116-MW5-175-07	16-Nov-98	163 - 173	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990215-MW5-175-003	15-Feb-99	(alluvial WBZ)	0.0054	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.04	-
	990512-MW5-175-07	12-May-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990823-MW5-175-03	23-Aug-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991026-MW5-175-06	26-Oct-99		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000329-MW5-175-106	29-Mar-00		0.0057	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001004-MW5-175-05	4-Oct-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010328-MW5-175-105	28-Mar-01		0.0083	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	011009-MW5-175-102	9-Oct-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	020404-MW5-175-105	4-Apr-02		0.0069	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.0157	-	-	-	-	0.0055	-
	020924-MW5-175-101	24-Sep-02		ND>0.005	0.014	-	-	-	ND>0.005	ND>0.0056	ND>0.01	ND>0.011	ND>0.01	0.0082	-	0.0061	ND>0.0056	-	-	-	0.015	0.0069
	030318-MW5-175-105	18-Mar-03		ND>0.010	-	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030929-MW5-175-101	29-Sep-03		ND>0.020	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040824-MW5-175-013	24-Aug-04		0.0062	-	-	-	-	0.00123	-	ND>0.0020	-	ND>0.0010	-	-	0.00307	-	-	-	-	ND>0.0050	-
	050921-MW-5-175-101	21-Sep-05		0.00494	-	-	-	-	ND>0.005	-	ND>0.0020	-	ND>0.0010	-	-	0.00374	-	-	-	-	ND>0.0250	-
MW6-32	951207-MW6-32-01	7-Dec-95	21 - 31	0.015	-	ND>0.002	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.0002	ND>0.005	-	ND>0.005	ND>0.005	ND>0.01	ND>0.005	-
	960319-MW6-32-01	19-Mar-96	(fill WBZ)	0.011	-	-	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.005	-
	960617-MW6-32-01	17-Jun-96		0.011	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	960930-MW6-32-01	30-Sep-96		0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970225-MW6-32-01	25-Feb-97		0.008	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970826-MW6-32-01	26-Aug-97		0.007	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980216-MW6-32-01	16-Feb-98		0.009	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.005	-
MW6-61	951206-MW6-61-01	6-Dec-95	50 - 60	-	-	-	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-
	960319-MW6-61-01	19-Mar-96	(alluvial WBZ)	ND>0.005	-	-	ND>0.005	-	0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.015	-
	960620-MW6-61-01	20-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	961001-MW6-61-01	1-Oct-96		0.006	-	-	-	-	ND>0.005	-	0.01	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.01	-
	970225-MW6-61-01	25-Feb-97		0.008	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970828-MW6-61-01	28-Aug-97		0.007	-	-	-	-	0.014	-	0.018	-	ND>0.005	-	-	0.012	-	-	-	-	0.2	-

Koppers020362

Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [7]			0.0031 [1]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW8-29	951207-MW8-29-01	7-Dec-95	18 - 28	ND>0.005	-	ND>0.002	ND>0.002	-	0.031	-	0.023	-	0.011	-	ND>0.0002	0.075	-	ND>0.005	ND>0.005	ND>0.01	0.3	-
	960321-MW8-29-01	21-Mar-96	(fill WBZ)	ND>0.005	-	-	ND>0.005	-	0.008	-	0.005	-	ND>0.005	-	-	0.015	-	-	-	-	0.26	-
	960620-MW8-29-02	20-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.008	-	-	-	-	0.014	-
	961002-MW8-29-01	2-Oct-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.008	-	-	-	-	ND>0.005	-
	970226-MW8-29-01	26-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.007	-	-	-	-	0.01	-
	970828-MW8-29-01	28-Aug-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.011	-	-	-	-	0.2	-
	980218-MW8-29-01	18-Feb-98		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.009	-	-	-	-	0.21	-
	040825-MW8-29-022 [6]	25-Aug-04		0.00243	-	-	-	-	0.0066	-	ND>0.00200	-	ND>0.00100	-	-	0.0113	-	-	-	-	ND>0.00500	-
	050929-MW-8-29-127	29-Sep-05		0.00765	-	-	-	-	0.0118	-	0.0029	-	0.0024	-	-	0.278	-	-	-	-	0.0126	-
MW8-56	951207-MW8-56-01	7-Dec-95	45 - 55	ND>0.005	-	ND>0.002	ND>0.002	-	0.048	-	0.009	-	ND>0.005	-	ND>0.0002	0.035	-	ND>0.005	ND>0.005	ND>0.01	0.27	-
	960321-MW8-56-01	21-Mar-96	(alluvial WBZ)	ND>0.005	-	-	ND>0.002	-	0.021	-	0.009	-	ND>0.005	-	-	0.02	-	-	-	-	0.24	-
	960620-MW8-56-01	20-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	0.15	-	ND>0.005	-	-	0.017	-	-	-	-	0.1	-
	961002-MW8-56-01	2-Oct-96		ND>0.005	-	-	-	-	0.02	-	0.027	-	ND>0.005	-	-	0.071	-	-	-	-	0.023	-
	970226-MW8-56-01	26-Feb-97		ND>0.005	-	-	-	-	0.07	-	0.026	-	0.005	-	-	0.052	-	-	-	-	0.05	-
	970828-MW8-56-01	28-Aug-97		0.006	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.007	-
	980218-MW8-56-01	18-Feb-98		0.006	-	-	-	-	0.027	-	0.017	-	ND>0.005	-	-	0.02	-	-	-	-	0.22	-
	020405-MW8-56-118	5-Apr-02		0.0053	-	-	-	-	0.0382	-	0.224	-	ND>0.005	-	-	0.0284	-	-	-	-	0.0362	-
	030320-MW8-56-120	20-Mar-03		0.012	0.019	-	-	-	ND>0.0010	ND>0.0011	ND>0.0033	-	ND>0.0060	ND>0.0067	-	ND>0.0050	ND>0.0056	-	-	-	ND>0.020	ND>0.022
	040825-MW8-56-021 [6]	25-Aug-04		0.00766	-	-	-	-	0.0072	-	ND>0.00200	-	ND>0.00100	-	-	0.0076	-	-	-	-	0.00535	-
	050929-MW-8-56-128	29-Sep-05		0.00957	-	-	-	-	0.0126	-	0.0042	-	ND>0.0010	-	-	0.0121	-	-	-	-	0.00778	-
MW9-29	951205-MW9-29-01	5-Dec-95	18 - 28	-	-	-	-	-	-	-	-	-	0.022	-	-	-	-	-	-	-	-	-
	960318-MW9-29-01	18-Mar-96	(fill WBZ)	ND>0.005	-	ND>0.002	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.0002	ND>0.005	-	ND>0.005	ND>0.005	ND>0.01	ND>0.005	-
	960618-MW9-29-01	18-Jun-96		0.01	-	-	-	-	0.23	-	0.3	-	0.008	-	-	0.16	ND>0.005	-	-	-	0.097	-
	961001-MW9-29-01	1-Oct-96		ND>0.005	-	-	-	-	0.047	-	0.015	-	ND>0.005	-	-	0.035	-	-	-	-	0.037	-
	970225-MW9-29-01	25-Feb-97		0.006	-	-	-	-	0.021	-	0.005	-	ND>0.005	-	-	0.018	-	-	-	-	0.022	-
	970827-MW9-29-01	27-Aug-97		ND>0.005	-	-	-	-	0.035	-	0.009	-	ND>0.005	-	-	0.029	-	-	-	-	0.03	-
	980217-MW9-29-01	17-Feb-98		0.005	-	-	-	-	0.021	-	0.019	-	ND>0.005	-	-	0.022	-	-	-	-	0.25	-
	980602-MW9-29-07	2-Jun-98		0.01	-	-	-	-	0.037	-	-	-	-	-	-	0.04	-	-	-	-	-	-
	981116-MW9-29-02	16-Nov-98		0.009	-	-	-	-	0.071	-	-	-	-	-	-	0.058	-	-	-	-	-	-
	990511-MW9-29-03	11-May-99		ND>0.005	-	-	-	-	0.018	-	-	-	-	-	-	0.017	-	-	-	-	-	-
	991026-MW9-29-02	26-Oct-99		0.015	-	-	-	-	0.22	-	0.048	-	0.014	-	-	0.16	-	-	-	-	0.14	-
	000328-MW9-29-102	28-Mar-00		ND>0.005	ND>0.005	-	-	-	ND>0.005	ND>0.005	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010327-MW9-29-102	27-Mar-01		0.012	-	-	-	-	0.225	-	0.0306	-	0.0089	-	-	0.158	-	-	-	-	0.0914	-
	020403-MW9-29-101	3-Apr-02		ND>0.005	ND>0.005	-	-	-	0.0063	ND>0.005	ND>0.005	ND>0.015	ND>0.005	ND>0.01	-	0.0065	ND>0.005	-	-	-	0.0198	0.0186
	030318-MW9-29-103	18-Mar-03		ND>0.010	ND>0.011	-	-	-	ND>0.0015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040812-MW9-29-001 [6]	12-Aug-04		0.002	-	-	-	-	0.0014	-	ND>0.00200	-	ND>0.00100	-	-	0.0027	-	-	-	-	ND>.00500	-
	050926-MW-9-29-109	26-Sep-05		0.00368	-	-	-	-	ND>0.001	-	0.00224	-	ND>0.00100	-	-	0.00216	-	-	-	-	0.00515	-

Koppers020363

Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW10-25	951207-MW10-25-01	7-Dec-95	14 - 24	0.034	-	ND>0.002	0.005	-	0.11	-	ND>0.005	-	ND>0.005	-	ND>0.0002	0.29	-	ND>0.005	ND>0.005	ND>0.01	0.95	-
	960320-MW10-25-01	20-Mar-96	(fill WBZ)	0.035	-	-	0.005	ND>0.002	0.089	-	ND>0.005	-	ND>0.01	-	-	0.28	0.3	-	-	-	0.86	-
	960617-MW10-25-01	17-Jun-96		0.028	-	-	-	-	0.043	-	ND>0.005	-	ND>0.005	-	-	0.2	-	-	-	-	0.48	-
	960930-MW10-25-01	30-Sep-96		0.041	-	-	-	-	0.13	-	ND>0.005	-	ND>0.02	-	-	0.43	-	-	-	-	1.3	-
	970225-MW10-25-01	25-Feb-97		0.058	0.052	-	-	-	0.17	0.16	ND>0.005	-	ND>0.005	-	-	0.41	0.37	-	-	-	1.3	-
	970827-MW10-25-01	27-Aug-97		0.045	-	-	-	-	0.36	0.23	ND>0.005	-	ND>0.05	ND>0.05	-	0.83	0.53	-	-	-	3.	-
	980216-MW10-25-01	16-Feb-98		0.048	-	-	-	-	0.16	0.18	ND>0.005	-	ND>0.015	-	-	0.39	0.46	-	-	-	1.5	-
	980601-MW10-25-02	1-Jun-98		0.031	-	-	-	-	0.12	0.12	-	-	-	-	-	0.29	0.28	-	-	-	-	-
MW10-61	951206-MW10-61-01	6-Dec-95	50 - 60	-	-	-	-	-	-	-	-	-	ND>0.005	-	-	-	-	-	-	-	-	-
	960321-MW10-61-01	21-Mar-96	(alluvial WBZ)	0.005	-	-	ND>0.002	-	0.027	-	0.009	-	ND>0.005	-	-	0.022	-	-	-	-	0.025	-
	960620-MW10-61-01	20-Jun-96		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.007	-	-	-	-	0.008	-
	961002-MW10-61-01	2-Oct-96		0.006	-	-	-	-	0.016	-	ND>0.005	-	ND>0.005	-	-	0.011	-	-	-	-	0.012	-
	970226-MW10-61-01	26-Feb-97		ND>0.005	-	-	-	-	0.018	-	ND>0.005	-	ND>0.005	-	-	0.015	-	-	-	-	0.015	-
	970828-MW10-61-01	28-Aug-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980218-MW10-61-01	18-Feb-98		ND>0.005	-	-	-	-	0.01	-	ND>0.005	-	ND>0.005	-	-	0.009	-	-	-	-	0.015	-
	980603-MW10-61-16	3-Jun-98		0.006	-	-	-	-	0.009	-	-	-	-	-	-	0.009	-	-	-	-	-	-
	981117-MW10-61-08	17-Nov-98		0.008	-	-	-	-	0.017	-	-	-	-	-	-	0.014	-	-	-	-	-	-
	990512-MW10-61-06	12-May-99		ND>0.005	-	-	-	-	0.026	-	-	-	-	-	-	0.022	-	-	-	-	-	-
	991026-MW10-61-05	26-Oct-99		ND>0.005	-	-	-	-	0.0084	-	ND>0.005	-	ND>0.005	-	-	0.0082	-	-	-	-	0.11	-
	000329-MW10-61-105	29-Mar-00		0.0068	-	-	-	-	0.0144	-	0.0148	-	ND>0.005	-	-	0.0145	-	-	-	-	0.0474	-
	011010-MW10-61-109	10-Oct-01		ND>0.005	-	-	-	-	ND>0.0015	-	ND>0.001	-	ND>0.005	-	-	ND>0.003	-	-	-	-	ND>0.005	-
	020404-MW10-61-109	4-Apr-02		0.0063	ND>0.005	-	-	-	0.0321	ND>0.005	0.0091	ND>0.015	ND>0.005	ND>0.01	-	0.0293	ND>0.005	-	-	-	0.0339	ND>0.005
	020924-MW10-61-104	24-Sep-02		ND>0.005	ND>0.0056	-	-	-	0.0056	ND>0.0056	ND>0.01	ND>0.011	ND>0.01	0.0078	-	0.0064	ND>0.0056	-	-	-	0.014	0.0061
	030319-MW10-61-111	19-Mar-03		ND>0.010	ND>0.011	-	-	-	0.0062	-	ND>0.0030	-	ND>0.0060	ND>0.0067	-	ND>0.0050	ND>0.0056	-	-	-	ND>0.020	-
	031003-MW10-61-108 [5]	3-Oct-03		0.03	-	-	-	-	0.003	-	ND>0.0030	-	0.014	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040813-MW10-61-005 [6]	13-Aug-04		0.00227	-	-	-	-	0.0036	-	0.0041	-	ND>0.00100	-	-	0.013	-	-	-	-	0.0183	-
	050928-MW10-61-121	28-Sep-05		0.00664	-	-	-	-	0.0084	-	0.0166	-	0.00272	-	-	0.0108	-	-	-	-	0.0447	-

Koppers020364

Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [7]			0.0031 [1]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW11-32	951207-MW11-32-01	7-Dec-95	21 - 31	ND>0.005	-	ND>0.002	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.0002	ND>0.005	-	ND>0.005	ND>0.005	ND>0.01	ND>0.005	-
	960320-MW11-32-01	20-Mar-96	(fill WBZ)	ND>0.005	-	-	ND>0.002	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.008	-
	960930-MW11-32-01	30-Sep-96		ND>0.005	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	960930-MW11-32-02	30-Sep-96		ND>0.005	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970225-MW11-32-01	25-Feb-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	970826-MW11-32-01	26-Aug-97		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	980216-MW11-32-01	16-Feb-98		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
MW12-36	951207-MW12-36-01	7-Dec-95	25 - 35	ND>0.005	-	ND>0.002	ND>0.002	-	ND>0.005	-	0.006	-	ND>0.005	-	ND>0.0002	ND>0.005	-	ND>0.005	ND>0.005	ND>0.01	0.012	-
	991028-MW12-36-18	28-Oct-99	(fill / alluvial WBZ)	ND>0.005	-	-	-	-	0.0084	-	ND>0.005	-	ND>0.005	-	-	0.0082	-	-	-	-	0.011	-
	040825-MW12-36-017 [5]	25-Aug-04		0.00297	-	-	-	-	ND>0.00100	-	ND>0.00200	-	ND>0.00100	-	-	ND>0.00200	-	-	-	-	ND>0.00500	-
	050927-MW-12-36-116	27-Sep-05		0.00213	-	-	-	-	ND>0.001	-	ND>0.00200	-	ND>0.00100	-	-	ND>0.00200	-	-	-	-	ND>.00500	-
MW13-30	980602-MW13-30-12	2-Jun-98	19 - 29	0.015	-	-	-	-	0.009	-	0.007	-	ND>0.005	-	-	0.008	-	-	-	-	0.008	-
	980826-MW13-30-11	26-Aug-98	(fill WBZ)	0.015	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.014	-
	981119-MW13-30-19	19-Nov-98		0.008	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990217-MW13-30-014	17-Feb-99		0.014	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.018	-
	990513-MW13-30-13	13-May-99		0.0091	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	991028-MW13-30-20	28-Oct-99		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000403-MW13-30-120	3-Apr-00		0.0131	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001005-MW13-30-18	5-Oct-00		0.0104	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010329-MW13-30-119	29-Mar-01		0.013	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020405-MW13-30-116	5-Apr-02		0.0108	0.013	-	-	-	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	ND>0.005	-	ND>0.005	ND>0.005	-	-	-	0.0122	ND>0.005
	030319-MW13-30-115	19-Mar-03		ND>0.010	0.019	-	-	-	ND>0.0030	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040825-MW13-30-018 [5]	25-Aug-04		0.0144	-	-	-	-	ND>0.00100	-	ND>0.00200	-	ND>0.00100	-	-	ND>0.00200	-	-	-	-	ND>0.00500	-
MW13-61	980602-MW13-61-13	2-Jun-98	50 - 60	0.007	-	-	-	-	0.013	-	0.015	-	ND>0.005	-	-	0.017	-	-	-	-	0.028	-
	980825-MW13-61-03	25-Aug-98	(alluvial WBZ)	0.008	-	-	-	-	0.036	-	0.027	-	ND>0.005	-	-	0.03	-	-	-	-	0.042	-
	981116-MW13-61-03	16-Nov-98		0.006	0.006	-	-	-	0.018	-	0.02	-	ND>0.005	-	-	0.019	-	-	-	-	0.044	-
	990512-MW13-61-04	12-May-99		0.0083	-	-	-	-	0.066	-	0.028	-	ND>0.005	-	-	0.054	-	-	-	-	0.038	-
	991026-MW13-61-03	26-Oct-99		0.0069	-	-	-	-	0.01	-	0.0066	-	ND>0.005	-	-	0.012	-	-	-	-	0.017	-
	000328-MW13-61-104	28-Mar-00		0.0086	-	-	-	-	0.0095	-	0.0074	-	ND>0.005	-	-	0.0116	-	-	-	-	0.0144	-
	001004-MW13-61-03	4-Oct-00		0.009	-	-	-	-	0.017	-	0.0155	-	ND>0.005	-	-	0.0192	-	-	-	-	0.0253	-
	010327-MW13-61-103	27-Mar-01		0.0096	-	-	-	-	0.0146	-	0.0147	-	ND>0.005	-	-	0.0129	-	-	-	-	0.0166	-
	011009-MW13-61-106	9-Oct-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0117	-
	020403-MW13-61-102	3-Apr-02		0.0064	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0479	-
	020924-MW13-61-106	24-Sep-02		0.012	ND>0.0056	-	-	-	ND>0.005	ND>0.0056	ND>0.01	ND>0.011	ND>0.01	0.0082	-	ND>0.005	ND>0.0056	-	-	-	0.011	0.0079
	030317-MW13-61-101	17-Mar-03		ND>0.010	-	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	031003-MW13-61-109 [6]	3-Oct-03		ND>0.020	-	-	-	-	0.0067	-	ND>0.0030	-	ND>0.0060	-	-	0.0063	-	-	-	-	ND>0.020	-
	040813-MW13-61-003 [6]	13-Aug-04		0.00772	-	-	-	-	0.0018	-	0.00237	-	ND>0.00100	-	-	0.0138	-	-	-	-	0.00613	-
	050927-MW-13-61-114	27-Sep-05		0.00993	-	-	-	-	0.00294	-	0.00749	-	0.00231	-	-	0.00594	-	-	-	-	0.029	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW14-110	981116-MW14-110-06	16-Nov-98	98 - 108	0.012	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990216-MW14-110-005	16-Feb-99	(alluvial WBZ)	0.013	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.03	-
	990512-MW14-110-09	12-May-99		0.012	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	990823-MW14-110-06	23-Aug-99		0.011	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	991027-MW14-110-09	27-Oct-99		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	991027-MW14-110-10	27-Oct-99		0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0054	-
	000329-MW14-110-109	29-Mar-00		0.0115	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0107	-
	000329-MW14-110-110	29-Mar-00		0.0123	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000615-MW14-110-102	15-Jun-00		0.0136	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001005-MW14-110-06	5-Oct-00		0.041	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001220-MW14-110-102	20-Dec-00		0.013	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010328-MW14-110-108	28-Mar-01		0.0127	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	011009-MW14-110-105	9-Oct-01		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.01	-
	011213-MW14-110-101	13-Dec-01		ND>0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0104	-
	020404-MW14-110-108	4-Apr-02		0.0103	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020711-MW14-110-101	11-Jul-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020924-MW14-110-105	24-Sep-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.01	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	021217-MW14-110-102	17-Dec-02		0.011	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	030318-MW14-110-108	18-Mar-03		0.011	0.018	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030602-MW14-110-101	2-Jun-03		0.038	0.023	-	-	-	ND>0.0010	ND>0.0011	ND>0.0030	ND>0.0033	ND>0.0060	ND>0.0067	-	ND>0.0050	ND>0.0056	-	-	-	ND>0.020	ND>0.022
	031003-MW14-110-[6]	3-Oct-03		ND>0.020	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030112-MW14-110-101 [6]	12-Jan-04		0.044	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040824-MW14-110-014[6]	24-Aug-04		0.0114	-	-	-	-	ND>0.0010	-	ND>0.0020	-	ND>0.0010	-	-	0.00279	-	-	-	-	ND>0.00500	-
	050922-MW-14-110-104	22-Sep-05		0.0134	-	-	-	-	ND>0.005	-	ND>0.0020	-	ND>0.0010	-	-	0.0041	-	-	-	-	ND>0.0250	
MW15-50	991029-MW15-50-25	29-Oct-99	40 - 50	0.011	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0096	-
	000403-MW15-50-125	3-Apr-00	(alluvial WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0202	-
	000615-MW15-50-105	15-Jun-00		ND>0.005	-	-	-	-	0.006	-	ND>0.005	-	ND>0.005	-	-	0.0064	-	-	-	-	0.0359	-
	000615-MW15-50-106	15-Jun-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0388	-
	001005-MW15-50-14	5-Oct-00		0.0054	-	-	-	-	0.0176	-	0.0081	-	ND>0.005	-	-	0.0121	-	-	-	-	0.0393	-
	001221-MW15-50-105	21-Dec-00		0.0134	-	-	-	-	0.0585	-	0.0188	-	0.011	-	-	0.042	-	-	-	-	0.0272	-
	001221-MW15-50-106	21-Dec-00		0.0123	-	-	-	-	0.0193	-	0.0402	-	0.0125	-	-	0.0306	-	-	-	-	0.0334	-
	010330-MW15-50-124	30-Mar-01		0.0098	-	-	-	-	0.0058	-	ND>0.005	-	ND>0.005	-	-	0.0087	-	-	-	-	0.0107	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [1,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [2,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0038 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW15-50	011010-MW15-50-111	10-Oct-01	40 - 50	ND>0.005	-	-	-	-	ND>0.0015	-	0.0063	-	ND>0.005	-	-	ND>0.003	-	-	-	-	0.0646	-
	011010-MW15-50-112	10-Oct-01	(silt/alluvial WBZ)	ND>0.005	-	-	-	-	ND>0.0015	-	0.004	-	ND>0.005	-	-	ND>0.003	-	-	-	-	0.0412	-
	011214-MW15-50-104	14-Dec-01		ND>0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0089	-
	011214-MW15-50-105	14-Dec-01		ND>0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	0.011	-	-	-	-	0.0084	-
	020405-MW15-50-119	5-Apr-02		0.0063	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0204	-
	020711-MW15-50-104	11-Jul-02		0.0118	-	-	-	-	0.0187	-	0.0183	-	0.0154	-	-	0.0228	-	-	-	-	0.0929	-
	020711-MW15-50-104	11-Jul-02		0.0103	-	-	-	-	0.0189	-	0.0219	-	0.0166	-	-	0.0232	-	-	-	-	0.0972	-
	020925-MW15-50-110	25-Sep-02		0.016	0.017	-	-	-	0.017	ND>0.0058	0.027	ND>0.011	0.018	0.008	-	0.025	ND>0.0056	-	-	-	0.092	0.0068
	020925-MW15-50-111	25-Sep-02		0.021	-	-	-	-	0.045	-	0.062	-	0.05	-	-	0.061	-	-	-	-	0.24	-
	021218-MW15-50-107	18-Dec-02		0.012	ND>0.0056	-	-	-	ND>0.005	ND>0.0056	0.0078	ND>0.0056	0.0091	ND>0.0056	-	0.013	ND>0.0056	-	-	-	0.034	0.012
	030321-MW15-50-122	21-Mar-03		0.012	0.017	-	-	-	0.0056	ND>0.0011	0.011	ND>0.0033	0.0095	0.0081	-	0.016	ND>0.0056	-	-	-	0.045	0.056
	030603-MW15-50-105	3-Jun-03		0.018	0.029	-	-	-	ND>0.0010	ND>0.0011	ND>0.0030	ND>0.0033	ND>0.0060	ND>0.0067	-	ND>0.0050	ND>0.0056	-	-	-	ND>0.020	ND>0.022
	031006-MW15-50-113 [5]	6-Oct-03		ND>0.040	-	-	-	-	ND>0.0020	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030113-MW-15-50-105 [8]	13-Jan-04		ND>0.020	0.046	-	-	-	ND>0.0010	ND>0.0010	ND>0.0030	ND>0.0030	ND>0.0060	ND>0.0060	-	ND>0.0050	ND>0.0050	-	-	-	ND>0.020	ND>0.020
	030113-MW-15-50-106 [8]	13-Jan-04		ND>0.020	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040825-MW15-50-020 [6]	25-Aug-04		0.0172	-	-	-	-	0.00141	-	0.00265	-	ND>0.00100	-	-	0.00529	-	-	-	-	ND>0.00500	-
	050929-MW15-50-126	29-Sep-05		0.0285	-	-	-	-	0.0156	-	0.00512	-	0.0023	-	-	0.0174	-	-	-	-	0.0123	-
MW15-66	991026-MW15-66-07	26-Oct-99	60.5 - 66.5	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000329-MW15-66-108	29-Mar-00	(alluvial WBZ)	ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	000615-MW15-66-104	15-Jun-00		0.0054	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0214	-
	001005-MW15-66-08	5-Oct-00		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	001221-MW15-66-104	21-Dec-00		0.0055	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	010328-MW15-66-107	28-Mar-01		0.0066	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	011010-MW15-66-110	10-Oct-01		ND>0.005	-	-	-	-	ND>0.0015	-	ND>0.001	-	ND>0.005	-	-	ND>0.003	-	-	-	-	0.0241	-
	011213-MW15-66-103	13-Dec-01		ND>0.01	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0133	-
	020404-MW15-66-107	4-Apr-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020711-MW15-66-103	11-Jul-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	020925-MW15-66-109	25-Sep-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.01	-	ND>0.01	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	021218-MW15-66-105	18-Dec-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	0.0057	-
	021218-MW15-66-106	18-Dec-02		ND>0.005	-	-	-	-	ND>0.005	-	ND>0.005	-	ND>0.005	-	-	ND>0.005	-	-	-	-	ND>0.005	-
	030318-MW15-66-107	18-Mar-03		ND>0.010	-	-	-	-	ND>0.015	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	030603-MW15-66-104	3-Jun-03		ND>0.010	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	031006-MW15-66-112 [5]	6-Oct-03		ND>0.040	-	-	-	-	ND>0.0020	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040113-MW-15-66-104 [6]	13-Jan-04		ND>0.020	-	-	-	-	ND>0.0010	-	ND>0.0030	-	ND>0.0060	-	-	ND>0.0050	-	-	-	-	ND>0.020	-
	040813-MW15-66-006 [6]	13-Aug-04		0.00477	-	-	-	-	0.0027	-	0.00295	-	ND>0.00100	-	-	0.00553	-	-	-	-	0.00895	-
	050929-MW15-66-125	29-Sep-05		0.0191	-	-	-	-	0.0242	-	0.0581	-	0.0228	-	-	0.0406	-	-	-	-	0.146	-

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Table 3c - Summary of Historical Analytical Results for Groundwater Samples: Priority Pollutant Metals by EPA Methods 6010, 200.7 and/or 7000 Series
December 1995 to Present

Priority Pollutant Metals by EPA Methods 6010, 7000, and 200 Series				Analytical Results mg/l (ppm)																	
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	Arsenic	Dissolved Arsenic	Beryllium	Cadmium [4]	Dissolved Cadmium	Chromium	Dissolved Chromium	Copper [4]	Dissolved Copper	Lead [4]	Dissolved Lead	Mercury	Nickel [4]	Dissolved Nickel	Selenium	Silver [4]	Thallium	Zinc [4]	Dissolved Zinc
HUMAN HEALTH SCREENING LEVEL VALUES [8,10]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			#	0.00014	#	#	#	#	#	#	#	#	#	0.0000146	#	4.6	#	#	#	#	26
	Portland Harbor specific fish consumption rate			#	0.000014	#	#	#	#	#	#	#	#	#	3	#	0.46	#	#	#	#	2.6
	DEQ 2004 AWQC (organism only)			0.00014	#	#	#	#	#	#	#	#	#	#	0.00146	4.6	#	4.2	#	#	26	#
Drinking Water																					
	MCL			0.01	#	#	0.005	#	0.1	#	1.3	#	0.015	#	0.002	#	#	0.05	0.1 [9]	#	5.0 [9]	#
	Tap Water PRGs			0.00045	#	#	0.018	#	#	#	1.5	#	#	#	0.011	0.73	#	0.18	0.18	#	11	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [8,10]																					
	EPA 2004 NRWQC (chronic)			#	0.15	#	#	0.000094	#	#	#	0.0027	#	0.00054	#	#	0.016	0.005	#	#	#	0.036
	DEQ 2004 AWQC (chronic)			#	#	#	0.00038 [7]	#	#	#	0.0036 [7]	#	0.00054 [7]	#	0.000012	0.049 [7]	#	0.035 [7]	0.00012 [7]	#	0.033	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			0.0031 [3]	#	#	#	#	#	#	#	#	#	#	0.0013	#	#	#	0.00036	#	#	#
MW-16-45	040826-MW16-45-028 [6]	26-Aug-04	30 - 45 (alluvial WBZ)	0.0092	-	-	-	-	0.0138	-	0.00473	-	0.00138	-	-	0.131	-	-	-	-	0.011	-
	041222-MW16-45-103 [5]	22-Dec-04		0.0825	-	-	-	-	0.0267	-	0.0200	-	ND>0.0100	-	-	0.170	-	-	-	-	0.122	-
	050401-013	1-Apr-05		0.00970		-	-	-	0.00182	-	ND>0.00100	-	0.00113	-	-	0.00834	-	-	-	-	ND>0.0100	-
	0506-22-MW-16-45-05	22-Jun-05		0.00930	0.0019	-	-	-	0.015	ND>0.002	0.02	ND>2.0	0.0099	ND>1.0	-	0.023	0.0061	-	-	-	ND>0.04	ND>0.02
MW-16-65	040826-MW16-65-026 [5]	26-Aug-04	55 - 65 (alluvial WBZ)	0.00173	-	-	-	-	0.00137	-	0.00201	-	ND>0.00100	-	-	0.0197	-	-	-	-	0.00762	-
	040826-MW16-65-026 [5]	26-Aug-04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	041222-MW16-65-102 [5]	22-Dec-04		0.00180	-	-	-	-	0.0101	-	ND>0.00200	-	ND>0.00100	-	-	0.0251	-	-	-	-	ND>0.00500	-
	050331-006	31-Mar-05		0.00276	-	-	-	-	0.00382	-	ND>0.00100	-	ND>0.00100	-	-	0.00545	-	-	-	-	ND>0.0100	-
	0506-21-MW-16-65-04	21-Jun-05		0.003	-	-	-	-	ND>4.0	-	ND>4.0	-	ND>2.0	-	-	ND>4.0	-	-	-	-	ND>0.04	-
MW-16-125	040826-MW16-125-025 [5]	26-Aug-04	115 - 125 (alluvial WBZ)	0.00461	-	-	-	-	0.00134	-	ND>0.00200	-	ND>0.00100	-	-	0.0054	-	-	-	-	ND>0.00500	-
	041221-MW16-125-100 [5]	21-Dec-04		0.00616	-	-	-	-	0.00195	-	0.00205	-	ND>0.00100	-	-	0.00683	-	-	-	-	ND>0.00500	-
	050330-001	30-Mar-05		0.00603	-	-	-	-	ND>0.00100	-	0.00108	-	ND>0.00100	-	-	0.00221	-	-	-	-	ND>0.0100	-
	0506-21-MW-16-125-03	21-Jun-05		0.0068	-	-	-	-	0.002	-	0.0027	-	ND>1.0	-	-	ND>2.0	-	-	-	-	ND>0.020	
MW-17-79	050926-MW-17-79-110	26-Sep-05	38.5 - 78.5 (alluvial WBZ)	0.00234	-	-	-	-	ND>0.00100	-	0.00311	-	ND>0.00100	-	-	0.00257	-	-	-	-	ND>0.00500	-
Temporary Well Point Samples 2004																					
B-56	040602-101	2-Jun-04	18 - 22	0.00177	0.00134	-	-	-	0.00803	0.00100	0.00856	ND>0.00200	0.00446	ND>0.00100	-	0.0121	0.0238	-	-	-	0.0288	0.0199
	040603-102	3-Jun-04	40 - 44	0.00401	0.00119	-	-	-	0.0595	0.00498	0.0202	0.00232	ND>0.00100	-	0.0256	0.0320	-	-	-	0.270	0.0647
	040603-103	3-Jun-04	60 - 64	0.0143	0.00796	-	-	-	0.0460	0.00538	0.0336	ND>0.00200	ND>0.00446	ND>0.00100	-	0.117	0.0338	-	-	-	0.224	0.0103
	040603-104	3-Jun-04	80 - 84	0.0179	0.00724	-	-	-	0.316	0.00653	0.194	ND>0.00200	0.0256	ND>0.00100	-	0.145	0.0325	-	-	-	0.702	0.0755
	040604-106	4-Jun-04	100 - 104	0.00869	0.00515	-	-	-	0.0375	0.00123	0.0415	ND>0.00200	0.00457	ND>0.00100	-	0.0505	0.0173	-	-	-	0.100	0.0103
	040614-115	14-Jun-04	136 - 140	0.0290	0.00582	-	-	-	0.827	ND>0.001	0.457	ND>0.002	0.0306	ND>0.001	-	0.291	0.0162	-	-	-	6.51	0.191
	040614-116	14-Jun-04	174 - 178	0.00369	ND>0.001	-	-	-	0.0351	ND>0.001	0.0218	ND>0.002	0.00204	ND>0.001	-	0.0246	0.00445	-	-	-	0.177	0.0383

Note. '-' = not analyzed
# = Reference Level not established
AWQC = Ambient Water Quality Criteria
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
MCL = Maximum Contaminant Level
mg/l = milligrams/liter
NRWQC = National Recommended Water Quality Criteria
ND = not detected above detection limit indicated
ppm = parts per million
PRG = Potential Remediation Goal
SCV = Secondary Chronic Value

1 = Sample number prefix 2708-
2 = Tier II SCV values were taken from Suter II, G.W. and Tasco, C.L., 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ORNL publication ES/ER/TM-96/R2
3 = value for Arsenic V
4 = This is a hardness dependent metal. All values were calculated based on 25 mg/l of $CaCO_3$
5 = Due to mislabeling in the field or due to laboratory misidentification, the laboratory report transposed results for MW4-35 and MW-4-57 in August 1997. Tables attribute data to the correct well.
6 = Monitoring well purged & sampled with low-flow protocol as per EPA/540/S-95/504 (April 1996)
7 = These values were taken from OAR 340-41 Table 20 because they will remain the enforceable values for these particular analytes.
8 = Screening Level Values for Soil/Stormwater Sediment, Stormwater and Surface water, *Portland Harbor Joint Source Control Strategy*, DEQ, December 2005
9 = National Secondary Drinking Water Standards
10 = EPA, under CERCLA authority, has identified the Safe Drinking Water Acts MCLs and AWQCs (federal and state once approved) as potential ARARs under CERCLA. The final determination will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to The EPA Portland Harbor ROD, due to an exceedance of an SLV in upland stormwater will be evaluated and prioritized on a case by case basis.

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Table 3d Summary of Historical Analytical Results for Groundwater Samples -
Detected Volatiles by EPA Method 8260

Detected Volatiles by EPA Method 8260				Analytical Results ug/l (ppb)																	
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	Benzene	Toluene	Ethyl benzene	m,p-Xylene	o-Xylene	Xylene (total)	Naphthalene [1]	Styrene	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Trichloroethene	Tetrachloroethene
HUMAN HEALTH SCREENING LEVEL VALUES [4,5]																					
Fish Consumption																					
	EPA 2004 NRWQC (organism only)			51	15,000	2,100	#	#	#	#	#	#	#	#	#	#	#	#	30	3.3
	Portland Harbor specific fish consumption rate			5.1	1,500	210	#	#	#	#	#	#	#	#	#	#	#	#	3	0.33
	DEQ 2004 AWQC (organism only)			51	15,000	2,100	#	#	#	#	#	#	#	#	#	#	#	#	30	3.3
Drinking Water																					
	MCL			5	1,000	700	#	#	10,000	#	100	#	#	#	#	#	#	#	5	5
	Tap Water PRGs			0.35	720	1,300	#	#	#	#	1,600	#	#	#	#	#	#	#	0.028	0.1
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]																					
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	840	#	#	#	#	#	#	#	#	#	#	#	#	#	21,900	840
	Oak Ridge National Laboratory (Tier II SCV) [2]			130	9.8	7.3	1.8	13	#	#	#	#	#	#	#	#	#	#	47	98
MW3-56	040823-MW3-56-011	23-Aug-04	45 - 55	10.6	ND>1.00	ND>1.00	ND>2.00	ND>1.00	ND>2.00	ND>2.0	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00
MW4-57	960321-MW4-57-01	21-Mar-96	46 - 56	3,700.	35.	540.	80.	140.	220.	1,700.	ND>10	ND>10	ND>10	ND>10	ND>10	22.	19.	13.	ND>10	ND>10
	020405-MW4-57-117	5-Apr-02		18,800.	ND>500	805.	-	-	ND>1,000	-	-	-	-	-	-	-	-	-	ND>500	
	040824-MW4-57-016	24-Aug-04		15,000.	ND>100	748.	ND>200	122.	122.	3,640.	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100
MW5-32	951205-MW5-32-01	5-Dec-95	21 - 31	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	11.	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0
MW5-100	020405-MW5-100-114	5-Apr-02	88 - 98	8,750.	ND>500	ND>500	-	-	ND>1,000	-	-	-	-	-	-	-	-	-	ND>500	-	
	020405-MW5-100-115	5-Apr-02		8,950.	ND>500	ND>500	-	-	ND>1,000	-	-	-	-	-	-	-	-	-	ND>500	-	
	040824-MW5-100-015	24-Aug-04		11,500.	ND>100	683.	ND>200	253.	253.	12,100.	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100
MW5-175	020404-MW5-175-105	4-Apr-02	163 - 173	ND>1.00	ND>1.00	ND>1.00	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-	
MW8-56	951207-MW8-56-01	7-Dec-95		18,800.	1,400.	590.	600.	200.	800.	13,300.	ND>100	ND>100	ND>100	ND>100	ND>100	ND>100	110.	ND>100	ND>100	ND>100	ND>100
	020405-MW8-56-118	5-Apr-02		26,400	ND>1.00	1,000.	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-	
MW-10-61	020404-MW10-61-109	4-Apr-02	50 - 60	ND>1.00	ND>1.00	ND>1.00	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-	
MW11-32	960320-MW11-32-01	20-Mar-96	21 - 31	16,700.	3,300.	620.	840.	400.	1,240.	8,600.	ND>2.	9.	42.	35.	18.	110.	250.	79.	ND>2.	2.2	
	960617-MW11-32-01	17-Jun-96		2,800	2,000.	1,000.	1,300.	640	1,940.	4,100.	ND>5.	10.	70.	ND>5	17.	100.	260.	82.	ND>5.	ND>5.	
	960617-MW11-32-02	17-Jun-96		4,100	2,600.	960.	1,200.	580.	1,780.	5,600.	ND>10.	8.8	59.	ND>10.	14.	86.	220.	70.	ND>10.	ND>10.	
	960930-MW11-32-01	30-Sep-96		17,000.	3,300.	900.	1,200.	560.	1,760.	13,900.	ND>1,200.	ND>1,200	ND>1,200.	ND>1,200.	ND>1,200.	ND>1,200.	ND>1,200.		ND>1,200	ND>1,200.	
MW12-36	951207-MW12-36-01	7-Dec-95	25 - 35	92.	510.	150.	460.	170.	630.	2,300.	100.	ND>50.	ND>50.	ND>50.	ND>50.	36.	88.	57.	ND>50.	ND>50.	
	960321-MW12-36-01	21-Mar-96		210.	220.	140.	310.	180.	490.	1,900.	130.	ND>10.	ND>10.	ND>10.	ND>10.	22.	51.	37.	ND>10.	ND>10.	
	960620-MW12-36-01	20-Jun-96		250.	250.	120.	280.	160.	440.	1,500.	140.	ND>10.	ND>10.	ND>10.	ND>10.	16.	42.	13.	ND>10.	ND>10.	
	961002-MW12-36-01	2-Oct-96		330.	390.	130.	330.	180.	510.	1,100.	170.	ND>50.	ND>50.	ND>50.	ND>50.	18.	42.	14.	ND>50.	ND>50.	
	970226-MW12-36-01	26-Feb-97		260.	310.	120.			470.	960.	150.	ND>1.0	4.	1.	3.	NO>1.0	31.	11.	ND>1.0	ND>1.0	
	970828-MW12-36-01	28-Aug-97		230.	430.	110.	280.	150.	430.	820.	150.	ND>1.0	4.2	1.9	2.8	12.	30.	8.5	ND>1.0	ND>1.0	
	980218-MW12-36-01	18-Feb-98		140	370.	82.	180.	100.	280.	530.	94.	ND>1.0	2.2	1.1	1.8		22.	6.2	ND>1.0	ND>1.0	
MW-14-110	020404-MW14-110-108	4-Apr-02	98 - 108	ND>1.00	ND>1.00	ND>1.00	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-	

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Table 3d Summary of Historical Analytical Results for Groundwater Samples -
Detected Volatiles by EPA Method 8260

Detected Volatiles by EPA Method 8260				Analytical Results ug/l (ppb)																	
Well Number	KHAI Sample Number[1]	Sample Date	Screen Interval (feet bgs)	Benzene	Toluene	Ethyl benzene	m,p-Xylene	o-Xylene	Xylene (total)	Naphthalene[3]	Styrene	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	n-Propylbenzene	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Trichloroethene	Tetrachloroethene
MW-15-50	020405-MW15-50-119	5-Apr-02	40 - 50	57.000	ND>1.00	ND>1.00	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-
MW-15-66	020404-MW15-66-107	4-Apr-02	60.5 - 66.5	ND>1.00	ND>1.00	ND>1.00	-	-	ND>2.00	-	-	-	-	-	-	-	-	-	ND>1.00	-
MW-16-45	040826-MW16-45-028	26-Aug-04	30 - 45	2,680.	959.	460.	546.	321.	867.	7,590.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.
MW-16-65	040826-MW16-65-026	26-Aug-04	55 - 65	1,370.	388.	236.	371.	181.	562.	4,890.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.	ND>50.
	040826-MW16-65-027	26-Aug-04		1,250.	339.	223.	-	-	486.	-	-	-	-	-	-	-	-	-	-	-	-
MW-16-125	040826-MW16-125-025	26-Aug-04	115 - 125	ND>1.00	ND>1.00	ND>1.00	ND>2.00	ND>1.00	ND>2.0	22.2	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00	ND>1.00
MW-17-79	050926-MW-17-79-110	26-Sep-05	38.5 - 78.5	2.82	ND>1.0	8.8	1.72	1.72	1.72	82.4	ND>1.0	ND>1.0	ND>2.0	ND>2.0	ND>1.0	-	1	ND>1.00	ND>1.00	ND>1.00	
Temporary Well Point Samples 2004																					
B-56	040602-101	2-Jun-04	18 - 22	9.	ND>5.	ND>5.	ND>10.	ND>5.	ND>10.	328.	ND>5.	ND>5.	ND>10.	ND>10.	ND>5.	-	ND>5.	ND>5.	ND>5.	ND>5.	ND>5.
	040603-102	3-Jun-04	40 - 44	ND> 1	ND>1.	ND>1	ND>2	ND>1	ND>2.	2.57	ND>1.	ND>1.	ND>2.	ND>2.	ND>1.	-	ND>1.	ND>1.	ND>1.	ND>1.	ND>1.
	040603-103	3-Jun-04	60 - 64	3.62	ND>1.	70.	10.5	8.14	18.64	140.	ND>1.	ND>1.	ND>2.	ND>2.	ND>1.	-	2.06	ND>1.	ND>1.	ND>1.	ND>1.
	040603-104	3-Jun-04	80 - 84	ND>5	ND>5.	ND>5.	ND>10.	10.6	10.6	441.	ND>5.	ND>5.	ND>10.	ND>10.	ND>5.	-	ND>5.	ND>5.	ND>5.	ND>5.	ND>5.
	040603-105	3-Jun-04	80 - 84	3.1	ND>2.	2.02	6.96	ND>4	6.96	273.	ND>2.	ND>2.	ND>4.	ND>4.	ND>2.	-	ND>2.	ND>2.	ND>2.	ND>2.	ND>2.
	040604-106	4-Jun-04	100 - 104	ND>1.	ND>1	ND>1.	ND>2	ND>1	ND>2.	ND>2.	ND>1	ND>1.	ND>2	ND>2.	ND>1.	-	ND>1.	ND>1.	ND>1.	ND>1.	ND>1.
	040614-115	14-Jun-04	136 - 140	ND>1	ND>1.	ND>1.	ND>2	ND>1	ND>2.	3.26	ND>1	ND>1.	ND>2.	ND>2.	ND>1.	-	ND>1.	ND>1.	ND>1.	ND>1.	ND>1.
	040614-116	14-Jun-04	174 - 178	ND>1	ND>1.	ND>1.	ND>2	ND>1	ND>2.	4.2	ND>1	ND>1.	ND>2.	ND>2.	ND>1.	-	ND>1.	ND>1.	ND>1.	ND>1.	ND>1.
B-59	040611-108	11-Jun-04	46-50	5,570.	ND>50.	317	ND>50.	85.5	85.5	**4,460.**	ND>50.	ND>50.	ND>100.	ND>100.	ND>50.	-	63.	ND>50.	ND>50.	ND>50.	ND>50.
	040611-109	11-Jun-04	76-80	230.	12.4	25.8	13.8	12.2	26.	582.	ND>10	ND>5.	ND>10	ND>10	ND>5.	-	6.65	ND>5.	ND>5.	ND>5.	ND>5.
	040611-110	11-Jun-04	96-100	113.	6.16	9.78	6.04	5.24	11.28	272.	ND>2.	ND>2.	ND>4.	ND>4.	ND>2.	-	2.58		ND>2.	ND>2.	ND>2.
	040611-112	11-Jun-04	116-120	166.	2.16	3.02	5.42	1.63	7.05	116.	ND>1	ND>1.	ND>2.	ND>2.	ND>1.	-	1.51		ND>1.	ND>1.	ND>1.
	040611-113	11-Jun-04	144-148	19.3	1.43	2.58	2.37	1.31	3.68	119.	ND>1	ND>1.	ND>2.	ND>2.	ND>1.	-	1.17		ND>1.	ND>1.	ND>1.
	040614-114	14-Jun-04	171-175	2.29	ND>1.0	ND>1.0	ND>2	ND>1	ND>2.	3.46	ND>1	ND>1.	ND>2.	ND>2.	ND>1.	-	ND>1.		ND>1.	ND>1.	ND>1.

Note: DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
MCL = Maximum Contaminant Level

NRWQC = National Recommended Water Quality Criteria
ND = Not detected above detection limit indicated
ppb = parts per billion

PRG = Potential Remediation Goal
SCV = Secondary Chronic Value
ug/l = micrograms per liter

= Reference Level not established

Note: Reference Level is lowest of EPA AWQC for aquatic life protection, AWQC for human consumption of organisms only, or DEQ SLV for aquatic receptors
1 = Sample number prefix: 2708-
2 = Tier II SCV values were taken from Suter II, G.W. and Tasco, C.L., 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ORNL publication ES/ER/TM-96/R2
3= MCL is based on benzo(a)pyrene
4 = Screening Level Values are from Portland Harbor Joint Source Control Strategy, Final, December 2005
5 = EPA, under CERCLA authority, has identified the Safe Drinking Water Acts MCLs and AWQCs (federal and state once approved as potential ARARs under CERCLA. The final determination will be made in the EPA Portland Harbor Record of Decision (ROD) Decisions to implement source control, prior to The EPA Portland Harbor ROD, due to an exceedance of an SLV in upland stormwater will be evaluated and prioritized on a case by case basis.

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Table 3e Summary of Historical Analytical Results for Groundwater Samples - Phenols by EPA Method 8270

Phenols by EPA Method 8270				Analytical Results ug/l (ppb)														
Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	4-Chloro-3-methylphenol	2-Chlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methyl-4,6-dinitrophenol	2-Methylphnol (o-cresol)	3 and 4-Methylphenol (cresols)	2-Nitrophenol	4-Nitrophenol	2,3,4,6-Tetrachlorophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Total Phenols
HUMAN HEALTH SCREENING LEVEL VALUES [7,8]																		
Fish Consumption																		
	EPA 2004 NRWQC (organism only)			#	150	290	850	5,300	280	#	#	#	#	#	3	1,700,000	3600 [7]	2.4	#
	Portland Harbor specific fish consumption rate			#	15	29	85	530	28	#	#	#	#	#	0.3	170,000	360 [7]	0.24	#
	DEQ 2004 AWQC (organism only)			#	150	290	850	5,300	280	#	#	#	#	#	3	1,700,000	3,600	2.4	#
Drinking Water				#															
	MCL			#	#	#	#	#	#	#	#	#	#	#	#	1	#	#	#	#
	Tap Water PRGs			#	30	110	730	73	#	1,800	180	#	#	1,100	0.56	11,000	3,600	3.6	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [7,8]				#															
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#	#	#	#	#	15 [5]	#	#	#	#
	DEQ 2004 AWQC (chronic) [7]			#	2,000	365	#	150	150	#	#	150	150	#	13 [3,4]	2,560	#	970	#
	Oak Ridge National Laboratory (Tier II SCV) [6]			#	#	#	#	#	#	13	#	#	300	#	#	#	#	#	#
MW03-56	951206-MW3-56-01	6-Dec-95	45 - 55	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	040823-MW3-56-011	23-Aug-04		ND>5.0					-										
MW04-35	960618-MW4-35-01	18-Jun-96	24 - 34	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	961001-MW4-35-01	1-Oct-96		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	970225-MW4-35-01	25-Feb-97		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	980827-MW4-35-01	27-Aug-97		ND>50	ND>50	ND>50	ND>20	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>10	ND>10	ND>50	ND>50	ND
	980217-MW4-35-01	17-Feb-98		ND>5.0	ND>5.0	ND>5.0	ND>20	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>10	ND>5.0	ND>5.0	ND
MW04-57	960620-MW4-57-01	20-Jun-96	46 - 56	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	2.8	ND>5.0	ND>5.0	2.8
	961002-MW4-57-01	2-Oct-96		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	20.	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	9.	ND>5.0	ND>5.0	29.0
	970226-MW4-57-01	26-Feb-97		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	4.8	ND>5.0	ND>5.0	4.8
	970828-MW4-57-01	28-Aug-97		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>20	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	4.6	ND>5.0	ND>5.0	4.6
	980218-MW4-57-01	18-Feb-98		ND>5.0	ND>5.0	ND>50	ND>50	ND>200	ND>50	ND>50	ND>50	ND>50	ND>5.0	ND>50	ND>10	47.	ND>50	ND>50	47.0
	040824-MW4-57-016	24-Aug-04							-										
MW-5-100	040824-MW5-100-015	24-Aug-04	88 - 98	ND>500	ND>500	ND>500	ND>1,000	ND>2,500	-	ND>1,000	ND>500	ND>500	ND>2,500	-	ND>1,000	ND>500	ND>500	ND>500	ND
MW06-32	951207-MW6-32-01	7-Dec-95	21 - 31	ND>50	ND>50	ND>50	ND>50	ND>100	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND
MW06-61	951206-MW6-61-01	6-Dec-95	50 - 60	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
MW08-29	960321-MW8-29-01	21-Mar-96	18 - 28	ND>50	ND>50	ND>50	69.	ND>50	ND>50	29.	15.	ND>50	ND>50	ND>50	ND>50	16.	ND>50	ND>50	129
	960619-MW8-29-02	20-Jun-96		ND>5.0	ND>5.0	ND>5.0	10.	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	10
	961002-MW8-29-01	2-Oct-96		ND>500	ND>500	ND>500	ND>500	ND>1,000	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND
	970226-MW8-29-01	26-Feb-97		ND>5.0	ND>5.0	ND>5.0	82.	ND>10.0	ND>5.0	9.8	ND>5.0	ND>5.0	2.6	ND>5.0	ND>5.0	5.5	ND>5.0	ND>5.0	100
	970828-MW8-29-01	28-Aug-97		ND>50	ND>50	ND>50	23.	ND>20	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>10	13.	ND>50	ND>50	36
	980218-MW8-29-01	18-Feb-98		ND>50	ND>50	ND>50	ND>50	ND>200	ND>50	ND>50	ND>50	ND>50	ND>50	ND>50	ND>100	ND>100	ND>50	ND>50	ND
MW10-25	951207-MW10-25-01	7-Dec-95	14 - 24	ND>50	ND>50	ND>50	490.	ND>100	ND>50	1,600.	930.	ND>50	ND>50	ND>50	ND>50	470.	ND>50	ND>50	3,490
	960320-MW10-25-01	20-Mar-96		ND>20	ND>20	ND>20	760.	ND>20	ND>20	1,300.	810.	ND>20	ND>20	ND>20	ND>20	630.	ND>20	ND>20	3,500
	960617-MW10-25-01	17-Jun-96		ND>500	ND>500	ND>500	440.	ND>1000	ND>500	1,100.	670.	ND>500	ND>500	ND>500	ND>500	280.	ND>500	ND>500	2,490
	960930-MW10-25-01	30-Sep-96		ND>50	ND>50	ND>50	550.	ND>100	ND>50	2,800.	1,700.	ND>50	ND>50	ND>50	ND>50	1,000.	ND>50	ND>50	6,050
	970224-MW10-25-01	25-Feb-97		ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>10,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000	ND>5,000
	970827-MW10-25-01	27-Aug-97		ND>20	ND>20	ND>20	350.	ND>100	ND>20	730.	1,200.	ND>20	ND>20	ND>20	ND>50	680.	ND>20	ND>20	2,960
	980216-MW10-25-01	16-Feb-98		ND>50	ND>50	ND>50	250.	ND>200	ND>50	650.	930.	ND>50	ND>50	ND>50	ND>100	790.	ND>50	ND>50	2,620

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Table 3e Summary of Historical Analytical Results for Groundwater Samples -
Phenols by EPA Method 8270

Phenols by EPA Method 8270				Analytical Results ug/l (ppb)															
Well Number	HAI Sample Number	Sample Date	Screen Interval (feet bgs)	4-Chloro-3-methylphenol	2-Chlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methyl-4,6-dinitrophenol	2-Methylphnol (o-cresol)	3 and 4-Methylphenol (cresols)	2-Nitrophenol	4-Nitrophenol	2,3,4,6-Tetrachlorophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Total Phenols
MW10-61	951206-MW10-61-01	6-Dec-95	50 - 60	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	960620-MW10-61-01	20-Jun-96		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	960930-MW10-61-01	2-Oct-96		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
	970226-MW10-61-01	26-Feb-97		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	8.4	ND>5.0	ND>5.0	8.4
	970828-MW10-61-01	28-Aug-97		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>20	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>10	ND>5.0	ND>5.0	ND
	980218-MW10-61-01	18-Feb-98		ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>20	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>10	ND>5.0	ND>5.0	ND
MW11-32	951207-MW11-32-01	7-Dec-95	21 - 31	ND>50	ND>50	ND>50	1,200.	ND>100	ND>50	1,200.	590.	ND>50	ND>50	ND>50	ND>50	120.	ND>50	ND>50	3,110
	960320-MW11-32-01	20-Mar-96		ND>20	ND>20	ND>20	820.	ND>20	ND>20	540.	230.	ND>20	ND>20	ND>20	ND>20	60.	ND>20	ND>20	1,650
	960617-MW11-32-01	17-Jun-96		ND>500	ND>500	ND>500	540.	ND>1,000	ND>500	420.	170.	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	1,130
	960930-MW11-32-01	30-Sep-96		ND>100	ND>100	ND>100	650.	ND>200	ND>100	960.	540.	ND>100	ND>100	ND>100	ND>100	71.	ND>100	ND>100	2,221
	970224-MW11-32-01	25-Feb-97		ND>500	ND>500	ND>500	ND>500	ND>1,000	ND>500	240.	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	ND>500	240
	970826-MW11-32-01	26-Aug-97		ND>20	ND>20	ND>20	600.	ND>100	ND>20	210.	120.	ND>20	ND>20	ND>20	ND>50	31.	ND>20	ND>20	961
	980216-MW11-32-01	16-Feb-98		ND>50	ND>50	ND>50	200.	ND>200	ND>50	130.	120.	ND>50	ND>50	ND>50	ND>100	ND>100	ND>50	ND>50	450
MW12-36	960321-MW12-36-01	21-Mar-96	25 - 35	ND>5	ND>5	ND>5	ND>5	ND>10	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND
MW-16-45	040826-MW16-45-028	26-Aug-04	30 - 45	ND>100	ND>100	ND>100	ND>100	ND>500	-	ND>100	ND>100	ND>100	ND>100	-	ND>200	ND>100	ND>100	ND>100	
MW-16-65	040826-MW16-65-026	26-Aug-04	55 - 65	ND>100	ND>100	ND>100	ND>100	ND>500	-	ND>100	ND>100	ND>100	ND>100	-	ND>200	ND>100	ND>100	ND>100	ND
MW-16-125	040826-MW16-125-025	26-Aug-04	115 - 125	6.27 X	ND>5	ND>5	ND>5	ND>10	-	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND>5	ND
Temporary Well Point Samples 1995																			
B-19	950920-BW19-02	20-Sep-95	25 - 28	ND>5.0	ND>5.0	ND>5.0	120.	ND>10	ND>5.0	27.	ND>5.0	ND>5.0	ND>5.0	ND>5.0	1.5	16.	ND>5.0	ND>5.0	165
B-21	951003-BW21-01	3-Oct-95	15.5 - 19.5	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>10	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND>5.0	ND
Temporary Well Point Samples 2004																			
B-56	040602-101	2-Jun-04	18 - 22	ND>25.	ND>25.	ND>25.	ND>50.0	ND>125.	-	ND>50.	ND>25.	ND>25.	ND>125.	-	ND>50.	ND>25.	ND>25.	ND>25.	ND
	040603-102	3-Jun-04	40 - 44	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND
	040603-103	3-Jun-04	60 - 64	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND
	040603-104	3-Jun-04	80 - 84	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND
	040604-106	4-Jun-04	100 - 104	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND
	040614-115	14-Jun-04	136 - 140	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND
	040614-116	14-Jun-04	174 - 178	ND>5.	ND>5.	ND>5.	ND>10.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>25.	-	ND>10.	ND>5.	ND>5.	ND>5.	ND

Note. # = Reference Levels not established EPA = U.S. Environmental Protection Agency ppb = parts per billion X = laboratory contaminant
MCL = Maximum Contaminant Level PRG = Potential Remediation Goal
NRWQC = National Recommended Water Quality Criteria SCV = secondary Chronic Value
ND = Not detected above detection limit indicated ug/l = micrograms/liter

1 = Sample number prefix: 2708-
2 = Values were taken from Table 33c (OAR 340-41), which are Water Quality Guidance Values, not criteria, that can be used in the application of Oregon's Narrative Toxics Criteria to waters of the state in order to protect aquatic life.
3 = These values were taken form OAR 340-41 Table 20 because they will remain the enforceable values for these particular analytes.
4 = Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(ph)-5.29). The value displayed in the table corresponds to a pH of 7.8.
5 = Due to mislabeling in the field or due to laboratory misidentification, the laboratory report transposed results for MW4-35 and MW-4-57 in August 1997. Tables attribute data to the correct well.
6 = Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Chronic = exp(1.005(ph)-5.134). The value displayed in the table corresponds to a pH of 7.8.
7 = Screening Level Values are from *Portland Harbor Joint Source Control Strategy*, Final, December 2005
8 = EPA, under CERCLA authority, has identified the Safe Drinking Water Acts MCLs and AWQCs (federal and state once approved as potential ARARs under CERCLA. The final determination will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to The EPA Portland Harbor ROD, due to an exceedance of an SLV in upland stormwater will be evaluated and prioritized on a case by case basis.
9 = Tier II SCV values were taken from Suter II, G.W. and Tasco, C.L., 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. ORNL publication ES/ER/TM-96/R2

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Table 3f Summary of Analytical Results for Groundwater Samples: SVOCs

Well Number	HAI Sample Number [1]	Sample Date	Screen Interval (feet bgs)	SVOCs by EPA Method 8270C Analytical Results ug/l (ppb)						
				Carbazole	4-Chloro-3-methylphenol	Dibenzofuran	2-Methylnapthalene	Bis(2-ethylhexyl)phthalate	Phenols	PAHs (See PAH Table)
HUMAN HEALTH SCREENING LEVEL VALUES [4,5]										
Fish Consumption										
	EPA 2004 NRWQC (organism only)			#	#	#	#	2.2	#	#
	Portland Harbor specific fish consumption rate			#	#	#	#	0.22	#	#
	DEQ 2004 AWQC (organism only)			#	#	#	#	2.2	#	#
Drinking Water										
	MCL			#	#	#	0.2 [2]	6.	#	#
	Tap Water PRGs			3.4	#	12.	#	4.8	#	#
ECOLOGICAL RECEPTOR SCREENING LEVEL VALUES [4,5]										
	EPA 2004 NRWQC (chronic)			#	#	#	#	#	#	#
	DEQ 2004 AWQC (chronic)			#	#	#	#	3 [3]	#	#
	Oak Ridge National Laboratory (Tier II SCV) [2]			#	#	#	#	#	#	#
MW-3-56	040823-MW3-56-011	23-Aug-04	45 - 55	18.6	ND>5.	9.27	ND>5.	ND>10.	ND	-
MW-4-57	040824-MW4-57-016	24-Aug-04	46 - 56	ND>500.	ND>500.	ND>500.	ND>500.	ND>1,000.	ND	-
MW-5-100	040824-MW5-100-015	24-Aug-04	88 - 98	ND>500.	ND>500.	ND>500.	ND>500.	ND>1,000.	ND	-
MW-16-45	040826-MW16-45-028	26-Aug-04	30 - 45	137.	ND>100.	ND>100.	544.	ND>200.	ND	-
MW-16-65	040826-MW16-65-026	26-Aug-04	55 - 65	ND>100.	ND>100.	ND>100.	460.	ND>200.	ND	-
MW-16-125	040826-MW16-125-025	26-Aug-04	115 - 125	ND>5.	6.27 X	ND>5.	6.23	ND>10.	ND	-
Push Probe Boring Samples										
B-56A	040602-101	2-Jun-04	18-22	ND>25.	ND>25.	ND>25.	ND>25.	ND>50.	ND	-
	040603-102	3-Jun-04	40-44	ND>5.	ND>5.	ND>5.	ND>5.	17.4	ND	-
	040603-103	3-Jun-04	60-64	ND>5.	ND>5.	ND>5.	ND>5.	ND>10.	ND	-
	040603-104	3-Jun-04	80-84	ND>5.	ND>5.	ND>5.	ND>5.	ND>10.	ND	-
	040604-106	4-Jun-04	100-104	ND>5.	ND>5.	ND>5.	ND>5.	ND>10.	ND	-
B-56B	040614-115	14-Jun-04	136-140	ND>5.	ND>5.	ND>5.	ND>5.	ND>10.	ND	-
	040614-116	14-Jun-04	174-178	ND>5.	ND>5.	ND>5.	ND>5.	ND>10.	ND	-

Note:
# = no reference level established
PAHs = polynuclear aromatic hydrocarbons
ppb = parts per billion
PRG = Potential Remediation Goal
MCL = Maximum Contaminant Level
ND = not detected above detection limit indicated
NRWQC = National Recommended Water Quality Criteria
SCV = Secondary Chronic Value
SVOCs = semi-volatile organic compound
ug/l = micrograms per liter
X = Laboratory Contaminant

1 = Sample prefix = 2708-
2 = MCL is based on benzo(a)pyrene
3 = Values were taken from Table 33c (OAR 340-41), which are Water Quality Guidance Vales, not criteria, that can be used in the application of Oregon's Narrative Toxics Criteria to waters of the state in order to protect aquatic life.
4 = Screening Level Values are from *Portland Harbor Joint Source Control Strategy*, Final, December 2005
5 = EPA, under CERCLA authority, has identified the Safe Drinking Water Acts MCLs and AWQCs (federal and state once approved) as potential ARARs under CERCLA. The final determination will be made in the EPA Portland Harbor Record of Decision (ROD). Decisions to implement source control, prior to The EPA Portland Harbor ROD, due to an exceedance of an SLV in upland stormwater will be evaluated and prioritized on a case by case basis.

Table 3g - Indicator and Natural Attenuation Parameters Results for Groundwater Samples, 2005 Through Present

Well Number	HAI Sample Number [1]	Sample Date	EPA Method 310.1	EPA Method 300		Field Measurement						
			Total Alkalinity	Nitrate-Nitrogen	Sulfate	Ferrous Iron	Dissolved Oxygen	Oxygen Reduction Potential	pH	Specific Conductivity	Turbidity	Temperature
			mg/l	mg/l	mg/l	mg/l	mg/l	mV	pH Units	uS/cm	NTU's	°C
MW-1-22	0401-MW-1-22-014	1-Apr-05	499	ND>0.100	176	3	0.80	-6.3	6.28	851	1.73	11.57
	0928-MW1-22-120	28-Sep-05	-	-	-	-	13.05	37.1	3.08	2,902	4.1	12.72
MW-2-32	0331-MW-2-32-009	31-Mar-05	147	2.62	67.8	0	3.54	30.2	6.47	381	4.31	19.71
	0927-MW-2-32-118	27-Sep-05	-	-	-	-	1.81	30.5	6.39	459	4.5	22.19
MW-2-61	0926-MW-2-61-111	26-Sep-05	-	-	-	-	3.17	29.8	6.99	1,208	25	18.97
MW-3-26	0330-MW-3-26-004	30-Mar-05	96.8	4.28	46	0.8	1.47	41.7	5.83	262	13.9	14.34
	0922-MW-3-26-105	22-Sep-05	-	-	-	-	7.55	26.4	6.92	760	5.6	17.6
MW-3-56	0330-MW-3-56-003	30-Mar-05	307	ND>0.100	ND>1.00	8	0.72	10.2	6.6	441	0.75	14.68
	0922-MW-3-56-106	22-Sep-05	-	-	-	-	5.46	25.6	7.22	844	11	15.35
MW-4-35	0331-MW-4-35-005	31-Mar-05	309	ND>0.100	19.5	6	0.54	0.0	6.51	519	2.47	14.12
	0928-MW-4-35-123	28-Sep-05	-	-	-	-	2.1	36.1	7.34	2,190	23	14.66
MW-4-57	0331-MW-4-57-008	31-Mar-05	733	ND>0.100	ND>1.00	-	0.89	10.5	6.53	1,073	3.07	14.23
	1003-MW-4-57-133	3-Oct-05	-	-	-	-	0.26	-	6.69	1,165	9.1	14.4
MW-4-101	0330-MW-4-101-002	30-Mar-05	419	ND>0.100	ND>1.00	7.2	0.57	-16.7	6.36	704	12.7	13.69
	0928-MW-4-101-122	28-Sep-05	-	-	-	-	5.46	34.6	7.29	1,172	3	14.25
MW-5-32	0401-MW-5-32-011	1-Apr-05	311	ND>0.100	19.7	2.2	0.75	36	5.96	480	5.12	14.07
	0927-MW-5-32-117	27-Sep-05	-	-	-	-	1.86	37	7.28	745	90	14.06

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Table 3g - Indicator and Natural Attenuation Parameters Results for Groundwater Samples, 2005 Through Present

Well Number	HAI Sample Number [1]	Sample Date	EPA Method 310.1	EPA Method 300		Field Measurement						
			Total Alkalinity	Nitrate-Nitrogen	Sulfate	Ferrous Iron	Dissolved Oxygen	Oxygen Reduction Potential	pH	Specific Conductivity	Turbidity	Temperature
			mg/l	mg/l	mg/l	mg/l	mg/l	mV	pH Units	uS/cm	NTU's	°C
MW-5-175	0921-MW-5-175-101	21-Sep-05	-	-	-	-	-	18	6.03	874	0.5	15.95
MW-5-100	0401-Mw-5-100-012	1-Apr-05	407	ND>0.100	ND>1.00	7.4	0.77	7.1	6.13	727	1.12	13.84
	0921-MW-5-100-102	21-Sep-05	-	-	-	-	6.87	22.	5.61	1,294	0.55	16.38
MW-8-29	0929-MW-8-29-127	29-Sep-05	-	-	-	-	4.77	34.4	7.89	1.918	16	18.96
MW-8-56	0929-MW-8-56-128	29-Sep-05	-	-	-	-	2.3	35.1	8.1	1,910	50	18.51
MW-9-29	0926-MW-9-29-109	26-Sep-05	-	-	-	-	7.51	29.9	6.55	264	28	14.23
MW-10-61	0928-MW10-61-121	28-Sep-05	-	-	-	-	3.64	30.	6.18	932	80	14.31
MW-12-36	0927-MW-12-36-116	27-Sep-05	-	-	-	-	3.46	34.	7.29	538	3.3	14.25
MW-13-30	1003-MW-13-30-132	3-Oct-05	-	-	-	-	0.3	-	6.63	793	8	13.5
MW-13-61	0927-MW-13-61-114	27-Sep-05	-	-	-	-	3.06	36.	5.87	1,103	83	15.44
MW-14-110	0922-MW-14-110-104	22-Sep-05	-	-	-	-	3.53	22.1	6.51	2,283	0.8	16.13
MW-15-50	0929-MW-15-50-126	29-Sep-05	-	-	-	-	2.06	18.1	7.55	2,988	90	24.7

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Table 3g - Indicator and Natural Attenuation Parameters Results for Groundwater Samples, 2005 Through Present

Well Number	HAI Sample Number [1]	Sample Date	EPA Method 310.1	EPA Method 300		Field Measurement						
			Total Alkalinity	Nitrate-Nitrogen	Sulfate	Ferrous Iron	Dissolved Oxygen	Oxygen Reduction Potential	pH	Specific Conductivity	Turbidity	Temperature
			mg/l	mg/l	mg/l	mg/l	mg/l	mV	pH Units	uS/cm	NTU's	°C
MW-15-66	0929-MW-15-66-125	29-Sep-05	-	-	-	-	2.02	37.6	7.3	297	370	19.74
MW-16-45	0401-MW-16-45-013	1-Apr-05	431	ND>0.100	ND>1.00	7	0.56	-0.1	6.41	838	2.79	16.92
	0622-MW-16-45-5	22-Jun-05	-	-	-	-	4.48	29.5	6.47	707	-	15.17
	1003-MW-16-45-136	3-Oct-05	-	-	-	-	4.21	-	6.91	595	160	13.1
MW-16-65	0331-Mw-16-65-006	31-Mar-05	350	ND>0.100	99.8	8.4	0.61	-5.5	6.55	898	7.03	14.42
	0621-MW-16-65-04	21-Jun-05	-	-	-	-	0.21	22.7	5.83	736	9.71	14.38
	1003-MW-16-65-135	3-Oct-05	-	-	-	-	0.4	-	6.86	702	8.4	14.1
MW-16-125	0330-MW-16-125-001	30-Mar-05	399	ND>0.100	38.1	6	0.82	-22.7	6.33	754	3.16	14.19
	0621-MW-16-125-003	21-Jun-05	-	-	-	-	0.18	15.	6.22	729	25	14.58
	0930-MW-16-125-130	30-Sep-05	-	-	-	-	6.79	41.7	7.62	1,188	2.5	16.22
MW-17-79	0926-MW-17-79-110	26-Sep-05	-	-	-	-	3.15	30.5	7.19	1,596	3.2	14.46

Note: °C = Degrees Celcius
uS/cm = microsiemens per centimeter
mg/l = milligrans per liter
mV = millivolts
NTU = nephelometric units
ppm = parts per million

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Table 4 - Summary of Analytical Results for Quality Assurance / Quality Control (QA/QC) Samples
September 2005 Sampling Event

QA/QC Sample Type	HAI Sample Number [1]	Sample Date	Comment	EPA 8021				EPA Method 8270			
				Aromatic Hydrocarbons				Polynuclear Aromatic Hydrocarbons (PAHs) [2]			
				Benzene	Toluene	Ethyl benzene	Xylenes	Naphthalene	Phenanthrene	All Others	Total PAHs
Equipment Blank	-0927-MW-7-115	27-Sep-05	DI Water sampled from decontaminated Bladder pump after sampling MW-13-61, and before sampling MW-12-36	ND>0.500	ND>0.500	ND>0.500	ND>1.00	0.048	0.0218	0.0233 J	0.0931
Equipment Blank	-1003-MW7-137	3-Oct-05	DI Water sampled from decontaminated submersible pump after sampling MW-4-57 (the last sampled well of the event)	ND>0.500	ND>0.500	ND>0.500	ND>1.00	2.36	0.257	0.3504	2.9674

Note:
'-' = not analyzed
BTEX = benzene, toluene, ethylbenzene, and xylenes
EPA = U.S. Environmental Protection Agency
ND = not detected above detection limit indicated

ppb = parts per billion
ug/l = micrograms/liter
J = estimated concentration

1 = Sample Prefix: 2708-05
2 = Only detected compounds shown

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Table 5
Summary of DNAPL Recovery Volume: Well MW-6-32

Date	Pumping Cycles Per Day	Pumping Duration per Cycle (minutes)	Cumulative Pumping Time (hours)	Measured Volume of Liquid within AST (gallons)	Measured Volume of Liquid Recovered (gallons)	Estimated Volume of DNAPL Recovered[1] (gallons)
08-Aug-00	6	10	1.0	6	6	5
15-Aug-00	3	5	3.4	20	20	16
22-Aug-00	3	5	5.1	30	30	24
19-Sep-00	3	5	12.2	50	50	40
22-Sep-00	3	5	13.6	55	55	44
03-Oct-00	3	5	13.6	55	55	44
19-Oct-00	3	5	18.5	70	70	56
16-Nov-00	3	5	25.0	100	100	80
28-Nov-00	3	5	27.7	110	110	88
20-Dec-00	3	5	32.8	130	130	104
18-Jan-01	3	5	39.0	160	160	128
09-Feb-01	3	5	43.2	165	165	132
20-Feb-01	3	5	44.6	165	165	132
30-Mar-01	3	5	45.3	165	165	132
12-Jun-01	3	5	70.6	175	175	140
28-Jun-01	6	10	89.5	180	180	162
12-Jul-01	6	10	106.0	187	187	168
22-Aug-01	6	10	143.9	193	193	174
28-Sep-01	6	10	188.3	220	220	198
14-Nov-01	6	10	237.5	230	230	207
17-Jan-02	6	10	341.3	275	275	248
25-Feb-02	6	10	472.4	348	348	313
15-Mar-02	6	10	491.8	370	370	333
12-Apr-02	6	10	525.31	372	372	333
20-May-02	6	10	574.12	375	375	333
12-Jul-02	6	10	683.6	411	411	370
23-Aug-02	6	10	735.5	425	425	383
13-Sep-02	6	10	760.7	425	425	383
01-Nov-02	6	10	812.6	438	438	394
16-Dec-02	6	10	855.0	445	445	401
28-Jan-03	6	10	1035.0	467 [2]	467	420
05-Feb-03	6	10	1057.8	6	473	426
11-Mar-03	6	10	1063.3	8	475	428
04-Apr-03	6	10	1094.1	11	478	430

Table 5
Summary of DNAPL Recovery Volume: Well MW-6-32

Date	Pumping Cycles Per Day	Pumping Duration per Cycle (minutes)	Cumulative Pumping Time (hours)	Measured Volume of Liquid within AST (gallons)	Measured Volume of Liquid Recovered (gallons)	Estimated Volume of DNAPL Recovered[1] (gallons)
12-May-03	6	10	1144.8	19	486	437
09-Jul-03	6	10	1205.1	28	495	446
06-Oct-03	12	10	1278.8	37	504	454
23-Oct-03	12	10	1327.1	44	511	460
24-Nov-03	12	10	1429.1	49	516	464
29-Dec-03	12	10	1486.5	57	524	472
12-Jan-04	12	10	1532.8	60	527	474
25-Feb-04	12	10	1686.5	75	542	488
30-Apr-04	12	10	1905.5	87	554	499
03-Aug-04	12	10	2026.8	95	562	505
20-Aug-04	12	10	2083.5	95	562	506
29-Sep-04	12	10	2083.6	95	562	506
03-Nov-04	12	10	2118.0	95	562	506
01-Dec-04	12	10	2194.5	101	568	511
30-Dec-04	12	10	2273.8	101	568	511
02-Feb-05	12	10	2273.8	101	568	511
09-Feb-05	12	10	2296.5	107	574	517
10-May-05	12	10	2858.8	107	574	517
16-Jun-05	6	10	2921.0	113	580	522
16-Aug-05	6	10	2931.4	115	582	524
29-Aug-05	6	3	2939.9	120	587	528
07-Oct-05	6	3	2940.9	120	587	528
18-Oct-05	6	3	2947.9	120	587	528
01-Nov-05	6	10	2953.1	120	587	528
07-Nov-05	6	10	2955.9	120	587	528
08-Nov-05	6	10	2957.0	120	587	528
15-Nov-05	6	10	2964.1	131	598	538
16-Nov-05	6	10	2968.1	130	598	538
09-Dec-05	6	10	2977.6	130	598	538
09-Jan-06	6	10	3049.2	140	608	547

Notes: AST = above-ground storage tank
DNAPL = dense non-aqueous phase liquid

1 = DNAPL content is estimated to be 80% of the total liquid volume through June 12, 2001, and 90% subsequent to June 12, 2001 based on direct observations of recovered liquids during pumping.

2 = Contents of tank removed and transported off-site for re-refining by Spencer Environmental, Inc., Portland, Oregon

TABLE 6 – Climatological Summary, On-Site Weather Station

Month-Year	Days Recorded	Data Set Completeness	Measurement Frequency (minutes)	Rain (inches)	Average Wind Speed (mph)	Dominant Wind Direction
Dec-01	17	55%	30	2.13	4.5	N
Jan-02	31	100%	30	5.64	2.7	N
Feb-02	0	0%	-	-	-	-
Mar-02	5	16%	60	1.13	4.2	N
Apr-02	15	50%	60	0.59	2.7	SE
May-02	31	100%	60	2.04	2.7	S
Jun-02	30	100%	60	1.71	3.0	S
Jul-02	31	100%	60	0.20	3.5	S
Aug-02	31	100%	60	0.04	3.3	S
Sep-02	30	100%	60	0.79	2.6	SE
Oct-02	31	100%	60	0.40	1.7	SE
Nov-02	0	0%	-	-	-	-
Dec-02	0	0%	-	-	-	-
Jan-03	19	61%	60	6.30	2.5	N
Feb-03	28	100%	60	2.98	2.7	N
Mar-03	11	35%	60	2.62	2.0	N
Apr-03	0	0%	-	-	-	-
May-03	20	67%	60	0.87	2.5	S
Jun-03	30	100%	60	0.13	3.4	S
Jul-03	31	100%	60	0.00	3.5	S
Aug-03	14	45%	60	0.37	3.1	S
Sep-03	0	0%	-	-	-	-
Oct-03	29	94%	60	3.49	2.4	N
Nov-03	30	100%	60	4.63	2.8	N
Dec-03	31	100%	60	8.72	3.0	N
Jan-04	31	100%	60	5.91	3.5	N
Feb-04	29	100%	60	3.97	2.9	N
Mar-04	31	100%	60	2.15	2.8	SSE
Apr-04	30	100%	60	1.64	2.5	N
May-04	31	100%	60	1.36	2.4	N
Jun-04	30	100%	60	0.89	3.1	S
Jul-04	31	100%	60	0.03	3.3	S
Aug-04	31	100%	60	2.52	3.0	SSE
Sep-04	30	100%	60	1.75	2.6	ESE
Oct-04	31	100%	60	3.50	2.2	N
Nov-04	30	100%	60	2.36	2.0	N
Dec-04	30	97%	60	3.68	2.3	N

TABLE 6 – Climatological Summary, On-Site Weather Station

Month-Year	Days Recorded	Data Set Completeness	Measurement Frequency (minutes)	Rain (inches)	Average Wind Speed (mph)	Dominant Wind Direction
Jan-05	0	0%	-	-	-	-
Feb-05	0	0%	-	-	-	-
Mar-05	0	0%	-	-	-	-
Apr-05	0	0%	-	-	-	-
May-05	27	87%	60	4.19	2.7	N
Jun-05	16	53%	60	0.87	2.7	N
Jul-05	4	12%	60	0.00	2.8	S
Aug-05	29	93%	60	0.00	3.2	SSE
Sep-05	27	90%	60	1.65	2.8	SSE
Oct-05	7	22%	60	0.63	1.7	N
Nov-05	0	0%	-	-	-	-
Dec-05	0	0%	-	-	-	-

NOTE: mph = miles per hour

ENVIRONMENTAL MONITORING REPORT
Third and Fourth Quarter 2005

NW Natural
Gasco Facility
7900 NW St. Helens Road
Portland, Oregon

April 28, 2006

Prepared for:

NW Natural
Portland, Oregon

Prepared by:

Hahn and Associates, Inc.
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HAI Project No. 2708

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1.0 INTRODUCTION

At the request of NW Natural, Hahn and Associates, Inc. (HAI) has prepared this Environmental Monitoring Report summarizing the results of routine monitoring activities that have occurred at the NW Natural, Gasco facility (Figures 1 and 2) during the third and fourth quarters of 2005. On-going environmental monitoring activities that occurred during the third and fourth quarters of 2005 include:

- groundwater quality and elevation data collection;
- on-site weather station monitoring;
- dense non-aqueous phase liquid (DNAPL) recovery system performance monitoring.
- DNAPL measurement in monitoring wells
- visual shoreline inspection

2.0 GROUNDWATER MONITORING ACTIVITIES

2.1 Water Level Monitoring

On September 16, 2005, and December 7, 2005, static water levels were collected from all monitoring wells at the site. All monitoring well measurements were collected with an electric water level indicator (conductive probe). A summary of all well elevations collected to date is included in Table 1.

Contoured groundwater elevation maps, depicting the Surficial Fill Water Bearing Zone (WBZ), as well as the intermediate and deep intervals of the Alluvial WBZ for the September and December monitoring events, are provided as Figures 3 through 8. Additionally, groundwater elevation hydrographs for all wells at the Gasco site are provided in Appendix A.

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2.1.1 *Surficial Fill Water Bearing Zone*

As depicted in Figures 3 and 6, the interpreted groundwater flow direction within the Surficial Fill WBZ was found to be to the north/northeast towards the Willamette River, with an overall calculated hydraulic gradient of 0.020 and 0.021 for the September and December 2005 monitoring events, respectively. This interpreted flow direction and gradient is consistent with historical interpretations.

2.1.2 *Alluvial Water Bearing Zone*

As depicted in Figures 4 and 7, overall groundwater flow direction within the upper Alluvial WBZ (based on wells screened shallower than 85 feet bgs) during September 2005 was north-northeast towards the Willamette River, with a flattening of the gradient within 300 feet of the riverbank. Specifically, hydraulic gradients of 0.021 (toward the river) was calculated for the central portion of the site during both the September and December monitoring events (measured between MW-15-66 to MW-8-56). Hydraulic gradients of 0.003 and 0.001 (toward the river) were calculated along the shoreline for the portion of the site located within 300 feet of the river in September and December, respectively (measured between MW-8-56 and MW-4-57).

As depicted in Figures 5 and 8, overall groundwater flow direction within the intermediate Alluvial WBZ (based on wells screened between 85 to 125 feet bgs) was found to be to the northeast towards the Willamette River, with an average hydraulic gradient of 0.012 (September 2005) and 0.010 (December 2005), as measured between wells MW-14-110 and MW-4-101.

Groundwater elevation data collected in September 2005 indicates a downward hydraulic potential between the Surficial Fill WBZ and the underlying Alluvial WBZ across the site, with the downward vertical gradient (potential) ranging from a low of 0.072 (wells MW-4-35 to MW-4-57) to a high of 0.4674 (MW-8-29 to MW-8-56). A slight upward hydraulic gradient of -0.0005 was present between the deep alluvial WBZ well MW-5-175 and intermediate-depth well MW-5-100 in September 2005.

Groundwater elevation data collected in December 2005 indicates a downward hydraulic potential between the perched Surficial Fill WBZ and the underlying Alluvial WBZ across the site, with the downward vertical gradient (potential) ranging from a low of 0.052 (MW-4-35 to MW-4-57) to a high of

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0.392 (MW-8-29 to MW-8-56). A slight upward hydraulic gradient of -0.0011 was present between deep Alluvial WBZ well MW-5-175 and intermediate-depth well MW-5-100 in December 2005.

In summary, the preceding groundwater elevation data indicate that groundwater flow direction, as well as horizontal and vertical gradients measured during the September and December monitoring events, were similar to previous flow directions and gradients measured at the site.

2.2 Groundwater Sample Collection

The September 2005 groundwater monitoring event at Gasco was initiated on September 16, 2005 and was completed on October 3, 2005. Twenty-six wells were sampled during the September 2005 monitoring event. All groundwater sampling activities were completed in accordance with the DEQ-approved Groundwater Monitoring Plan dated February 16, 2005. Consistent with the Groundwater Monitoring Plan, no groundwater samples were collected for analysis during the December 2005 event.

Low-flow purging was conducted for the collection of a majority of samples as per procedures described within a September 2003 Standard Operating Procedure document, approved by the DEQ in correspondence dated September 17, 2003 for implementation at the Gasco site. In instances where greater than acceptable drawdown occurred during purging (based on low-flow protocols), then standard purge volumes and stabilization protocols were followed (e.g. 3 to 5 well volume purging).

Low-flow purging procedures are designed to minimize turbidity and suspended solids in samples allowing for collection of representative samples. With one exception, a portable stainless steel and Teflon electric submersible or bladder pump, with new polyethylene tubing, was used for purging and sampling at all well locations, with the pump intake placed within the screened interval of all wells. Due to the presence of DNAPL within upper alluvial WBZ well MW-16-45, a disposable bailer was used at this location to prevent product incorporation into the electric submersible or pneumatic bladder pump, a situation that would make decontamination difficult.

Stabilization parameter measurements were collected during low flow purging and sampling with use of a flow-through cell and an in-line multi-

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probe meter, at approximate 3 to 5 minute intervals. Water levels within each well were also measured during the purging process to monitor drawdown. Purging continued until all parameters achieved the minimum stability criteria for three consecutive measurements, which was achieved at all well locations. Parameter measurements recorded during purging were: time, purge volume, water level, temperature, specific conductivity, dissolved oxygen (DO), pH, oxygen reduction potential (ORP), and turbidity. Stabilization criteria are established as readings within 10% for DO, ORP, and turbidity; within 3% for conductivity; within 0.1 pH unit; and within 10 millivolts for ORP. At those locations where drawdown prevented appropriate low-flow sampling, purging continued until between 3 and 5 casing volumes of water were removed and parameters were stable. In cases where wells were purged to dryness (surficial fill WB wells MW-1-22, MW-3-26, and MW-8-29), samples were collected as soon as sufficient recharge occurred.

Field data sheets that document sampling activities at each monitoring well during September 2005 (well purging and groundwater quality indicator measurements) and December 2005 (water levels only) monitoring events, including well purging and groundwater quality indicator measurements, are included in Appendix B.

2.3 Chemical Analyses of Groundwater Samples

All groundwater samples collected as part of the September 2005 groundwater monitoring event were shipped to North Creek Analytical Laboratory, Inc. (NCA), in Beaverton, Oregon, and were analyzed in accordance with specifications provided in the approved groundwater monitoring plan.

Historical analytical results from the Gasco site monitoring well network, including results of the September 2005 monitoring event, are summarized in Tables 3a through 3f. The laboratory reports and chain-of-custody documentation for the September 2005 sampling event are included in Appendix C.

As summarized in Table 4, one equipment blank (MW-7-115) was collected by passing laboratory-supplied deionized water through the decontaminated bladder pump after sampling alluvial WBZ well MW-13-61 and before sampling alluvial WBZ well MW-12-36. Naphthalene (0.0480 µg/l) and

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phenanthrene (0.0218 µg/l) were detected above the Method Reporting Limit (MRL), and estimated values of acenaphthene and fluoranthene (below MRL) were also identified. Higher detection of these and other constituents were identified in MW-13-61 and MW-12-36, and therefore sample integrity does not appear to be influenced by the possible incomplete decontamination process. Sampling order typically proceeds from wells with lower contaminant concentrations to wells with relatively higher contaminant concentrations, thereby mitigating effects that low level PAH carryover might otherwise impart on data interpretation.

Further, one equipment blank was collected from the decontaminated electric submersible pump in the same manner. As summarized in Table 4, the submersible pump equipment blank was taken after sampling MW-4-57 and resulted in the identification of naphthalene (2.36 µg/l), phenanthrene (0.257 µg/l) and several other low level PAHs.

The trace amounts of PAHs that were detected in the equipment blanks are likely attributable to incomplete decontamination of sampling equipment. However, these constituents were detected in samples collected immediately before and after the collection of the equipment blanks at much higher concentrations. Therefore, it does not appear that the integrity of the samples have been compromised through cross-contamination.

Review of laboratory quality assurance and quality control (QA/QC) data, including holding times, surrogate recoveries, method blanks, laboratory duplicates, and matrix spikes, did not identify issues requiring corrective action.

Graphs showing benzene and total polynuclear aromatic hydrocarbon (PAH) concentrations in groundwater through time at all well locations sampled are included in Appendices D and E, respectively. Groundwater contaminant plume maps for benzene, naphthalene, and total cyanide, updated with data available from the September 2005 groundwater monitoring event, are included within Appendix F.

Findings of note from the September / October 2005 monitoring event are as follows:

- A significant decline in aromatic hydrocarbon concentration was noted within the upper alluvial WBZ at the MW-4-57 riverfront well

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location during the September/October monitoring event. For example, benzene concentrations which have consistently been in the 10,000 microgram per liter (µg/l) to 20,000 µg/l concentration-range at this location since monitoring began in 1995, declined to 622 µg/l in October 2005. Well MW-4-57 is 24 feet riverward of recently installed alluvial WBZ extraction well PW-01-80. Aquifer testing utilizing well PW-01-80, involving recovery of approximately 100,000 gallons of groundwater, occurred between August 30 and September 2, 2005. Well MW-4-57 is next scheduled for sampling during the March 2006 time-frame.

- Alluvial WBZ well MW-17-79, located approximately 70 feet upstream from the PW-01-80 / MW-4-57 location, was installed as an observation well for aquifer testing activities at PW-01-80. Well MW-17-79 was sampled during the September/October monitoring event and indicated the presence of only low level aromatic hydrocarbons (e.g., 5.29 µg/l benzene) and total PAHs (49.5 µg/l), and therefore this well provides acceptable delineation of petroleum-related impacts within the upper portion of the alluvial WBZ in the up-river direction from the PW-01 / MW-4 area.

- An increase in benzene and PAH concentrations relative to previous monitoring events was observed within the alluvial WBZ at the MW-13-61 well location during the September monitoring event. Specifically, 161 µg/l benzene and 14.9 µg/l total PAHs were identified at this location in September 2005. Previous monitoring results at this location indicated very low to non-detect concentrations of petroleum constituents. The sudden incidence of low level petroleum at this location may be a result of surface run-off into the flush-mounted well that may have occurred while it was fitted with a pressure transducer / data logger as part of the August/September 2005 aquifer testing activities. This well will be re-developed prior to it's next scheduled monitoring event.

- All other results were consistent with previously identified results or trends.

3.0 FREE PRODUCT RECOVERY SYSTEM

As described in a January 2001 DNAPL Recovery System Report, DNAPL recovery via a pneumatic pump system was initiated at well MW-6-32 in August 2000. From August 10, 2000 through May 9, 2001, the DNAPL recovery system was set to cycle on every 8 hours for 5 minutes of pumping, at an approximate pumping rate of between 0.05 and 0.1 gallon per minute (head dependent). Due to several problems with clogs within the product line, a screen was placed over the pump intake on April 27, 2001. This screen is meant to prevent large particulates or clumps of more viscous DNAPL from entering the pump and tubing, thereby preventing the future occurrence of clogging. At the time of screen placement, approximately 7 feet of DNAPL were measured within the base of the well, consistent with historical DNAPL thicknesses (Figure 10). Subsequent pump removal and repairs have been conducted in February and December 2005, at which time DNAPL thicknesses of approximately 2 feet (February) and 13 feet (December) were measured. Variations in product thickness may be attributable to the timing of the measurement relative to the most recent pumping cycle.

A large decrease in recovery rate was noted subsequent to the April 27, 2001 screen installation, with the new recovery rate measured at approximately 0.025 gallons per minute (gpm). Based on the preceding, in May 2001 the pumping cycle duration was re-set for 10 minutes, with recovery of product found to occur throughout the entire cycle duration. Due to the slow pumping rate, and due to the observed DNAPL recovery for the duration of each cycle, on May 9, 2001 the number of cycles per day was increased from 3 (every 8 hours) to 6 (every 4 hours). In October 2003, the number of cycles a day was further increased to 12 (every 2 hours) in an effort to increase an observed decline in recovery rates. However, due to a significant increase in gas usage with no corresponding increase in DNAPL recovery, the number of cycles per day was dropped back to 6 in May 2005.

Increased gas usage with little DNAPL recovery was found to occur during a majority of 2005, resulting in significant system down-time for nitrogen replacement. The system has undergone much troubleshooting in 2005, with clogged tubing replaced numerous times and re-building of the pump occurring in both February and December. The pump, subsequent to the December 2005 inspection and rebuild, appears to be functioning

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appropriately, with the system operational and indicating an increased DNAPL recovery rate.

The recovery system currently receives weekly inspections to ensure it remains charged with nitrogen and is otherwise operational. DNAPL recovery volume is determined during each routine check of the recovery system by physically measuring the depth of liquid in the product storage tank with the use of a calibrated (in gallons) gauging stick. As of December 9, 2005, approximately 598 gallons of liquid, primarily composed of DNAPL (estimated at 90%, based on previous observations), have been recovered, with a total system operational time of 2,978 hours. Table 5 provides a summary of pump settings and volume of DNAPL recovered through time, while a chart depicting cumulative product recovery from the well is included as Figure 9.

Based on total system operation time and volume of DNAPL recovered through December 2005, an average product recovery rate of approximately 0.2 gallons per hour of pumping has been achieved, with recovery rates showing a marked decline since June 2003, in large part due to maintenance problems with the pump. Maintenance activities that occurred in December 2005 appear to have rectified the problem with declining recoveries.

4.0 FREE PRODUCT MEASURMENT IN EXISTING WELLS

In addition to the above-described DNAPL recovery activities, an evaluation to ascertain the presence or absence of light or dense free phase liquid product within all wells at the Gasco site was completed during the September and December 2005 groundwater monitoring events. The evaluation for light non-aqueous phase liquid (LNAPL) and for DNAPL was conducted by lowering a Waterra HS-1 Hydrocarbon Interface Sensor probe to the base of each well. The probe emits a steady signal upon encountering petroleum hydrocarbon product. Results of the above-described monitoring for the September 2005 event indicated the presence of DNAPL in well MW-16-45 (6.4 feet), MW-10-25 (2.5 feet), and MW-11-32 (1.25 feet). The December 2005 event indicated the presence of DNAPL in well MW-16-45 (6.4 feet), MW-10-25 (2.2 feet), and MW-11-32 (1.3 feet). DNAPL has also been measured at the base of the newly installed aquifer test pumping well PW-01-80, with 1.6 feet of DNAPL being measured on December 7, 2005 . DNAPL thickness, as recorded through time at these

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locations, is depicted in Figure 10. No Product (DNAPL or NAPL) has been identified within other wells at the Gasco site.

5.0 WEATHER STATION MONITORING

Beginning December 16, 2001, weather parameters (wind speed, wind direction, outside temperature, and precipitation) have been collected at the Gasco site on a one-half hour basis (through February 2002) to an hourly basis (March 2002 to present) at a weather station mounted in the vicinity of the carbon treatment unit west of the former tar pond area. Daily and monthly summaries of weather data collected during 2005 are included in Appendix G. Additionally, a monthly summary of rainfall, average wind speed, and dominant wind direction, based on all data collected to date, is included as Table 6.

As indicated on the weather summary reports (Appendix G), and as included on Table 6, several gaps in data collection have occurred since start-up of the weather station. These data gaps have been attributed to brief power losses to the system which resulted in resets and loss of data. Corrective measures have since been attempted to prevent disconnection of the unit's power cord and to incorporate a back-up power supply into the weather station data recorder, however numerous software malfunctions occurred in 2005 resulting in large data gaps. Re-loading of the software in late 2005 and an increase in weather station inspections have been implemented to minimize the gaps in future data availability.

Weather station monitoring data collected to date indicate wind speeds at the site ranging from a monthly average low of 1.7 miles per hour (October 2002) to a monthly average high of 4.5 miles per hour (December 2001).

Figure 11 presents a graph depicting the frequency of occurrence of wind direction at the Gasco as measured during each hourly monitoring event since March 15, 2002. As depicted on Figure 11, wind direction towards the southeastern quadrant (up-river) has predominated since March 2002.

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6.0 RIVERFRONT INSPECTIONS

Weekly river surface inspections and monthly shoreline inspections at the Gasco site were conducted throughout the majority of 1998 and all of 1999. Because river and shoreline conditions were well documented at the site on a monthly basis throughout two overall seasonal cycles, the schedule for riverfront inspections (river surface and shoreline) was revised to a quarterly frequency.

No riverbank inspection was conducted during the third quarter of 2005 due to the Early Action conducted by NW Natural with oversight of the U.S. Environmental Protection Agency. The shoreline inspection for the fourth quarter of 2005 was conducted on December 16, 2005. Shoreline inspection reports for the reporting period are provided in Appendix H. As provided on the inspection reports, no anomalous conditions were identified during the reporting period.

7.0 CURRENT MONITORING SCHEDULE

Environmental monitoring activities will continue during the first quarter of 2006 as follows:

- MW-6-32 DNAPL Recovery System: DNAPL recovery volume and system status to be recorded weekly to ensure operation, system integrity, and optimum DNAPL recovery.
- Weather Station: To be checked and download on a weekly schedule. A new surge protector will be installed in the first quarter 2006 in an effort to correct for power surge / data loss problems.
- Riverfront Inspections: To be conducted once per quarter. The first quarter 2006 inspection will occur during March.
- Groundwater Monitoring: The next scheduled monitoring event will occur during March 2006 and will include site-wide water levels, NAPL check, and collection of groundwater samples from all riverfront wells at the Gasco site. Prior to initiation of this event, a letter request containing rationale for inclusion of additional free cyanide methodology testing for groundwater samples collected from select wells will be provided to DEQ for review.

Koppers020395

8.0 LIMITATIONS AND SIGNATURES

The information presented in this report was collected, analyzed, and interpreted following the standards of care, skill, and diligence ordinarily provided by a professional in the performance of similar services as of the time the services were performed. This report and the conclusions and/or recommendations contained in it are based solely upon research and/or observations, and physical sampling and analytical activities, if any, that were conducted at the Client's request.

The information presented in this report is based only upon activities witnessed by HAI or its contractors, and/or upon information provided to HAI by the Client and/or its contractors. The analytical data presented in this report, if any, document only the concentrations of the target analytes in the particular sample, and not the property as a whole.

Unless otherwise specified in writing, this report has been prepared solely for the use by the Client and for use only in connection with the evaluation of the subject property. Any other use by the Client or any use by any other person shall be at the user's sole risk, and HAI shall have neither liability nor responsibility with respect to such use.

Hahn and Associates, Inc.

Prepared by:

Ben Uhl
Sr. Environmental Scientist

Reviewed by:

Robert Ede, R.G.
Sr. Associate

REGISTERED PROFESSIONAL
OREGON
ROBERT B. EDE
G1823
GEOLOGIST

Date April 28, 2006

9.0 GLOSSARY OF ABBREVIATIONS

BTEX	benzene, toluene, ethylbenzene, xylene
DEQ	Oregon Department of Environmental Quality
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
ESL	Environmental Services Laboratory
gpm	gallons per minute
HAI	Hahn and Associates, Inc.
LNAPL	light non-aqueous phase liquid
ORP	oxygen reduction potential
PAHs	polynuclear aromatic hydrocarbons
RI/FS	Remedial Investigation / Feasibility Study
WBZ	water-bearing zone
µg/l	micrograms per liter

Koppers020397

CONTINGENCY, SPCC
AND
POLLUTION PREVENTION PLAN

KOPPERS INDUSTRIES, INC.

NORTHWEST TERMINAL

PORTLAND, OR

CONTINGENCY PLAN,
SPILL PREVENTION, CONTROL,
AND COUNTERMEASURES (SPCC) PLAN
AND
STORM WATER POLLUTION PREVENTION PLAN
KOPPERS INDUSTRIES, INC.
NORTHWEST TERMINAL
7540 NW Saint Helens Rd.
PORTLAND, OR 97210-3663
July 11, 2002

CERTIFICATION

I here by certify that I have inspected the subject facility, and being familiar with the provisions of 40 CFR 112 for SPCC requirements and 40 CFR 122 for Storm Water Pollution Prevention requirements, attest that this Plan has been prepared in accordance with good engineering practices.

William A. Meisinger, P.E.
Koppers Industries, Inc.
Manager of Engineering
PENNA. # PE-038022-E

Date: 7/11/02

MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Amos S. Kamerer
Plant Manager

7.11.02

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Koppers020400

1.0 INTRODUCTION

This plan has been developed to: a) provide a basis for planning for and responding to potential spills, accidents, fires, or other contingencies and b) describe and implement practices to minimize and control pollutants in storm water discharges and ensure discharge permit compliance. It includes the requirements for the Contingency Plan as required by the Resources Conservation and Recovery Act (RCRA), the Spill Prevention, Control and Countermeasures (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) of the Clean Water Act, and the inventory reporting requirements of the Emergency Planning and Community Right-to Know Act (SARA Title III).

Questions concerning this plan may be directed to:

Amos S. Kamerer	Plant Manager	(503) 286-3681
T.J. Turner	General Foreman	(503) 286-3681

1.1 FACILITY LOCATION

The Northwest Terminal is located in Multnomah County in the city of Portland, OR. The terminal is located on approximately 6.4 acres of leased property. The property owner is the N W Natural, 220 NW Second Avenue, and Portland, OR, 97209. The portion of the property that Koppers Industries leases is addressed as 7540 NW Saint Helens Rd., Portland, OR, 97210-3663. The property is bounded by Saint Helens Road (Oregon State Highway 30) on the south, the N W Natural property extending to the shore of the Willamette River on the north. The N W Natural liquefied natural gas plant on the west. The south end of NW Front Ave. separates Koppers property from Wacker Siltronic Corporation, on the eastern boundary. On average, 6 to 8 people are employed at any one time, at the terminal (3 salaried people, 3 to 5 hourly people). Normal operating hours is from 4:00 p.m. on Sundays through 4:00 p.m. on Fridays. Generally, the plant is closed on the weekends.

1.2 OPERATION

Coal tar pitch is imported via bulk and/or liquid cargo vessels. This product is then stored at the terminal, prior to the distribution to our customers. Outbound shipments are made via tank truck or tank cars.

The solid coal tar pitch is imported via bulk cargo vessels through the Port of Longview, Washington and is then trucked from Longview to the terminal. The liquid coal tar pitch is imported via a bulk cargo vessel that is also equipped with heated storage tanks for hauling the pitch. These receipts arrive at the NW Natural Gasco dock on the Willamette River, where they are pumped from the vessel, through a pipeline that is about 2,400 feet long, to a storage tank at the terminal.

Koppers020401

All products and/or chemicals used or handled through the terminal are covered by material safety data sheets, which are on file. All employees have been trained on the usage of these materials and educated in the proper manner of reading and understanding of the material safety data sheets. This training is mandatory and is given annually.

1.3 COORDINATED EMERGENCY SERVICES

This plan is written to facilitate the quick and efficient coordination of emergency response actions between Koppers Industries, Inc. (Koppers) and any emergency response companies or agencies, which may be needed. Copies of this plan, and updates, are provided to the following:

Oregon, Department of Environmental Quality

Portland Fire Department

City of Portland, Bureau of Environmental Services

US Coast Guard

Pacific Terminal Services, Inc.

Plant Supervisors and Employee's

Instructions on how and when to obtain assistance for emergency situations including agency and contractor phone numbers are included in this plan.

1.4 SPCC AND SWPPP PLAN MAINTENANCE

This Plan must be kept up to date. Notify Koppers' Environmental Program Manager in the event of any changes made. Automatic review, evaluation and recertification by a Professional Engineer are required once every three years from the date of the latest certification. This Plan must also be amended whenever there is a change in design, construction, operation or maintenance which materially affects the facility's potential for discharge, and the amendment fully implemented as soon as possible and no later than within six months.

A copy of this Plan is to be maintained in the plant's main office and the plants control room.

Notify the Environmental Program manager if any amendment needs to be made to this Plan.

2.0 INVENTORY OF OIL AND HAZARDOUS MATERIALS

2.1 Discussion

Various materials used at the Koppers facility are considered hazardous based on the toxicity or flammability of those materials. These include coal tar distillate, coal tar pitch, boiler water treatment chemicals, diesel, gasoline, heat transfer oil and lubricants for plant vehicles and equipment.

2.2 Business Information and Identification

The following information applies to the Koppers Industries Northwest Terminal:

Business Name:	Koppers Industries, Inc.
Business Phone:	(503) 286-3681
Business Fax:	(503) 285-2831
Owner:	Koppers Industries, Inc. 436 Seventh Ave. Pittsburgh, PA 15219
Operator:	Same as owner
SIC Code:	2865
EPA ID Number:	ORD 027734359
Site Address:	7540 NW Saint Helens Road Portland, OR 97210-3663
Mail Address:	Same as above
Type of Business:	Coal Tar Pitch Terminal

2.3 Emergency Contacts/ Emergency Coordinators

Name/Address
Amos S. Kamerer, Plant Manager
5912 Knightsbridge Drive
Portland, OR 97219
Home Phone [redacted] Cellular Phone (503) 705-8748

T.J. Turner, General Forman
17815 NE 152nd. Avenue
Bush Prairie, WA 98606
Home Phone [redacted] Cellular Phone (503) 705-9507

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator, when there is a night shift during the normal 5-day workweek, can be reached at (503) 286-3682 or cellular phone at (503) 250-0672.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, the shift operator will notify the Emergency Coordinator (above) who will assume responsibility for implementation upon his arrival at the terminal. Also, on weekends and holidays when there is no shift work occurring, the terminal is patrolled by NW Natural's Pinkerton Security guards who make rounds through the terminal, hourly. The guards have been provided with a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 14.

2.4 Hazardous Materials Inventory

The products used, or stored on the Koppers facility are listed by tank number in, Table 3.7. (Tank Listings Table) and is found on page 11. These tanks are also shown by number on the site map, found on page 26. All other buildings and structures are also shown on the site map.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids; spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.11, lists all the tanks at the Koppers terminal by number, along with contents and the tank capacities. The location of these can be found on the site map, on page 26.

3.2 Conformance with SPCC Standards and Guidelines

This facility meets the minimum requirements for diversionary structures and equipment to prevent discharged oil or hazardous substances from reaching navigable waters as required by 40 CFR 112.7© by providing secondary containment for all major tanks and process equipment.

The Northwest terminal is in conformance with the applicable guidelines of 40 CFR 112.7 ©. Rainwater is collected, stored and then tested prior to discharge; all in accordance with our NPDES permit requirements. Tank installations are equipped with secondary containment and are regularly inspected by operators. Spill prevention details for equipment and processes are discussed more fully below.

3.3 Inspections and Security

The operator that is on duty, through out each shift checks all operational areas in the plant every 2 hours. Any problems or unusual circumstances which cannot be immediately resolved are reported to the Supervisor.

3.4 General Plant Spill Prevention

A hazardous material spill can occur any place, any time. All employees are prepared to respond immediately to control the situation and to notify management. Containing a spill to the smallest area possible is the first step.

Containment can quickly be constructed using available equipment and supplies; usually by placing dirt, sand, or available absorbent pads or absorbent containment booms around the lower side of a spill. If possible, a spill will be prevented from reaching the surface water drainage where it can spread more rapidly and have greater environmental and health impact.

Employees familiar with the equipment involved supervise loading operations. Buckets and/or pans are placed under hose connections to collect drips. The employees are trained to always be watchful that hoses and/or pipelines can be full of product and that they should take extra care when disconnecting hoses. Properly, and promptly cleanup any drips or spills. Supervisors must be notified of any spills that are outside of the containment areas. Collected materials will be returned to the processes or will be properly containerized for disposal.

3.5 Surface Drainage

The terminal property is at 37' above sea level and our out-fall for pumping off the collected storm water runoff is located on the very southeastern tip of the property, at approximately a 10 ft elevation above a creek that flows to the Willamette River.

In the Northwest terminal there are two run-off patterns for site drainage. The first is directly in front of the office and away from any pitch handling areas. This area would not be threatened by a spill. All other run-off areas from the plant feed into the tank farm and then into a concrete collection sump. Dual sump pumps (one operation and one standby) lift the run-off into the storm water storage tanks #1, #2, #3, #4, #5, and #6. When these tanks fill, they are sampled and the samples are taken to an Oregon Department of Environmental Quality approved laboratory for analysis in accordance with our NPDES permit limits. When the laboratory reports that the test results are within the permit limit parameters, the water is pumped to the out-fall referenced above.

Equipment, including secondary spill containment, has been installed and procedures implemented to prevent oil or hazardous materials from leaving the plant. A spill is most likely to occur in the process area, where it can be contained.

Koppers has installed extensive paving at the coal tar distillate tank car heat exchanger unloading station, including paving between the rail tracks and the loading area for trucks. In addition, a below grade sealed concrete sump was installed as a catch basin. This catch basin has approximately 1500-gallon capacity. Also two-sump pumps have been installed. The first pump is automatically activated and pumps collected storm water into the tank farm storm water run-off, collection system for further handling.

The second pump is energized only when unloading coal tar distillate rail cars. This pump is on a float-activated switch and is piped to #39 tank, which is now designated as the emergency response tank at this location. Tank #39 is of sufficient capacity to hold the gallonage of a full tank car or 20,000 gallons. It is the duty of the loading/unloading employee to clear the catch basin of water, then open the valve to tank #39 and energize the automatic pump. In this way, should a distillate spill occur, all precautions are in place to contain the spill.

In the case of a spill in which hazardous materials or oils reach any of the drainage ditches, immediate action must be taken to contain the spill. Temporary earth dams should be constructed using plant equipment along the ditches, creating a series of impoundments to contain the flow. Sorbent booms may be used to remove containments from the water held behind the dams, is needed.

These dams can only hold back a limited amount of water, so emergency help should be contacted at the first sign that such a spill has occurred or may occur.

3.6 Tank Car Unloading

Tank cars are unloaded at the unloading station, where the process transfer pipelines are all above ground. The potential spill sources in this area include leaks from the process tanks, valves, pumps, and pipe systems. These leaks can best be prevented by proper valve and pump maintenance and equipment inspection during material transfers. Any leaks or drips must be cleaned up immediately.

As part of the operation procedures, drains and outlets on tank trucks and tank cars are checked for leakage before and after each loading and unloading operation. Operations personnel performing loading and unloading activities are instructed to inspect piping and pumps associated with these activities and to report spills or leakage.

The driver performs a visual inspection of the truck and trailer after each loading and if repairs are needed the truck is shopped for repairs.

The operating procedures included in this plan form the basis for the training of operations personnel in the prevention of coal tar distillate or coal tar pitch discharges. Job positions within the Northwest terminal require that new personnel, working in unfamiliar process areas will have a senior experienced employee to guide them. Personnel are also instructed in the operation and maintenance of equipment to prevent discharges.

3.7 Vessel Unloading

As of December 1999 a project was completed which gives this facility the capability of unloading liquid coal tar pitch vessels at the GASCO dock, directly to a new storage tank T-200. The unloading is accomplished through a pipeline that runs from the GASCO dock on the Willamette River to tank T-200. The liquid coal tar pitch is unloaded at an elevated temperature of approximately 400 degrees F. To maintain the liquid pitch at these temperatures there is a companion line that is attached to the outside of the unloading line, with a heat transfer oil running through it to provide the maintenance heat that is required. There is containment on the GASCO dock, at the end of the pipeline, should a release occur. In an effort to minimize the impact of such a release, a leak detection monitoring system has been installed on the heat transfer oil lines, which will automatically shut off the flow of the heat transfer oil, to and from the dock. There is curbed containment at the on shore leak detection monitoring station; and also around the tank T-200 area, should a release occur at either location.

Containment boom is placed to surround the entire unloading/loading area prior to loading or unloading any vessel. In the event of a release of coal tar pitch or heat transfer fluid that reaches the Willamette River, the containment boom will already be in place and Pacific Terminal Services, Inc. (PTSI) personnel will notify the Qualified Individual from Koppers Industries, Inc. and the contracted Oil Spill Response Organization (OSRO) to remediate the discharge. Pacific Terminal Services, Inc. (PTSI) personnel are also equipped to deploy the containment boom in the unlikely event that the heat transfer oil ruptures and the discharge reaches the Willamette River.

The discharges of our liquid coal tar pitch vessels, at the GASCO dock, will be handled through a contract for the tankermen services, with Pacific Terminal Services, Inc. (PTSI). PTSI has amended their operating authority letter with the U. S. Coast Guard, their Oil Spill Contingency Plan, and their Operating Manual, to reflect the addition of the handling our liquid coal tar pitch.

3.8 Tank Farm

The concrete-wall-lined and earth-diked tank farm has a total containment capacity of approximately 2,900,000 gallons. Operators regularly walk and inspect this area, checking for corrosion, leaks or stains, or anything out of the ordinary. They also do any housekeeping, as necessary.

Table 3.8
TANK LISTING TABLE
Koppers Industries, Northwest Plant

Tank No.	Current use	Last contained	Capacity (000)
1.	SW Surge	Crude Tar	660 M
2.	SW Surge	Crude Tar	1065 M
3.	SW Surge	Methyl Solvent	99 M
4.	SW Surge	Lt. Uncorrected Distillate	99 M
11.	SW Surge	Creosote	254 M
12.	SW Surge	Unknown	57 M
17.	SW Surge	Heavy Oil Distillate	20 M
18.	SW Surge	NSR Oil	20 M
19.	SW Surge	P & R Oil	20 M
20.	SW Surge	Creosote	317 M
23.	SW Surge	Lt. Uncorrected Distillate	20 M
33.	Heavy Oil	Heavy Oil Distillate	45 M
34.	SW Surge	NSR Oil.	45 M
39.	SW Surge	Creosote	20 M
53.	SW Surge	Creosote	10 M
65.	Liquid Pitch	Heavy Oil Distillate	761 M
66.	SW Surge	Creosote	191 M
67.	Heavy Oil	Heavy Oil Distillate	102 M
68.	Liquid Pitch	Liquid Pitch	248 M
74.	SW Surge	Creosote	20 M
99.	SW Surge	Creosote	209 M
101.	SW Surge	Creosote	759 M
102.	Fume Tank	Heavy Oil Distillate	9.3 M
200	Liquid Pitch	Liquid Pitch	2100 M
V201	SW Surge	Liquid Pitch	19 M
V207	SW Surge	Liquid Pitch	19 M
240	Heat Transfer Oil	Heat Transfer Oil	2 M
250	Heat Transfer Oil	Heat Transfer Oil	2 M
SW #1	Storm Water (SW)		45 M
SW #2	Storm Water (SW)		45 M
SW #3	Storm Water (SW)		45 M
SW #4	Storm Water (SW)		45 M
SW #5	Storm Water (SW)		20 M
SW #6	Storm Water (SW)		20 M
DSL-1	Diesel Storage	Diesel	4.5 M
DSL-2	Diesel Storage	Diesel	4.5 M

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3.9 Fuel and Lubrication Oil

All fuels and lubricating Oils are stored in the Oil Storage Shed, adjacent to track 5, between the Office and the Service Room buildings. Drums are stored upright and kept sealed and are on containment skids. Dispensing areas are kept clean. Oil drippage is contained. Any minor spills are contained and cleaned up immediately.

3.10 Hazardous Waste Storage Facilities

Hazardous waste is placed in drums when generated. Full drums are stored in the Oil Storage Shed. The drum or drums, are then disposed of through RCRA approved facilities, within less than 90 days.

4.0 EMERGENCY RESPONSE PROCEDURES

4.1 General

This section of the Plan describes the actions that are to be taken by Koppers personnel in response to any injury, accident, fire explosion, or unplanned release of any hazardous material to the air, soil, or water.

4.2 Emergency Coordination

As soon as an employee discovers an emergency situation, that person shall quickly estimate the extent of the problem, take safe and appropriate control action, and then notify the terminal management immediately. Per the list in Section 2.3 page 7, the operator, who is present, will assume the responsibilities of Emergency Coordinator (EC). Other personnel will respond as directed by the EC as needed.

The EC has Koppers Industries' authority to commit plant employees and contract labor and equipment, or to purchase supplies as needed.

Effective communication is vital in any emergency response. All terminal employees have portable two-way radios, which will be used for communication and coordination between the plant offices and yard areas. Phones may also be used between offices.

4.3 Immediate Response

As soon as an employee discovers an emergency situation, he should quickly determine the extent of the problem. If a simple action can be taken to control the situation, such as shutting a valve to stop the flow from a ruptured pipe and the action can be done safely, then the control action should be completed first. If there is no simple safe control action, the operator shall immediately notify the terminal management and any other personnel who may be endangered by the incident, by by two-way radio radio.

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4.4 Response Procedures

4.4.1 Upon discovery or notification that an emergency exists, the EC shall:

- Determine the extent of the emergency.
- Implement plant evacuation, if needed, to prevent injury.
- Call for outside assistance as needed.
- Start immediate control actions.
- Implement cleanup or other responses.
- Notify local, state, and federal agencies as required.
- Notify Koppers Pittsburgh Office.
- Assure completion of cleanup.
- Provide for storage of cleanup material, including hazardous waste.
- Evaluate possible hazards to human health or environment.
- Make a final written incident report.
- Make other notifications as stated in Section 3.5, Emergency Notifications.

Many of these actions may occur concurrently.

4.4.2 Whenever there is a release, fire, or explosion, the emergency coordinator should immediately identify the character, exact source, the amount, and area affected by the incident. This may be done by observation, or review of facility records, or manifests and if necessary, by chemical analysis. Form 4.5.5, pages 17 – 20, should be used to document the information needed for notifications.

4.4.3 Concurrently, the Emergency Coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any hazardous or asphyxiating gases that are generated or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

4.4.4 If the Emergency Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment, outside of the facility, or if the released amount of hazardous or extremely hazardous material exceeds the Reportable Quantity (RQ). These findings shall be immediately reported (within 15 minutes) to the National Response Center as in Section 4.5, Emergency Notifications, all per the Koppers Industries Environmental Incident Communication and Reporting Policy (KII-E-002). A copy of this Policy and the Incident Reporting forms are found in Attachment A to this Plan.

Note: The reportable quantities for Koppers products are listed on pages number 5 & 6 of the Environmental Incident Communication and Reporting Policy, found in Attachment A of this Plan.

If his assessment indicates that evacuation of local areas may be advisable, appropriate local authorities shall be notified immediately. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

4.4.5 During an emergency, the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes or materials at the plant. These measures could include turning water sprays onto tanks, stopping and isolating processes, shutting off power to areas collecting and containing released materials, or moving and isolating other containers.

4.4.6 If some or all operations are stopped in response to an emergency, the emergency coordinator shall monitor tanks, pipes, valves, and other process equipment for leaks, pressure build-up or ruptures wherever appropriate.

4.4.7 Immediately after an emergency, the Emergency Coordinator shall provide for treating, storing, or disposing of recovered materials or wastes, contaminated soil, surface water, or any other material that results from a release, fire or explosion.

4.4.8 Before resuming operations, the Emergency Coordinator shall:

a. Insure that clean up is complete to the point that operations will not interfere or create further potential for hazardous waste release.

b. Insure that all emergency equipment is cleaned and fit for use.

c. If hazardous wastes or a hazardous waste unit has been involved, then advise the Dept. of Environmental Quality and EPA region X that Steps a and b above are complete.

4.4.9 If hazardous wastes or the hazardous waste unit has been involved, the Emergency Coordinator shall submit a written report as requested by the Dept. of Environmental Quality. A copy of the completed report shall be maintained in the Operating Record.

4.5 Emergency Notifications

4.5.1 The Emergency Coordinator shall ensure that the necessary notifications are made. Form 4.5.5 entitled, "Emergency and/or Hazardous Materials Incident Report" is to be used. Page one is organized to provide all of the information needed for the initial verbal notification of the National Response Center of other agencies. As soon as a spill or other incident is discovered, the supervisor/manager who will do the reporting should begin filling in the information.

Page 2 should be used as a log of notification made. Get the position and name of the person who accepts the phone notifications. Also, if an incident number is assigned, as by the National

Response Center, that number should be recorded. As more is learned about the incident, the report should be updated. Updates can be recorded on page 2 as well.

Pages 1,2, and 3, competed either by hand or typed, can be used for the required written notification of agencies. These should be sent with cover litters showing everyone who will get copies. Copies must be kept in the plant's Operating Record.

Finally, page 4 should be used for Koppers Industries internal reporting of additional related information. KII has an obligation to report all spills, which could possibly, impact over-all cleanup work. The complete report, Pages 1,2,3, and 4 should be sent to the Environmental Program Manager including original photographs. He will provide the required notification to Beazer East. Inc.

4.5.2 What spills or incidents must be reported and to whom?

The following is a summary. Note that more than one category may apply.

If outside help is needed. IMMEDIATELY:
Call fire and/or other appropriate emergency agencies describe incident and needed assistance, such as fire suppression, medical aid, evacuation and/or crowd control.

If a release or threatened release of hazardous material: OR

If a health threat or release outside of facility: OR

If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water:

Call 911 for immediate help. If the release involved a Reportable Quantity (RQ) then call both the Oregon Emergency Management Office at 1-800-424-8802 and the National Response Center at 1-800-424-8802.

Such releases that cannot be recovered must also be included in the SARA Title III annual reports.

If the release results in or has the potential to reach the City Storm or Sanitary Sewer drains, IMMEDIATELY:

Call the Duty Officer at 823-7180

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented: IMMEDIATELY AND NOT LATER THAN 24 HOURS:
Call the Oregon Emergency Management Office at 1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:

595 Cottage Street. N.E.
Salem, Oregon 97310

If the release impacts the waters of the United States, a written report must also be sent to the EPA, as follows: Environmental Protection Agency
Director, Region X
1200 Sixth Avenue
Seattle, Wash. 98101

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**
Call the US Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS!**

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone	Cellular Phone
Traci Self, Mgr. Environmental Compliance	412/227-2883	[redacted]	412/913-9358
Mike Juba, Mgr. Health & Safety	412/227-2882		412/897-8407
Randy Collins, Mgr. Loss Control	412/227-2456		412/551-4554

Form 4.5.3

EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Northwest Terminal
Street Address: 7540 N.W. Saint Helens Road.
City/State/Zip: Portland, Or 97210-3663
Phone: (503) 286-3681
EPA ID#: ORD 0267734359

FACILITY: Same as above

DATE OF INCIDENT: _____ TIME OF INCIDENT: _____

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle one) Hazardous Waste Spill, Injury Accident

Other: _____

MATERIAL INVOLVED:

Name	Quantity	Media (soil, water, etc.)

EXTENT OF INJURIES, IF ANY:

_____

_____

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored

_____

Form 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911	_____	_____
Oregon Emergency Management	1-800-452-0311	_____	_____
National Response Center	1-800-424-8802	_____	_____
Oregon OSHA	503-229-5910	_____	_____
City Duty Officer (For Storm, Sewer, and Drain Contamination, only)	503-823-7180	_____	_____
Northwest Natural	503-224-3532	_____	_____
Wacker Siltronics	503-243-2020	_____	_____
Security for FAB #1	Ext. 7420	_____	_____
Security for FAB #2	Ext. 4300	_____	_____
Fuel & Marine Marketing, LLC	503-286-5321	_____	_____

Form 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Manager of Environmental Compliance, Traci Self

Office 412-227-2883
Home 412-247-5515
Cellular 412-913-9358

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

REPORT BY (Name): _____ DATE_____

REPORT REVISED: _____ DATE_____

REPORT REVISED: _____ DATE_____

Table 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of the report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE ON PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND THE RESPONSE ACTIONS TAKEN.

Koppers020417

4.6 Available Equipment

The following equipment is available at the plant:

EQUIPMENT	STORAGE LOCATION
Front-end loaders	1 in the pitch storage building and 1 outside the shop.
1 Pickup Truck	Office parking lot
Absorbent Pads and Booms	Various Emergency Response Cabinets
Lift Truck	Shop area
Portable Pump	Shop area
Sand	Along the wall, to the West of the boiler house

The above equipment can be effectively used to control and clean a spill of oil, hazardous material, or hazardous waste. Trucks and tractors can be used to transport and place soil for containment dams, absorbing spilled liquid, and contaminated soil from cleanup actions. Pumps can be used to pump spilled liquid back into containments. After response action is complete, equipment should be placed on the drip pad or vehicle wash pad and be decontaminated with the steam cleaner prior to being released from the response.

4.7 Emergency Response Contract Service

Koppers has a Corporate Agreement with IT Corporation to provide for any environmental services in the event of an emergency. IT Corporation can be reached 24 hours per day at # 1-800-537-9540. Ask for the "EMERGENCY RESPONSE MANAGER". IT Corporation is to provide notification within 30 minutes after receipt of the emergency call, of its acceptance of the work and their expected response time.

4.8 Fire and Disaster Response Plans

4.8.1 This section of the Plan provides additional information on specific response actions to be taken in the event of a major disaster, emergency, or other disruption. Such an event could include:

- Fire or explosion
- Earthquake
- Strike or civil strife

4.8.2 Fire disasters can occur anywhere in the plant environment, so all employees should be knowledgeable as to the proper method for handling all types of fires, and where the largest potential risk areas are located. Communications with and between plant employees is vital to a safe and effective response.

4.8.3 Designated Response Stations

In the case of a disaster or other major incident, employees shall secure their work areas and processes and then report to the Plant Manager and/or General Foreman, at the main office, if they are not directly involved in Emergency Response.

Plant Office Employees stay at the office. Coordinate outside calls, inquiries, and media contacts.

4.8.4 Evacuation

The need for evacuation shall be signaled by a message over the radio to all employees. All employees shall follow the safest path to meet at the closest location outside the property fence. If the main entrance is **not** affected, the employees should meet at Wacker Siltronics guard shack on the entrance road. If the main entrance **is** affected, than the closed safe location outside the property fence will have to be determined; generally, that would be towards N W Naturals LNG plant or towards the river behind the pencil pitch storage buildings.

Supervisors shall account for all of their employees, notify the EC when they are "all clear" and relay further instructions. An alternate location will be designated and announced at the time of the incident if the Main office is not a safe check-in location.

4.8.5 Fire Suppression Systems

Fire Hose and Hose Reels are located at strategic points around the terminal. Employees must be familiar with ones within their work areas.

Fire Extinguishers are located throughout the plant and on rolling stock. CO-2 and ABC Dry Chemical types are used exclusively.

Dry Fire Water Suppression piping system is located at the ship unloading dock.

4.8.6 Civil Strife, Strike

Emergencies resulting from or shutdowns as a result of, civil strife or strike situations require the control of people entering the plant, both authorized and unauthorized. Local law enforcement agencies can be helpful in achieving this goal, but in-plant security is management's immediate concern. When a total shutdown is planned, and security measures are to be implemented, the following should be observed.

Boiler

- Secure door locks.
- Follow established shutdown procedure.
- Assure that all steam line drains are open

Hazardous Waste Storage Area

- Properly store all hazardous waste drums in the Boiler House.
- Lock doors.

Major Operations

- Secure electrical panels.
- Turn off air compressors and shut valves.
- Store and secure portable tools, cords, hoses, etc.
- Clean up area for safety and fire protection.

Rolling Stock

- Park centrally in area in front of shop.

Gates

- Keep locked at all times.
- Put on new locks to prevent unauthorized entry.

Security Patrols

- Security patrols will be made 24 hours per day.
- Communication will be maintained at all times between the patrols and the main office by radio.

Lighting

- The plant has general yard lighting system consisting of flood lights, streetlights and incandescent lighting. Outdoor lighting in front of the main office is controlled by photocells.

4.9 Medical Emergency Plans

Emergency and first aid supplies are maintained at the following work locations:

Main Office (Main supply Center)
Control Room (Intermediate supply location)
Maintenance Shop (Intermediate supply location)

First aid supplies are intended for use on minor cuts, abrasions, and burns requiring simple care such as band-aids, disinfectant, or ointment. Supplies are also available for the immediate treatment of severe injuries while awaiting professional medical care, such as gauze pads, bandages, and splints.

Any First aid applied at the plant by plant employee's, is in no way intended to replace any needed medical attention, but only to help prior to receiving professional treatment.

If serious Injury occurs, assure that an ambulance is called immediately.

5.0 STORM WATER POLLUTION PREVENTION PLAN

5.1 General

This section of the Plan describes the pollution prevention procedures and facilities for this plant to minimize the impact of storm water runoff to the surrounding environment. This section specifically addresses the requirements of our Storm Water Industrial NPDES Permit.

5.2 Pollution Prevention Objectives and Process

All boiler blowdown water and storm water runoff is collected in our tank farm and is handled under the terms and conditions of our NPDES permit. No discharges are made unless they meet these terms and conditions.

6.0 TRAINING

All plant employees shall receive training on the content of this plan. Supervisors will each receive a copy and become thoroughly familiar with it through training, discussion, and self-study. Supervisors will train their employees in the overall plan and in the specific needs of their work areas.

Training will, at a minimum, include programs to ensure that facility personnel understand basic procedures for pollution prevention and good housekeeping and are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, as applicable to each employee's job function:

- Procedures for using, inspection, repairing, and replacing facility emergency and monitoring equipment;
- Communications and alarm systems;
- Response to fires or explosions;
- Response to ground water or surface water contamination
- Shutdown of operations;
- Methods for the safe handling of hazardous materials;
- Procedures for coordination with local emergency response organizations;
- Use and location of medical supplies;

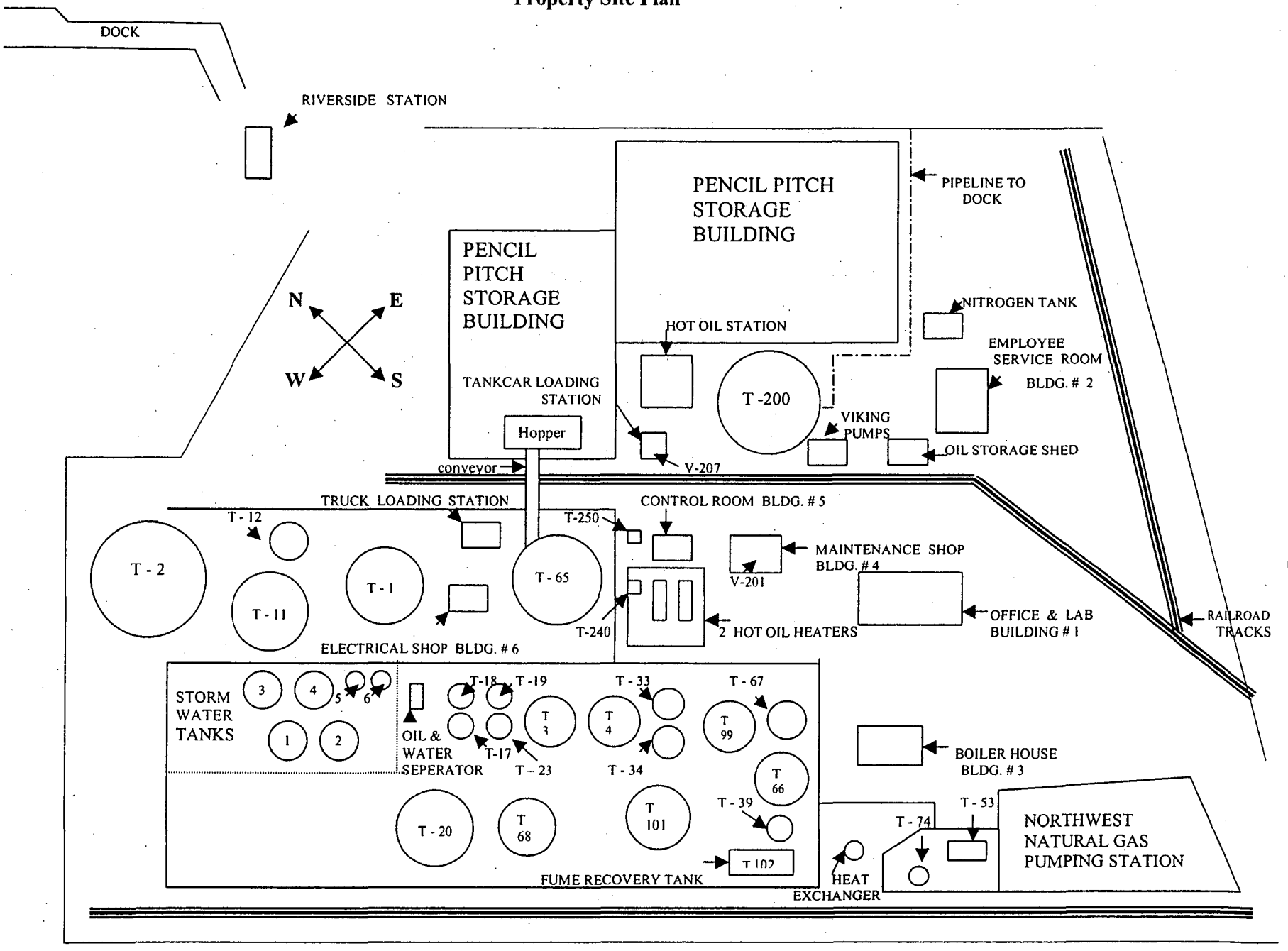
- Use of emergency response equipment and supplies appropriate to work areas;
- Emergency response procedures and plans contained within this SPCC and Contingency Plan.

Refresher training will be provided at least annually. New employees will not work in unsupervised positions until they have completed all training required for those positions. Supervisors will provide training to their employees and management will assure that supervisors are properly trained.

Employees with specific additional job related training needs will also be given that training, such as hazardous waste handling training as required by RCRA and State regulations, hazardous waste operating procedures for fuel additive to the boiler, storm water pollution prevention, and waste water operations.

This training may be coordinated and take place concurrent with Hazard Communication and RCRA training. Safety meetings, and annual updates.

Property Site Plan



Koppers020423

SUBJECT: Environmental Incident Communication and Reporting Policy

SCOPE: All US Plants

ATTACHMENT A

PURPOSE:

The purpose of this policy is to ensure environmental incidents (as described in the "Policy" section below) are:

- acted upon, reported, and documented in accordance with applicable regulations, and
- communicated to appropriate agencies and corporate management in a timely manner.

BACKGROUND:

Environmental regulations require that certain significant incidents, such as oil spills, chemical spills, and unpermitted discharges of hazardous material to the environment be reported to specified agencies. Failure to report such incidents to agencies in a timely manner can subject Koppers or its employees to substantial civil penalties, or if the failure to report is willful or negligent, to both civil and criminal penalties. It is important, therefore, that Koppers employees be aware of incident reporting requirements and that responsibilities and procedures for reporting incidents be clearly established.

Table 1 contains a list of reportable quantities (RQs) for Koppers products. Table 2 contains a list of RQs for commonly used materials. These are provided for reference in the event of a spill and to assist in determining if reporting to an agency is required. Plants will develop lists of the RQs for products on that facility which are not listed herein.

In addition, Koppers management has an interest in understanding the compliance status of its facilities and ensuring proper corrective action is taken in the event of non-compliance. Therefore, this policy covers a wide range of environmental incidents, as described in the "Policy" section.

RESPONSIBILITIES:

The plant manager will:

1. Ensure the contingency/SPCC Plans for the facility are kept updated (minimum annually), that facility personnel are adequately trained and knowledgeable of the plan, and in the event of an incident, implement the plan.
2. Maintain a list of the RQs for all products on that facility not listed in this policy.
3. Ensure all environmental incidents are acted upon according to this policy, are communicated in a timely manner to corporate/division staff, to emergency response

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personnel and appropriate reporting agencies (if required), and ensure follow-up reporting is completed in accordance with this policy.

4. Investigate environmental incidents, determine the root cause of the incident, and implement corrective action to prevent reoccurrence of a similar incident.

5. Ensure all spills, leaks and releases are recorded as follows:

    - *Spills above the RQ*: Complete KII-FORM-E-002 and forward it to the corporate environmental manager and division operations manager.

    - *Spills below the RQ*: Maintain a log, as described in the "POLICY" section below.

The plant manager may delegate the duties listed above, but retains responsibility for their proper execution.

DEFINITIONS:

The following environmental incidents are typical of those that ***must be reported.***

1. ***Reportable Releases:*** A spill, leak, or un-permitted release:

    - Of oil, a refined petroleum product, or a hazardous substance or material of any quantity that enters a navigable waterway or a drainage pathway leading to a navigable waterway, could migrate to an adjacent property or waterway, or causes a film, sheen or discoloration;

    - Of a hazardous substance or material in the form of a vapor, gas, or emission to the ambient air, or a solid or liquid to the ground surface in a quantity equal to or greater than the CERCLA Reportable Quantity (RQ) – (see attached tables for RQs of common materials managed at Koppers sites);

    - Of Koppers products or materials during transport from a Koppers facility to a customer; and

    - In Pennsylvania and Florida, of a hazardous substance or material of greater than 25 gallons to a containment area, structure or facility around an aboveground tank, or of greater than 5 gallons to a synthetic surface (asphalt or concrete), which prevents migration of the material to the environment.

2. ***Other Environmental Incidents:***

    - Discharge of a material in excess of the numerical limit allowed under a facility permit issued under the Clean Air Act, Clean Water Act, permit by rule, or other federal or state laws. An example is where a permitted concentration limit or mass loading limit is exceeded in a water discharge.

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- Occurrences where specified conditions were not maintained as defined in a permit. An example is where a permit specified minimal pressure differential across a bag house filter is not maintained.
- Any malfunction of a pollution control device or monitor.
- Receipt of a notice of violation (NOV) or inspection report indicating compliance deficiencies.
- Any complaint regarding an environmental issue (odor, noise, etc.).

The above lists, although illustrative, are not exhaustive. Any incident that causes or could cause the release of hazardous materials or non-compliance with regulations will be reported in a timely manner to the corporate environmental manager, division operations manager, and regulatory authorities, as required.

POLICY:

1. Action in the event of an environmental incident: The plant will:

a. Take action to contain the spill, leak or un-permitted release and minimize risk of injury or property damage. This may include calling an emergency response contractor.

b. Report as follows:

(1) Releases in excess of the RQ:

(a) Immediately to the National Response Center (NRC) and appropriate state and local authorities (as defined in the Contingency/SPCC Plan).
- Contact a corporate environmental manager before (if possible) or as soon as possible after making the telephone report to the proper authorities.
- For Koppers products in transportation, upon becoming aware of an incident, report the incident telephonically to the NRC and other required authorities (if a report has not already been made).

(b) As soon as possible(via electronic mail or telephone) to:
- Chief Executive Officer
- Vice-President for Safety, Health, and Environmental Affairs
- Division General Manager
- Division operations manager
- Corporate Environmental Manager

(2) All other incidents:

(a) To regulatory authorities, as required by permit or regulation
(b) As soon as possible to:
- Corporate environmental manager

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- Division operations manager

c. Conduct a thorough investigation to determine the root cause of the incident.

d. Take corrective action to ensure the risk of reoccurrence of the incident is minimized. Include a summary of the incident and its root cause in the monthly report for the facility.

e. Develop written reports:

(1) ***For spills in excess of the RQ:***

- Complete an internal incident report (KII-FORM-E-002), and transmit it to the corporate environmental manager and division operations manager within 48 hours following the incident and file a copy at the plant.
- Update the SPCC/Contingency Plan to include notations describing the incident.
- Prepare a follow-up letter, summarizing the incident and response actions taken, for distribution to the proper agencies within 48 hours following the incident. ***This report will be reviewed by the corporate environmental manager prior to transmittal to any agency.***

(2) For spills not in excess of the RQ:

Maintain and update a log for recording information relating to incidents, spills, leaks and releases of material below the applicable RQ. Record the following information:

- the date of occurrence
- the root cause
- how the material was cleaned up
- actions taken to prevent reoccurrence

2. Press statements: Prior to release, all press statements regarding an environmental incident will be reviewed and approved by the division operations manager and the corporate environmental manager.

DISTRIBUTION:

All SH&E Manual Holders

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Table 1

Reportable Quantities for Koppers Products

Commodity[1]	302 RQ (lbs) [2]	RQ (lbs)	RQ (gal)	WT %	Specific Gravity g / cc [3]	Lb/gal [3]	Limiting constituent [4]
Crude Coke Oven Tar	1	110	13	0.905	1.05	8.747	Benzo(a)pyrene
Refined Chemical Oil	100	167	19	59.95	1.04	8.663	Naphthalene
Creosote (P1/P13)	1	1	0.1	100	1.06	8.830	Creosote
Creosote Solution (P2)	1	1	0.1	100	1.06	8.830	Creosote
Coal Tar Pitch – Liquid	1	74	7	1.35	1.3	10.829	Benzo(a)pyrene
Coal Tar Pitch – Pencil	1	74	–	1.35	1.3	10.829	Benzo(a)pyrene
Carbon Black Base No. 1	1	161	17	0.62	1.13	9.413	Benzo(a)pyrene
Pavement Sealer Base	1	104	11	0.96	1.1	9.163	Benzo(a)pyrene
Modified Pavement Sealer Base	1	99	12	1.01	1.01	8.413	Benzo(a)pyrene
Sodium Cresylate	100	244	24	41	1.2	9.996	Cresols
Solvent Grade Coal Tar Naphtha	10	1000	124	1	0.97	8.080	Benzene
Unwashed Coal Tar Naphtha	10	1000	121	1	0.99	8.247	Benzene
Crude Methylnaphthalene Fraction	100	1000	119	10	1.01	8.413	Acenaphthene
Methylnaphthalene Fraction #2	100	714	83	14	1.03	8.580	Acenaphthene
Naphthalene Still Residue	1	263	29	0.38	1.08	8.996	Benzo(a)pyrene
78° Crude Naphthalene	100	100	12	100	1.015	8.455	Naphthalene
80° Refined Naphthalene	100	100	12	100	1.015	8.455	Naphthalene
Topped Tar	1	100	11	1	1.1	9.163	Benzo(a)pyrene
Methylnaphthalene Fraction	100	1000	119	10	1.01	8.413	Acenaphthene
Crude Crystal Free Neutral Oil	10	500	60	2	1	8.330	Benzene
Crude LBTB Low Boiling Crude Bases	10	1250	150	0.8	1	8.330	Benzene
Bottom of Column Oil (BOC)	100	714	83	14	1.03	8.580	Acenaphthene
Pitch Low Volatility 160	1	128	12	0.78	1.32	10.996	Benzo(a)pyrene
Pitch Low Volatility 180	1	233	21	0.43	1.32	10.996	Benzo(a)pyrene
Pitch Low Volatility 200	1	500	45	0.2	1.32	10.996	Benzo(a)pyrene
Pitch Low Volatility 225	1	1111	101	0.09	1.32	10.996	Benzo(a)pyrene
Phthalic Anhydride – Flake	5000	5051	496	99	1.22	10.177	PAA
Phthalic Anhydride – Molten	5000	5000	491	100	1.53	10.177	PAA

(1) Any amount of these substances entering water within a stream or river, or migrating onto an adjacent property is reportable. Substances entering a storm water ditch and having the potential to reach a stream or river may be reportable. A Corporate Environmental Manager should be contacted for guidance when these circumstances exist.

(2) Amounts were taken from 40 CFR Table 302.4 for the Limiting Constituent noted.

(3) Values are for the applicable Commodity.

(4) The hazardous constituent (of all constituents contained in the listed commodity) from which the RQ for the commodity is defined.

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Table 2

Reportable Quantities (RQ's) for Common Materials

Material [1]	RQ (lbs)	RQ (gals)	Comments
Wood Treating Liquids:			
Pentachlorophenol Solution		4 or 10 [2]	
CCA Solution		0.2 or 1.6 [3]	
Coal Tar Creosote / Creosote Solution		0.125	
Oil and Petroleum By-Product Liquids:			
Gasoline, Diesel Fuel, Lubricating and Hydraulic Oil, Other Oil		State and Local Regulations [4]	Call Corporate Environmental Manager
Hazardous Waste:			
CCA *Waste* (FO35)	1 [5]	0.2 [5]	
Creosote *Waste* (FO34)	1 [5]	0.1 [5]	
Pentachlorophenol *Waste* (FO32)	1 [5]	0.1 [5]	If material contains Creosote, RQ for Creosote Waste applies.
Hazardous *Waste* (Toxicity Characteristic or Listed RCRA Hazardous)	Based on the RQ for the hazardous constituent, or if material contains multiple hazardous constituents, the constituent with the lowest RQ applies [6]		May include, among other wastes, boiler and process water treatment chemical wastes, see MSDS information
Hazardous *Waste* (Ignitable, Corrosive, Reactive Characteristics)	100	10	May include, among other wastes, boiler and process water treatment chemical wastes, see MSDS information

(1) Any amount of these substances entering water within a stream or river, or migrating onto an adjacent property is reportable. Substances entering a storm water ditch and having the potential to reach a stream or river may be reportable. A Corporate Environmental Manager should be contacted for guidance when these circumstances exist.

(2) Use the lower RQ amount for concentrated unmixed (40%) pentachlorophenol in diesel oil solution; the higher RQ amount should be used for any mixed (10% or less) pentachlorophenol in diesel oil solution. Applicable state and local regulations for diesel oil should be evaluated.

(3) Use the lower RQ amount for concentrated unmixed 50% or 60% CCA solutions; the higher RQ amount should be used for mixed (6% or less) CCA solutions.

(4) If the material has not entered a drainage way, or under the given circumstances does not have the potential to migrate to an adjacent property or waterway, the Corporate Environmental Manager should be contacted immediately to assist in determining if the release is reportable to applicable agencies based on state and local regulations that may apply. The SPCC Plan should also be reviewed for additional information relating to a release of these materials. See Note (1) above.

(5) This quantity applies, regardless of concentration.

(6) See 40 CFR Table 302.4 for the constituent(s) for which the characteristic of Toxicity is based. The RQ applies to the waste itself, not merely the toxic contaminant contained in the waste. The Environmental Manager at CSG should be contacted for guidance.

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KOPPERS INDUSTRIES

ENVIRONMENTAL INCIDENT REPORT

FACILITY: _____

DATE OF INCIDENT: _____

TIME OF INCIDENT: _____

INCIDENT

Note: IMMEDIATELY MAKE NOTIFICATIONS TO NRC, STATE, LOCAL & KII (AS APPLICABLE)

Type of incident (check all that apply):

	Spill, leak or un-permitted release of oil or hazardous material to the air, ground, or waterway		Complaints of any kind (e.g., odor, noise, etc.)
	Permit limit exceedance or circumstance where specified conditions in a permit were not maintained		Other (Explain) - Malfunction of a pollution control device or monitor, etc.
	Spill or leak of a liquid or solid that is contained on process pad or by other secondary containment		

Location of Incident:

Description of Incident:

Materials involved:

Material/Constituent	Quantity Released	RQ	Exceeded RQ? (Y/N)	Media Affected (soil, water, air)

Notification Log:

Agency	Phone No.	Date	Time	Name of Contact	Notes

Assessment of actual or potential hazards to human health or the environment:

KOPPERS INDUSTRIES

ENVIRONMENTAL INCIDENT REPORT

INVESTIGATION:

Acts or conditions causing incident (root cause):

CORRECTIVE ACTION

Containment and cleanup actions:

Disposition of recovered material:

Material	Quantity	Disposal or Storage Location

Corrective action (describe what has been done or will be done to prevent recurrance):

ADDITIONAL INFORMATION/RECOMMENDATIONS:

AGENCY CONTACT DUE TO THIS INCIDENT (Agency Inspector, Agency issuing NOV):

Include date, time, name, title, agency and summary of inspection/visit:

Indicate whether the plant's SPCC Plan was reviewed and updated as required with information relating to this incident.

☐ Yes ☐ No If no, explain:

Attach photographs (if available) which show the incident area before, and after response action. Mark date and time of each photo.

 # Photos _____

Report completed by:

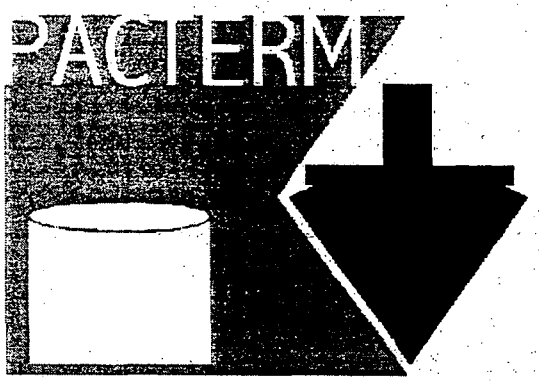
Name: _____

Title: _____ Date: _____

Attach continuation sheets as necessary

PLEASE FAX OR SEND THIS FORM TO THE KOPPERS ENVIRONMENTAL DEPARTMENT

Koppers020431



OPERATIONS MANUAL

PACIFIC TERMINAL SERVICES, INC.

PORTLAND MARINE FUEL OIL FACILITY

FEBRUARY 2000

Koppers020432

Record of Changes

Date of Change	Pages Effected	Date Change Entered	Name of Person Entering Change
August 21, 2000	12, 15	August 21, 2000	Troy Goodman
July 24, 2001	12, 13, 14	July 24, 2001	Tina Garrett
August 8, 2001	App. A	August 8, 2001	Bill Schaeffner
August 31, 2001	1, 2, 4, 5, 10, 12, 15,	August 31, 2001	Tina Garrett
	App. A, App D,		
	Letter		

The purpose of this Record of Changes is to provide for a record of the section amended, the date that the old section was replaced with the amended section, and the initials of the individual making the change. A description of the amendment and its purpose shall also be filed in the form of an amendment letter immediately following the log sheet.

Koppers020433

AMENDMENT DESCRIPTION

August 21, 2000 – 12 – Added Coal Tar Pitch information
15 – Location of hose reel
July 24, 2001 – 12 – Emergency Shutdown
13 – Response materials updated
14 – Procedures for booming updated
August 8, 2001-App. A – Updated PIC List
August 31, 2001 – 1 – Page numbers
2 – After hours contact information changed
4 – Add vessel size information
5 – Direct connect transfer hose operations changed to occasionally
10 – Primary Spill Response Contractor changed
12 – Added reasons for emergency shutdown
15 – Added earthquake emergency inspection procedures
App. A – Updated PIC List
App. D – Added MSDS for marine diesel blend
Letter – Added fire department response letter

Koppers020434

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Appendix A.	LIST OF QUALIFIED PERSONS-IN-CHARGE
Appendix B.	DECLARATION OF INSPECTION
Appendix C.	FACILITY LAYOUT DRAWING
Appendix D.	MATERIAL SAFETY DATA SHEETS

Koppers020435

1. Geographic Location:

The Pacific Terminal Services, Inc. Portland Marine Oil Facility is located at 7900 NW St. Helens Road in Portland, Oregon. The location is one-half mile upstream of the St. John's Bridge on the southwest shore of the Willamette River (near River Mile 6.5).

Geographically, the location of the facility is:

Latitude:	45 degrees 35 minutes North
Longitude:	122 degrees 46 minutes West

The address and 24-hour phone numbers of the facility are:

Facility Name:	**Portland Marine Fuel Oil Facility**
Facility Address:	7900 NW St. Helens Road
	Portland, OR 97210
County:	Multnomah
Telephone:	(503) 286-9621 (24-hour telephone)
	(503) 286-5321 (Boiler Control Room)
Fax:	(503) 286-9794

The procedure for contacting the facility operator on a 24-hour basis is to telephone:
(503) 286-9621

This number is the telephone number of the facility main office that is answered by office staff Monday through Friday, between 0800 and 1700. After hours, this telephone numbers' voice mail will tell callers how to reach the on-call person responsible for handling facility operations and emergencies. Also, if the facility is operating, personnel may be reached by calling (503) 286-5321 in the facility control room.

Facility Operator

The operator of the facility is:
Pacific Terminal Services, Inc.
P.O. Box 24005
Seattle, WA 98124
(206) 628-0051 (24-hour)

Facility Owner

The owner of the facility is:
Northwest Natural Gas Company
220 NW Second
Portland, OR 97209
(503) 226-4211

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The owner of the liquid coal tar pitch pipe line and storage tank is:

Corporate:	Koppers Industries, Inc.	Local:	Koppers Industries, Inc.
	436 Seventh Avenue		7540 NW St. Helens Road
	Pittsburgh, PA 15219		Portland, OR 97210
	(412) 227-2001		(503) 286-3681

2. Description of Facility:

This Operations Manual addresses only the operations of Pacific Terminal Services, Inc. (Pac Term) and those oil storage tanks at the facility leased by FAMM from Northwest Natural Gas Company. Pac Term began operations at this facility in November 1999. Prior to that time Pacific Northern Oil (PNO) operated the facility since August 1978. Prior to that time, others operated the fuel oil terminal. The facility has been in industrial service since the early 1920's. The start up date of the oil storage tanks is unknown.

In addition, PTSI operates the pier and pipeline for receipt of liquid coal tar pitch (molten) for Koppers Industries. Liquid coal tar pitch is pumped from ships through a pipeline from the pier to storage tanks located upland next to NW St. Helens Road. Koppers Industries owns the pipeline, storage tanks and associated process and distribution facilities. Koppers Industries leases the property from NW Natural Gas.

Tanks and Facility Operations

The facility is designed to receive and store various grades of fuel oils and lubricants by truck, rail car, pipeline, barge, or tanker and to mix these various grades of oil together to make marine and industrial fuel oils. These products are delivered by truck or barge. The SIC code for PacTerm is 5171.

In addition, liquid coal tar pitch (molten) is received from ships at the pier and pumped to the Koppers upland storage tanks. At the Koppers Facility, various coal tar pitch products are processed, stored, and distributed by truck and by rail car. The SIC for Koppers Industries is 2865.

Dock Pipelines: Fuel Oil

Fuel oil transfers to and from the facility fuel oil dock are made in three parallel, aboveground pipelines, one 12-inch diameter for heavy fuel oil, one 10-inch diameter for diesel oil, and one 8-inch diameter for cutter oils and marine diesel oil (MDO). The line-fill capacity of the fuel oil line is approximately 63 barrels, the line-fill of the diesel pipeline is approximately 44 barrels, and the line-fill capacity of the cutter/MDO pipeline is approximately 28 barrels. These pipelines run aboveground directly from the tank yard areas to the dock "risers" at the fuel oil dock service platform. All pipelines may be isolated with manually operated gate valves located at the shore end of the dock walkway and at the dock service platform. Refer to the Facility Layout drawing.

Dock Pipelines: Liquid Coal Tar Pitch

Liquid coal tar pitch transfers from the pier to the upland storage tanks are made through a single 8" product transfer pipe. This pipe increases in size to 10" just after crossing the top of the riverbank. The

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pipe is heat "traced" with 1" and 2" hot oil pipes attached to the product pipe. The product and heat trace pipes are completely encased with 6" thick insulation. The heat trace fluid is a petroleum-based oil similar to diesel fuel oil with a higher flash point.

The liquid coal tar pitch transfer pipe has shut off valves at the ship connection on the pier (two valves – one manual and one remotely motor operated), a valve at the top of the river bank (manually operated), and manually operated valves near the storage tanks to direct the product to the proper tank.

The transfer pipe runs above ground from the pier connection to the storage tank area. The total length of the pipeline is approximately 2000'. The product line-fill capacity is approximately 200 barrels from the ship connection on the pier to the shut off valve near the tank. The heat trace line-fill capacity is approximately 5 barrels from the end of the pier to the shut off valves at the meter shed about 150' inshore of the top of the bank.

Volumes of Oil Transfers

Oil tankers delivering products into the tanks have been as large as 50,000 DWT, 700 feet in length, unlimited beam and varying draft depending on river depth. The largest barges have typically had capacities of approximately 100,000 barrels. Actual oil volumes transferred are typically much smaller. The average daily throughput of oil at the facility is approximately 6,500 barrels.

Ships bringing coal tar pitch will discharge about 8,400 metric tons (50,000 barrels) of product. Six to twelve ships a year will discharge at the facility. Each discharge will take 36 to 48 hours. The facility will only "receive" coal tar pitch.

3. Hours of Operation:

The Pacific Terminal Services, Inc. Portland Marine Oil Facility is operated as needed 24 hours a day, 7 days a week.

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4. Vessel Information:

Fuel oil is transferred in bulk to and from oil tank vessels or barges brought to the facility by tug boats. Oil barges may vary in length from 120' to 350' and have oil storage capacities that range between 5,000 barrels and 100,000 barrels. Occasionally, fuel oil is delivered directly to a vessel (such as a tug boat) moored at the fuel oil dock where a fuel oil transfer hose may be directly connected between the facility oil riser valve and the vessel. Vessels taking fuel oil in this manner from the facility may be as long as 200'.

Liquid coal tar pitch (molten) is transferred from ships to upland storage tanks. A steel transfer hose will be directly connected between the ship and the pier transfer pipe connection. The ships are conventional dry bulk/container carriers fitted with special deep tanks for carriage and transfer of liquid coal tar pitch. The deep tanks are approximately 8900 metric ton capacity (approximately 60,000 barrels). The vessels are about 40,000 DWT capacity and approximately 650' long and 95' wide.

Simultaneous Vessel Operations

There is only one vessel berth at the facility fuel oil dock. Simultaneous transfer operations involving two or more vessels do not occur. However, it is common to load or unload trucks, or to unload railroad tank cars, at the tank farm area simultaneously with transfers to or from the dock.

In case of any emergency, such as an oil spill, during simultaneous operations, facility personnel shut down all transfer operation at the facility so that the emergency conditions may be addressed.

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5. Product and Cargo Information:

List of Products Transferred

The common names of the marine fuel oils transferred to or from vessels may include Marine Gas Oil (MGO), Marine Diesel (MDO), Intermediate Fuel Oil (IFO of various viscosity grades), Residual Oil, No. 6 Fuel Oil, and Bunker C (BFO). The proper shipping names of the oil products carried are shown on the Shipping Papers (Bill of Lading) for the cargo.

Generic Chemical Names	Regulatory Names (Refer to 46 CFR 30.25-1)
Marine Gas Oil	Oil, fuel No. 2 or Oil, Diesel
Marine Diesel Oil	Oil, fuel No. 2-D
Intermediate Fuel Oil	Oil, fuel No. 6
Residual Oil, No. 6 Fuel Oil, Bunker C	Oil, fuel No. 6 or Oil, Residual

All of these products have common characteristics, handling hazards, and emergency procedures outlined in the following paragraphs (for more information, refer to North American Emergency Response Guidebook, Guide 128, Flammable Liquids). In addition, Material Safety Data Sheets (MSDS's) contain information about the appearance, odor, and hazards of the oil products transferred. The MSDS's also include instructions for safe handling, first aid, and fire fighting. Typical MSDS's for oil products handled at the facility are included in the Appendix D of this manual. All MSDS's for materials handled at the facility are located in a binder at the facility office. The procedures to follow in case of an oil spill at the facility are covered in the Facility Oil Spill Contingency Plan.

Common Characteristics

Appearance: Amber to black oily viscous liquid appearance.
Odor: Strong hydrocarbon odor.

Handling Hazards

Inhalation, ingestion, or skin or eye contact may irritate or burn skin and eyes
Vapors may cause dizziness or suffocation
Vapors may form explosive mixtures with air
Vapors may travel to ignition source and flash back
Vapors may be heavier than air, spread along ground and collect in low areas or confined spaces
Runoff to sewer may create fire or explosion hazard
Containers may explode when heated
Many liquids are lighter than water
Products may be transported hot

Liquid Coal Tar Pitch

Coal tar pitch is liquid only at elevated temperatures. At ambient temperatures coal tar pitch is a solid. The liquid coal tar pitch will be transferred from the ship at a temperature of 450 F to 500 f. Obviously, personnel must avoid contact with any hot uninsulated surfaces containing the liquid coal tar pitch.

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Generic Chemical Names	Regulatory Names (Refer to 46 CFR 153)
Carbon Pitch Liquid	Coal Tar Pitch (Molten)

The Material Safety Data Sheet (MSDS) contains information about the appearance, odor, and hazards. The MSDS also includes instructions for safe handling, first aid, and fire fighting. A copy of this MSDS is contained in Appendix D.

Common Characteristics

Liquid:	Hot black viscous liquid with strong hydrocarbon/creosote odor.
Solid:	Varies – typically coal like shiny surface but can be chunky or frothy and containing vapor pockets depending on severity of agitation when mixing with water while cooling.
Weight:	Both liquid and solid are heavier than water and will sink in water. Some chunks may float depending on steam/air pockets when mixing at the water surface when cooling.

Handling Hazards

- Hot liquid will cause thermal burns.
- Hot liquid if in contact with water will cause water to boil and result in steam and possible thermal burns if contacted by personnel. A large quantity of the hot liquid spilling into water can cause a violent reaction.
- Inhalation, ingestion, or skin or eye contact may irritate or burn skin and eyes.
- Vapors may cause dizziness or suffocation.
- Vapors may form explosive mixtures with air.
- Vapors may travel to ignition source and flash back.
- Vapors may be heavier than air, spread along ground and collect in low areas or confined spaces.

Hot Oil Trace Fluid

The heat trace fluid for the coal tar pitch pipe is similar to the fuel oils transferred at the facility.

Generic Chemical Names	Regulatory Names (Refer to 46 CFR 30.25.1)
Petroleum Process Oil (98% Distillate)	Similar to Distillate – straight run

The heat trace fluid is manufactured by Exxon Company and is called CALORIA HT 43. The Material Safety Data Sheet (MSDS) contains information for safe handling, first aid and fire fighting. A copy of the MSDS is contained in Appendix D. The product is to be treated the same as any of the petroleum products handled at the facility.

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Safe Handling Instructions

- Ground all equipment
- Wear personal protective equipment including safety glasses, protective gloves, and boots
- Avoid contact with hot liquid and hot surfaces.

Emergency Procedures

First Aid Procedures

- Call for emergency medical care
- Move victim to fresh air
- Apply artificial respiration if victim is not breathing
- Administer oxygen if breathing is difficult
- Remove and isolate contaminated clothing and shoes
- For skin or eye contact, flush with running water for at least 20 minutes
- Wash skin with soap and water
- Keep victim warm and alert
- Alert medical personnel to product hazards and necessary precautions (provide MSDS)

Spill or Leak Procedures

- Isolate spill or leak area
- Keep unauthorized people away
- Stay upwind
- Keep out of low areas
- Ventilate confined spaces beforé entering
- Eliminate all ignition sources
- Do not touch or walk through spilled material
- Stop leak if possible without risk
- Prevent entry into waterways, sewers, or confined spaces
- Reduce vapors with foam
- Absorb or cover with dry earth, sand, or non-combustible material and transfer to containers
- Use clean, non-sparking tools to collect absorbed material
- Solid coal tar pitch will require removal by chipping, scraping, and other mechanical means.

Fire Fighting Procedures

- Fire may product irritating, corrosive and toxic gases
- Runoff from fire control may cause pollution
- For small fires, use dry chemical, CO2, water spray, or regular foam
- For large fires, use water spray, fog, or regular foam. Do not use straight streams.
- Move containers from fire area if possible without risk.

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6. Minimum Number and Duties of Facility Personnel

A minimum of two (2) facility personnel are required for each oil transfer operation between the facility oil tanks and any tank vessel. The **Dock Operator** is the qualified and designated facility **Person-In-Charge**. He is positioned at the fuel oil riser valve on the dock to handle hoses, operate valves, maintain communication with the vessel, and monitor the transfer in accordance with the Operations Manual. The **Shift Supervisor** is positioned at the tank farm to operate the transfer pumps and monitor the oil storage tanks.

For a transfer of liquid coal tar pitch, a Koppers Shift Supervisor will be positioned at the control and monitoring station in the motor control center. Additional Koppers personnel will be on hand in the tank storage area to assist with control and monitoring of the transfer operation.

Personnel on the vessel are present and perform duties in accordance with the vessel's Oil Transfer Procedures.

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7. Emergency Telephone Numbers

In case of either an oil spill or a spill of Kopper's liquid coal tar pitch, the Pac Term designated Qualified Individual (QI) will be the QI. Pac Term's QI is the QI for Koppers Industries.

In case of an emergency, the on-duty shift supervisor shall immediately call:

a. IN CASE OF INJURY, FIRE, OR EXPLOSION

After shutting off all pumps, closing all valves, and assessing details of the emergency, the on-duty shift supervisor will call the following people:

1.	Facility Manager: (Spill Response Manager and Qualified Individual)	Troy Goodman	Office: 206-938-6500 Pager: 206-810-8592 Cell: 206-571-5483
	If no response:	George C. Clark	Office: 206-628-0051 Pager: 888-983-9087 Cell: 206-793-4358
		Rod Gullickson	Office: 206-628-0051 Pager: 800-371-3360 Cell: 206-793-2306
	Koppers Industries Portland Coal Tar Pitch Facility Manager:	Amos Kammerer	Office: 503-286-3681 Home: 503-246-8045 Cell: 503-705-8748
	If no response:	Foreman: T.J. Turner	Office: 503-286-3681 Home: 360-896-5139
2.	Primary Oil Spill Response Contractor Clean Rivers Cooperative		503-220-2040
3.	NWNG Security (at facility gate)		503-286-5250

Immediately, upon receiving the call and details about an oil spill, the QI, or designated alternate QI, will call the following:

1.	USCG National Response Center (NRC)	(800) 424-8802 or (202) 267-2675
2.	Oregon Emergency Response System:	(800)452-0311 or 503-378-6377
3.	Local USCG Marine Safety Office	503-240-9301

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4. Northwest Natural Gas Company
   Sandi Hart at Office: Ext 4322 503-226-4211
   Distribution Dispatch Night Supervisor 503-226-4211

5. Corps of Engineers
   Bill Switazenberg, Shipyard Chief Office: 503-326-5636
   Brandon Smith, Envir. Coord. Office: 503-326-2477

6.Portland Fire Department: 911

If there is no answer at any of these numbers, call the next number, and after 5 minutes, try calling the unanswered number again.

8. Duties of Watchmen for Unmanned Vessels Moored at this Facility

Transfers from the facility do not occur with unmanned vessels. If an unmanned vessel is moored alongside the pier, a watchman shall periodically check the mooring lines and the adjacent water surface for signs of oil leaks (sheen on the water). If a leak is detected, the watchman shall notify the Shift Supervisor. The Shift Supervisor shall start the Spill Response procedures and notify the appropriate persons and/or organizations as appropriate.

9. Communications Systems

During transfer operations, the Persons-In-Charge will use voice communication whenever practical.

If voice communication is ineffective e or impractical, portable radios will be used for communication. These radios will be available to the facility Person-In-Charge and to the vessel Person-In-Charge.

The portable radios used during oil transfers are "intrinsically safe" and suitable for use in Class I, Division I, Group D areas.

In addition, there is a telephone at the fuel oil dock service platform and in the boiler control room.

10. Location of Personnel Shelters

There is a personnel shelter on the fuel oil dock service platform. The personnel shelter is fitted with the following facilities: Operations Manual, Facility Oil Spill Response Plan, Field Manual, electric space heater, and telephone.

11. Description of Drip and Discharge Collection

Fixed containment with at least 3 barrels of capacity for discharge collection is provided at the riser valve location to collect minor leaks, drips, or discharges. The fuel oil dock service platform is constructed to contain spilled oil and rainwater up to a volume of 4,280 gallons. Under the oil riser valves on the service platform there is a fiberglass lined concrete 3-foot deep sump with a capacity of 1,770 gallons. The service platform sump is inspected daily and emptied automatically with a float

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operated, permanently installed pump on the dock service platform. Oil and water is processed through an oil water separator. Recovered oil is returned to the facility tanks and water is discharged under an NPDES permit. This facility does not receive vessel slop.

12. Emergency Shutdown

Fuel Oil

Emergency shutdown of the oil transfer pumps may be done manually by the dock operator by pushing the emergency pump shut off switches located at the ramp just off containment at the loading manifold.. In addition, for emergency shutdown, facility personnel close all valves. Emergency shutdown may be accomplished in thirty (30) seconds.

Coal Tar Pitch (molten)

Coal tar pitch is only received. In an emergency, the ship's Person-In-Charge shall be notified to shut down and secure the shipboard transfer pumps. The PTSI PIC shall close the coal tar pitch control station valves on the pier and then notify the Kopper's Plant Shift Supervisor to close the pipeline valves at the pitch storage tanks. There are manually operated valves at each location. There is a motor operated valve with a manual override at the control station in addition to the manually operated valves. In an emergency, shut down may take up to one minute.

Reasons for Emergency Shutdown:

Injury, fire, flood, earthquake, high winds or electrical storms could necessitate shutdown. It is the responsibility of the Operator 1 on shift to make a determination regarding shutdowns for continued safe operation of the terminal and on site personnel.

13. Monitoring Devices

The Captain of the Port does not require this facility to provide or install monitoring devices at this time. The facility personnel do monitoring visually.

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14. Containment Equipment

Normally, the facility is equipped with the following minimum spill containment and response materials:

a)	Containment Petro Boom in water	400 feet
b)	Sea Curtain boom in water	500 feet
c)	Sea Curtain boom stored in building at Rivers edge for easy access	500 feet
d)	New Sea Curtain boom stored in warehouse On pallets for easy access	700 feet
e)	Sorbent pads	7 bales
f)	Oil snares	5 boxes
g)	Oil sorbent pillows	12
h)	Oil blanket	1
i)	Oil sorbent 3" snake boom	1 bag
j)	Rolled Visqueen	1 – 4 feet x 400-600 feet 1 – 5 feet x 200-400 feet
k)	50 lb bags kitty litter	17
l)	Bird boxes	4 cases
m)	Wilden air Diaphram pumps	2
n)	Gas pumps with 2" set up to be used with Camlock fittings and hoses	2
o)	Spill boom boat – 19 foot aluminum boat With lights tow bar, powered by a 115 horse Johnson outboard, outfitted with safety Devices required.	1
p)	Coast guard approved life vests	7
q)	Floatation jackets – varied sizes, bright Orange, Coast guard approved	5
r)	Rain gear and boots – issued to employees	9 sets

Location

We normally have about 900 feet of containment boom in the water. The rest of the oil containment boom is stored in a large plywood box on the riverbank adjacent to the downstream mooring dolphin at the facility. Sorbent materials are stored in the facility warehouse. The spill response boat is at the mooring location next to the spud barge for instant use.

Access and Deployment

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The spill response boat is moored next to the spud barge. The extra containment boom storage box is accessed from riverbank. Deployment of the containment boom is accomplished as follows: manually, remove the plywood covers of the containment boom storage box. Swing open the boom storage box doors. Manually, pull out the free (leading) end of the containment boom and feed the end into the plywood trough leading to the water to allow the motorboat operator to retrieve the free end of the boom and tie it to a cleat on the stern of the boat. Manually drag the boom section by section from the storage box as the motorboat tows the free end away from the dock.

With the motorboat, make a best effort to tow the containment boom around the spilled oil. This will need to be accomplished as an add on to boom that is already in the water and in the best way to confine the spilled oil to a limited area.

The sorbent materials are deployed by hand as necessary on the water surface to absorb the spilled oil. Reposition and retrieve sorbent materials with pike poles or rakes. Place oil soaked materials and debris in 10 mil plastic bags for collection and proper disposal.

Deployment Time for Adding Boom

Unless there is an injury or fire, there are unforeseen difficulties in equipment shutdown, or there are other mitigation measures necessary, the on-duty facility personnel can access the facility's additional equipment for extra containment or for containing escaped oil in less than 2 hours. With 900 feet of boom in the water and equipment pre boomed at all times, additional boom will be for extra protection only.

The facility containment materials will be sufficient to contain an average most probable discharge. For larger discharges, PTSI will call a Primary Response Contractor listed in Section 7, Emergency Telephone Numbers, of this manual and in the Facility Oil Spill Contingency Plan. The response time for the Primary Response Contractor is estimate to be 2 hours or less.

15. Fire Extinguishing Equipment

Twenty (20) pound dry chemical fire extinguishers are located throughout the facility. There are four fire extinguishers located on the fuel oil dock. One is placed about mid-way on the dock walkway. Another is at the dock-end of the dock walkway. There are two on the dock service platform. All personnel are trained in the proper use of the fire extinguishing equipment.

To operate the fire extinguisher:

Remove the extinguisher from its' mounting bracket
Hold upright
Release nozzle from holder
Pull safety pin
Press lever to activate charge
Squeeze handle on nozzle
Direct discharge at base of flame

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DO NOT direct discharge at surface of burning liquids form closer than 8 feet.

In addition, there are fire hydrants located throughout the facility. The fuel oil dock is fitted with a "dry pipe" fire water system. There is one hose reel located at the dock service platform and another hose reel located at the dock-end of the dock walkway. Additional hose connections are located on the walkway at the upstream dolphin and on the service platform at the beginning of the upstream walkway. Sprinkler heads are spaced evenly under the wooden dock walkway structure. In addition to the dry-pipe system, there are fittings to allow fire department pump trucks to pressurize the fire water system from the shore end of the dock walkway.

To operate the fire hose:

Pull hoses from hose reels until fully extended
Station one man at nozzle and one man at valve
Open valve
Station both men at nozzle
Spray water in side-to-side motion.

16. Emergency Inspection Procedures:

POST – EARTHQUAKE TANKFARM INSPECTION

TO ENSURE YOUR ABOVE GROUND TANKS ARE OPERATING PROPERLY AFTER AN EARTHQUAKE, THE FOLLOWING INSPECTION PROCEDURES ARE STRONGLY RECOMMENDED:

THERE ARE TWO BASIC CRITERIA TO DETERMINE THE SEISMIC RISK FACTOR FOR ABOVE GROUND STORAGE TANKS:

- TALL VS SHORT TANKS -- A TALL TANK HAS A HEIGHT MORE THAN 75% OF IT'S DIAMETER. IF IT IS A TALL TANK, THE RISK OF DAMAGE IN AN EARTHQUAKE IS HIGHER.
- IF THE PRODUCT LEVEL IN THE TANK IS GREATER THAN 75% OF THE TOTAL TANK HEIGHT, THE RISK OF EARTHQUAKE DAMAGE IS HIGHER.

PLEASE CHECK ALL YOUR TANKS AFTER A QUAKE BUT PAY PARTICULAR ATTENTION TO THE TANKS CATEGORIZED ABOVE.:

I. TANK BOTTOMS -- TO ENSURE NO BOTTOM FAILURE HAS OCCURRED, IT IS RECOMMENDED THAT THE TANK INVENTORY BE TAKEN IMMEDIATELY AFTER THE EARTHQUAKE AND AT LEAST TWICE MORE WITHIN 24 HOURS. THIS SHOULD GIVE AN INDICATION AS TO THE CONDITION OF THE TANK BOTTOM.

II. FOUNDATIONS – INSPECT THE TANK FOUNDATIONS FOR DEFORMATION OR NEW CRACKS.

III. TANK SHELL -- IS SUBJECT TO A CONDITION KNOWN AS "ELEPHANTS FOOT" WHERE THE BOTTOM OF THE TANK SHELL WILL BULGE OUTWARD AFTER AN EARTHQUAKE. IT IS IMPORTANT TO MEASURE THE TANK SHELL WITH A STRAIGHT-EDGE (ABOUT 3 FEET LONG) TO DETERMINE IF THE TANK SHELL HAS BULGED OUTWARD AT THE BOTTOM OF THE TANK. SEE API 650 APP E.

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IV. FITTINGS CAN BE DISPLACED DURING A SESMIC EVENT BUT CAN GO BACK TO A NORMAL APPEARANCE. IT IS IMPORTANT FOR ALL FITTINGS, FLANGE BOLTS AND VALVE BOLTS BE RE-TORQUED AFTER A QUAKE.

V. THE DISTANCE OF THE TANK FROM THE FOUNDATION SHOULD BE MEASURED AT ALL POINTS AROUND THE TANK TO ENSURE THE TANK DID NOT SHIFT POSITION ON THE FOUNDATION. ALSO, IT IS IMPORTANT TO MEASURE THE TANK BOTTOM PLATES FROM THE FOUNDATIONS TO ENSURE THEY HAVE NOT "RISEN" AWAY FROM THE FOUNDATION.

VI. GATE VALVES ARE CAST – THEREFORE THEY ARE MORE LIKELY TO BREAK THAN THE PIPELINES THEY ARE ATTACHED TO. PLEASE ENSURE ALL GATES ARE OPERATING SMOOTHLY AND THE CASING HAS NO CRACKS.

VII. RECHECK ALL EXPANSION JOINTS FOR SHEAR DAMAGE.

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17. Maximum System Pressure

The maximum operating pressure of the oil transfer piping is 150 psig. The positive displacement transfer pumps have relief valves set at or below 120 psig. All piping is tested annually at 1.5 times the maximum operating pressure or 225 pounds.

All oil transfer hoses used to transfer oil to marine vessels have design burst pressures of at least 600 psig and maximum allowable working pressures of at least 150 psig. All oil transfer hoses will be liquid pressure tested annually to 1.5 times the maximum allowable working pressure, or 225 psig.

When the oil transfer pipelines are idle and gate valves are closed, the pipelines are protected by pressure relief valves from over pressure caused by thermal expansion of the oil (caused by sunshine or steam heating). The thermal pressure relief valves that automatically open at 100 psig or above to momentarily relieve excessive pressure are spring loaded to re-close.

This facility does not have loading arms.

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18. Procedures for:

Operating Loading Arms

The facility does not have loading arms at the dock.

Transferring Oil

Secure the area around the dock riser valve
Properly place warning signs
Check discharge containment
Check availability of spill response equipment and supplies
Anticipate what to do and who to call in case of a spill

Identify Vessel Person-In-Charge
Agree on the use of common language for communications (English)
Establish and test adequacy of communications devices
Check that vessel moorings are secure
Check for closed overboard discharges, including sea suction valves, on vessel

Hold face-to-face Pre-Transfer Conference with vessel Person-In-Charge
Agree on types and quantities of oil products to be transferred
Agree on safe pumping rates
Review vessel- loading plan and need to stop while topping off or switching tanks
Identify vessel personnel on duty during transfer and time of any watch change
Agree on Emergency Shutdown signals and procedures
Complete and sign the Declaration of Inspection (DOI)
Double check operability of communications systems

Inspect hoses for damage
Deploy and support hose of sufficient length to reach vessel connections, allowing for tide and vessel movements
Make proper hose connections at facility riser valve and at vessel connection
Install bolts in every flange bolt hole or strap down locking ears on "Cam-Lock" quick connect couplings
Check placement of discharge containment
Align and check transfer-piping valves (isolate unused tanks)

Agree with vessel Person-In-Charge to begin transfer
Begin transfer by starting pumps and opening transfer pipeline valves at facility an on vessel
Start with low flow and check for proper connections, valve alignment, and leaks
After thorough system check, slowly bring flow rate to normal operating rate

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Monitor transfer operation continuously

Check hose(s) for kinks or strain
Check pump pressures, adjust flow with pump discharge valve
Check valves, fittings, and connections for leaks
Check water surface for signs of floating oil

Stop the transfer if

Hose becomes kinked or strained
Oil is spilled outside of containment onto the ground or into the water
Communication or power is lost
Lighting becomes inadequate
Weather is bad (such as during an electrical storm)

Completion of Pumping

The procedure for completing the transfer operation is:

Stop the oil transfer pumps at the facility or on the vessel
Close all oil transfer pipeline valves or align valves to reverse flow to establish suction pressure on oil transfer pipeline
Verify with vessel Person-In-Charge that operation is shut down
Empty transfer hoses
Close valves on vessel
Disconnect, drain, and properly stow all equipment and
Cap ends of all pipes and hoses

Transfer of Liquid Coal Tar Pitch (Molten)

The procedure for transferring liquid coal tar pitch (molten) is basically the same as for oil products. The only difference is for the PTSI facility PIC to coordinate with and establish communication with the Koppers Shift Supervisor. Generally, transfer of liquid coal tar pitch (molten) shall not start until the Koppers Shift Supervisor indicates to the PTSI Facility PIC that the transfer pipe and storage tanks are ready to receive and the transfer may start. The procedures for transferring liquid coal tar pitch (molten) to the Koppers Storage tank are as follows:

- Koppers Shift Supervisor to inspect the full length of transfer pipelines from the pier to the tank for leaks and any damage to insulation.
- Koppers Shift Supervisor to insure hot oil heat trace system is lined-up and operating.
- Koppers Shift Supervisor to check transfer pipe and determine it is "up to temperature" for transfer.
- PTSI Facility PIC hold face-to-face pre-transfer conference with Koppers Shift Supervisor. Establish radio communication. Discuss quantity of pitch to be received, pumping rates, and Emergency Shutdown Procedures.
- Koppers Shift Supervisor and PTSI Facility PIC to test adequacy of radio communication.
- PTSI Facility PIC to follow the same procedure as transferring oil.

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- Koppers Shift Supervisor to attend and participate in PTSI Facility PIC pre-transfer conference with the Vessel PIC.
- Koppers Shift Supervisor to establish radio communication with the vessel PIC.
- Koppers Shift Supervisor to inform PTSI Facility PIC when ready to receive.
- During transfer, Koppers Shift Supervisor to monitor storage tank filling and periodically inform the PTSI Facility and Vessel PIC's of progress.

Completion of Pumping.

The procedure for completing the transfer operation is:

- Stop the transfer pumps at the facility or on the vessel.
- Close all transfer pipeline valves or align valves to reverse flow to establish suction pressure on oil transfer pipeline.
- Verify with Vessel PIC that operation is shutdown.
- Empty transfer hoses.
- Disconnect, drain, and properly stow all equipment.
- Cap ends of all pipes and hoses.

Emergencies
In an emergency, the shutdown procedure is:

Alert the vessel Person-In-Charge
Close all oil transfer pipeline valves at the facility and on the vessel
Shut off all pumps
Turn off all engines and sources of ignition
In case of fire or explosion, call 911 and fight small fires or else evacuate area
In case of injuries, call 911 and administer first aid, if feasible, and
In case of oil spill, activate the Facility Oil Spill Contingency Plan.

The emergency shutdown procedure may be accomplished in thirty (30) seconds.

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19. Reporting and Containing Oil Spills

In case of a spill, either an oil spill or a liquid coal tar pitch spill, use the Facility Oil Spill Contingency Plan

- Immediately notify the Vessel Person-in-Charge.
- Take immediate action to stop spillage and limit environmental damage.
- Use containment equipment and supplies to contain and absorb spilled oil.
- Call Primary Resource Contractor for assistance.
- Report the spill to the following:
    - Pac Term Facility Manager, Qualified Individual(QI) or alternate QI.
    - Koppers Industries Facility Plant Manager
    - National Resource Center
    - Oregon Emergency Response System
    - Local US Coast Guard Marine Safety Office
    - Portland Fire Department
    - NWNG Security

A release of liquid coal tar pitch or oil which produces a "sheen" on the water's surface must be reported to the state and federal government agencies, including the National Response Center, immediately. When in doubt, report all spill incidents regardless of the amount of oil or liquid coal tar pitch released or spilled.

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20. Applicable Oil Pollution Laws and Regulations

Oil transfer operations at oil facilities in Oregon are governed primarily by the following federal, state and local laws and regulations:

i. ORS 468, the Oregon State Water Quality Act, which prohibits oil from entering the waters of the state from any ship or facility and which establishes a comprehensive prevention and response program to protect state waters and natural resources.
ii. OAR 347-47, Regulations Pertaining to Oil Spills into Public Waters, which specifies minimum requirements for oil facility spill contingency plans and requirements for oil spill prevention strategies.

c) 29 CFR 1910.1200, the OSHA Hazard Communication Standard, requires employers at facilities handling hazardous chemicals to evaluate potential chemical hazards in the work place, to have written hazard communication programs, and to provide appropriate protective measures. In addition, container labeling, preparation and distribution of material safety data sheets and employees training to communicate chemical hazards and protective measures are required.

d) 33 CFR 154, Facilities Transferring Oil or Hazardous Material in Bulk, is the Coast Guard Regulation for marine transportation related oil facilities. To operate a facility or conduct mobile facility operations, a facility operator must submit a Letter of Intent to the Captain of the Port along with an operations manual for the Coast Guard review and approval. Requirements for equipment including hose assemblies, discharge containment, emergency shutdown, communications, and lighting are given. The destination and qualifications of person-in-charge of oil transfers operations are prescribed as are safety requirements which must be met at the facility.

e) 33 CFR 156, Oil and Hazardous Material Transfer Operations, specifies Coast Guard requirements for conducting oil transfer operations between facilities and marine vessels. The responsibilities, duties and limitations of the facility person-in-charge of transfer operations are specified. The requirements which must be met for a transfer operations are given and include emergency shutdown procedures, communication systems, the duties of the person-in-charge and other transfer personnel. The persons-in-charge are required to hold a conference and to fill out and sign a declaration of inspection prior to beginning any bulk oil transfer.

f) 40 CFR 112, Oil Pollution Prevention, specifies EPA requirements for Spill Prevention, Control and Countermeasures (SPCC) Plans for oil facilities which could discharge oil into navigable waters. SPCC Plans must be prepared in accordance with accepted engineering standards, must be certified by a registered professional engineer, and have the full approval of facility

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management. The plans must address prevention of oil spills and plans for the containment, removal and disposal of oil spills should they occur.

g) Uniform Fire Code, Article 79, Flammable and Combustible Liquids Code, and amendments, if any, adopted by local fire department gives requirements for the storage, use, dispensing, mixing and handling of flammable and combustible liquids. Requirements are given for piping, storage tanks, diked areas, pumps, bulk plants and wharves.

h) b) 33 USC 1231, the Water Pollution Prevention and Control Act (also known as the Clean Water Act) prohibits the discharge of oil or hazardous substance on navigable waters and requires of civil penalties that may be $10,000 or more per violation. 40 USC 2701, the Oil Pollution Liability and Compensation Act of 1990 (also known as the Oil Pollution Act of 1990 or OPA 90), sets out financial responsibilities of parties responsible for oil spills. Those responsibilities include removal cost and damages to natural resources and to real and personal property.

i) 29 CFR 1910.120, the OSHA Hazardous Waste Operations and Emergency Response regulation, specifies the obligation of employers in oil spill clean up operations, including emergency response operations, that may expose employees to safety and health hazards. Employees must use personal protective equipment and follow decontamination procedures. Training is prescribed for employees working ad first responders-awareness level, first responders – operations level, hazardous materials technicians, hazardous material specialists, and an on-scene incident commanders. Annual refresher training for these employees is required. Separate training requirements are given for post-emergency response operations.

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21. Portable Lighting

Transfer operations conducted between sunset and sunrise are illuminated by permanent lighting fixtures at the facility and by lights on vessels that adequately illuminate each transfer connection point.

22. Training and Qualification of Persons-in-Charge

Dock operators and shift supervisors receive apprenticeship, on-the-job training in all aspects of plant operations and oil transfers before they are allowed to work alone. Each new employee undergoes drug and alcohol abuse screening tests. New employees get approximately 2 months of on-the-job training under direct supervision, with a minimum of 48 hours directly supervised vessel loading per USCG regulations to become qualified as a "person-in-charge" of transfer operations. In addition, employees receive training (with certificates) in First Aid and CPR.

The competency of facility personnel is judged by their supervisor(s). Employee training in oil transfer operations is documented in personnel training records. The amount of training required to achieve competency varies based on individual employee learning capabilities.

After at least 48 hours of training and experience in transfer operation, PTSI evaluates the adequacy of training and, if adequate, designates each qualified Person-in-Charge. Once designated, the name of the Person-in-charge is added to the List of Qualified Person-in-Charge, Appendix A.

Product Transfer Training: Includes familiarization with the oil transfer facility operations and equipment, completion of applicable paperwork and record keeping, a review of the oil spill response plan and spill response and prevention training applicable to the employee's role and responsibilities in an oil spill emergency. Training and regular briefings cover the following topics:

a) Hazards of the products handled
b) US Coast Guard regulation in 33 CFR 154 and 33 CFR 156
c) Duties and responsibilities of the Person-in-Charge
d) Purpose and use of the Declaration of Inspection
e) Operation procedures in the Operation Manual
f) Proper and Safe operation and control of facility equipment
g) Operation and control of vessel transfer systems
h) Applicable pollution regulations
i) Oil Spill Response Plan, including reporting and containment procedures
j) CPR and First Aid

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Spill prevention training focuses on human factors, such as tank overflows and incorrect valve alignment, as causes of oil spills.

Spill Response training covers the following topics:

a) Spill Detection
b) Shut Down and Mitigation Procedures
c) Call Out Procedures
d) Notification Procedures
e) Emergency Response Action Plan
f) Use of Primary Response Contractors
g) ICS Purpose, Implementation, and Use.
h) Application laws and regulations\

Before being considered for promotion to shift supervisor, a dock operator usually has approximately 3 years of experience. Once chosen, a shift supervisor candidate gets approximately 6 months on-the-job apprenticeship training with another shift supervisor.

23. Hose Markings

Each hose used for oil or liquid pitch transfers to or from marine vessels will be marked with identifying number and the words "OIL SERVICE ONLY" or "Liquid Pitch Service" and "MAWP 150 PSIG". The records of the manufacturer, assize, length, design burst pressure, maximum allowable working pressure, and annual pressure tests for each oil transfer hose will be maintained at the Pac Term facility office and will be crossed referenced with the identifying number marked on the hose.

24. Tank Vessel Cleaning Operations

The facility does not conduct tank vessel cleaning of stripping operations.

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Appendix A

August 31, 2001
To Whom It May Concern:

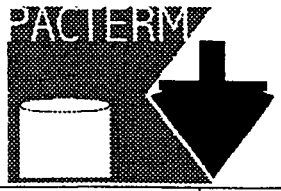
Subject: List of Persons In Charge

Each of the following individuals have met all of the qualifications for designation as a Person In Charge of oil transfer operations at the Pacific Terminal Services Portland Marine Fuel Oil Facility:

- Gary Bucknum
- Bud Dahlen
- Mark Flower
- Trent Hamilton
- Larry Lamb
- Burt Nye
- Bill Schaeffner
- Tracy Wild

And No Others

Appendix B



DECLARATION OF INSPECTION

Before Transfer of Liquid Cargo in Bulk

Date:				
Facility Name:		Address/Location:		
Vessel Name:				
Products Transferred:				
MAWP (psig)	Hose:	Facility Piping:	Vessel Piping	
Communication:	Radio Frequency:		Radio Channel:	

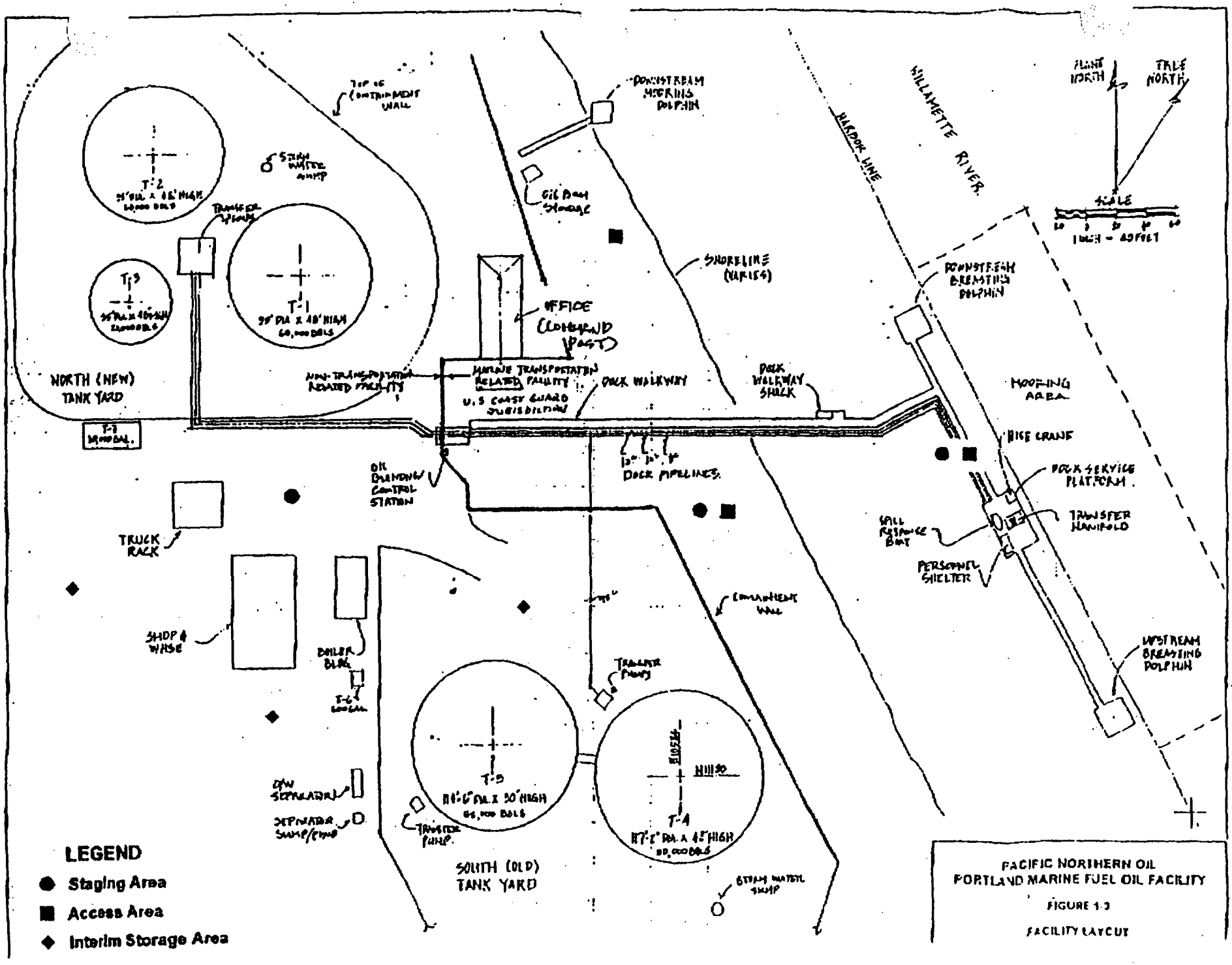
I, the Vessel Person-In-Charge of the transfer of liquid cargo in bulk, do certify that I have personally inspected this vessel with reference to the following requirements set forth in 46 CFR 35.35-30 and that opposite each of the applicable items listed below I have indicated whether the vessel complies will all pertinent regulations.	Vessel PIC
Warning signs displayed (1)	
Permission given for repair work, if any (2)	
Tight connections made, drip pans in place, and valves set (3)	
Fixed connections with no open end hoses through cargo hatches (4)	
No fires or open flames on deck (5)	
Facility ready for cargo transfer (6)	
Sea valves in cargo piping are closed (7)	
Boiler fires, if any, can be safely maintained (8)	
Galley fires, if any, can be safely maintained (9)	
Smoking permitted in designated areas (10)	
Smoking areas are designated (11)	
Inert gas maintained in cargo tanks, if applicable (12)	
Vessel Response Plan ready for implementation (13)	

		33 CFR 156.120	Facility PIC	Vessel PIC
Vessel moorings are strong enough and long enough		(a)		
Hoses are long enough		(b)		
Hoses are supported to prevent kinking or strain on connections		(c)		
Transfer systems are aligned		(d)		
Unused transfer systems are blanked off		(e)		
Unused hose ends are blanked off		(f)		
Fixed connections or automatic nozzles are used on vessel		(g)		
Overboard discharge and sea suction valves closed/sealed on vessel		(h)		
Transfer hose has no unrepaired defects or damage		(i)		
Hose burst pressure, MAWP, and markings meet 33 CFR 154.500		(j)		
Connections meet 33 CFR 158.130		(k)		
Monitoring devices are installed and operating, if required		(l)		
Discharge containment equipment is ready for deployment		(m)		
Small discharge containment is in place under each hose connection		(n)		
Vessel drains and scuppers are mechanically closed		(o)		
All connections are leak free		(p)		
Required communication is operable		(q)		
Emergency Shutdown is operable		(r)		
Vessel and Facility Persons-In-Charge are present per 33 CFR 156.115		(s)		
Each PIC is at the site of the transfer and is immediately available to transfer personnel		(t)(1)		
Each PIC has a copy of the Facility Operations Manual or Vessel Transfer Procedures, as appropriate		(t)(2)		
Each PIC conducts the transfer operations in accordance with the Facility Operations Manual or Vessel Transfer Procedures, as appropriate		(t)(3)		
Required transfer personnel are on-duty		(u)(1)		
Transfer personnel conduct the transfer operations in accordance with the Facility Operations Manual or Vessel Transfer Procedures, as appropriate		(u)(2)		
Both Persons-In-Charge are fluent in English				
The Persons-In-Charge have held a conference to confirm the following:		(w)		
	Products to be transferred	(1)		
	Sequence of transfer operations	(2)		
	Transfer flow rates	(3)		
	Name or title and location of transfer personnel	(4)		
	MAWP;s for hoses and piping at facility and on vessel	(5)		
	Critical stages of transfer operation	(6)		
	Federal, State, and local rules for transfer	(7)		
	Emergency Procedures	(8)		
	Discharge containment procedures	(9)		
	Discharge reporting procedures	(10)		
	Watch and shift arrangement	(11)		
	Transfer shutdown procedures	(12)		
	Agreement on radio frequency for communications, if used	(13)		
Agreement to begin transfer		(x)		
Lighting for nighttime transfer is provided		(y)		
Overfill devices are installed and operating properly, if required		(bb)		
Smoking in designated areas only at facility		(cc)		
Welding and hot work prohibited on vessel during transfer		(dd)		
Smoking on vessel in designated areas only during transfer		(dd)		

As indicated by our initials in the appropriate spaces above and by our signatures below, we, acting as the Facility and Vessel Persons-In-Charge have determined by inspection that the facility or vessel, as appropriate, meet 33 CFR 155.120 and that we are both ready to begin transferring product.

Facility Person-In-Charge	Vessel Person-In-Charge	Start of Transfer	
Name	Name	Date	Time
Title	Title		
Signature	Signature	Completion of Transfer	
Date of Signing	Date of Signing	Date	Time
Time of Signing	Time of Signing		

Appendix C



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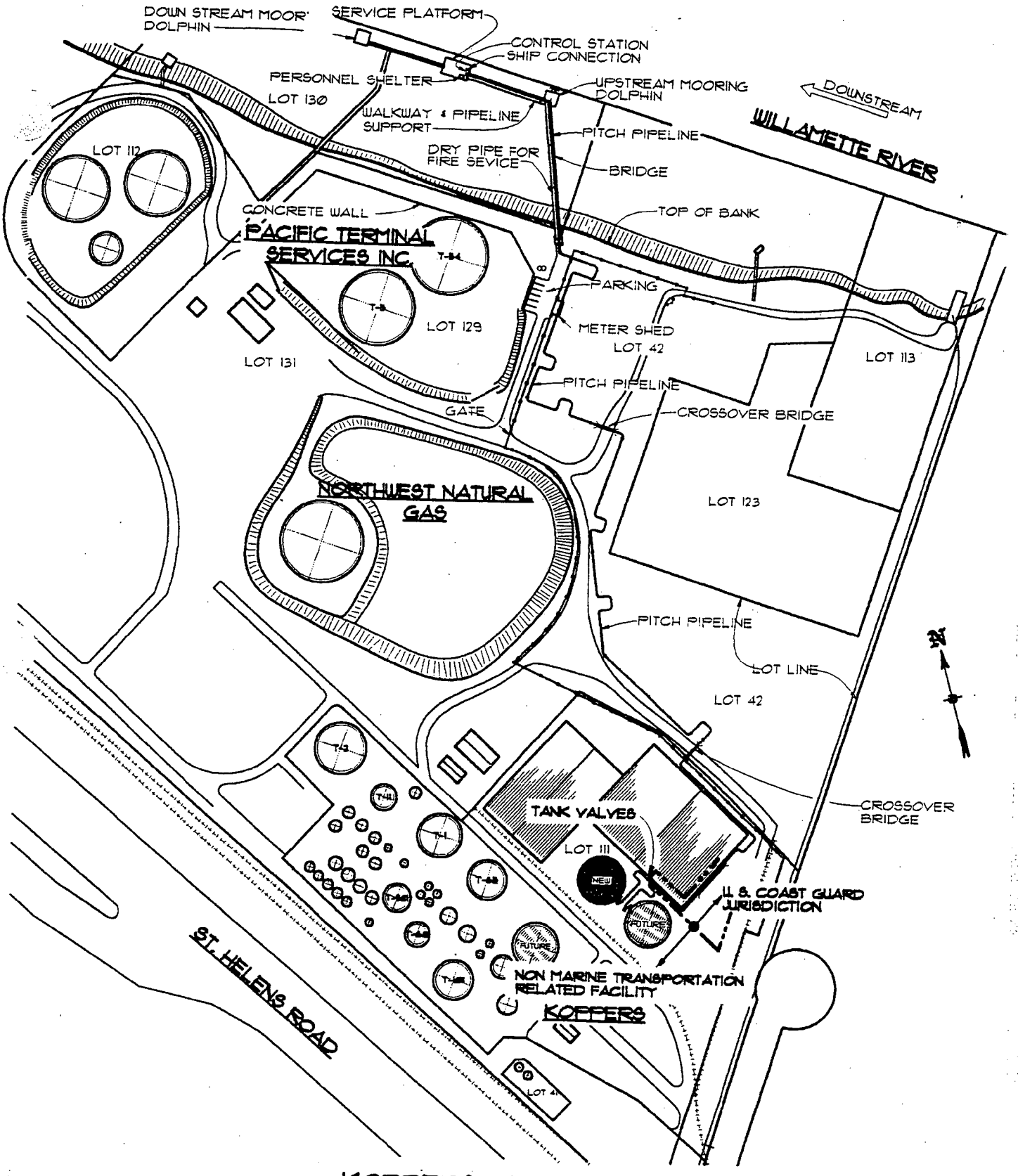
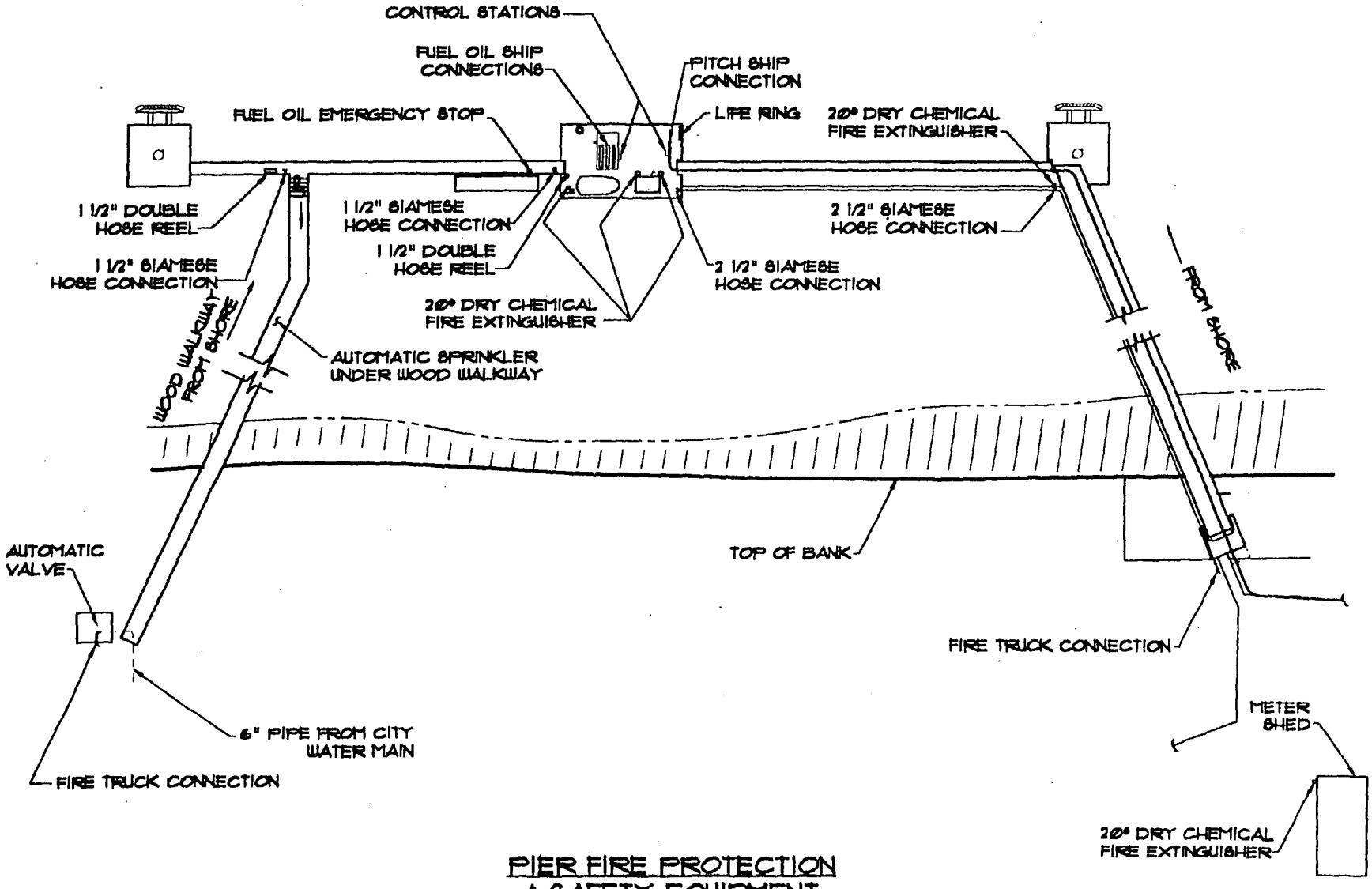


KOPPERS PITCH FACILITY & PITCH PIPELINE

FIG 2-3



PIER FIRE PROTECTION & SAFETY EQUIPMENT

FIG 3-3

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Appendix D

MATERIAL SAFETY D 'A SHEET
(English - FAMM)

FAMM

INTERMEDIATE MARINE FUEL

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATERIAL IDENTITY

Product code and name:
GEN08 INTERMEDIATE MARINE FUEL
Chemical name and/or family or decription:
Marine Fuel Oil
Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Transportation emergency:
(914) 831-3400
CHEMTREC (USA): (800) 424-9300

Health emergency-Company: (914)831-3400

MSDS Assistance (USA): (914)838-7204

2. COMPOSITION/INFORMATION ON INGREDIENTS

Product and/or component(s) Carcinogenic According to:

OTHER

This Material Safety Data Sheet may be used for the following products for Hazard Communications purposes only, not intended to imply identical performance/technical specifications:

03002 Intermediate Marine Fuel IF-30
03003 Intermediate Marine Fuel IF-40
03004 Intermediate Marine Fuel IF-60
03006 Intermediate Marine Fuel IF-80
03008 Intermediate Marine Fuel IF-100
03010 Intermediate Marine Fuel IF-120
03013 Intermediate Marine Fuel IF-150
03015 Intermediate Marine Fuel IF-180
03020 Intermediate Marine Fuel IF-240
03025 Intermediate Marine Fuel IF-280
03030 Intermediate Marine Fuel IF-320
03035 Intermediate Marine Fuel IF-380
03040 Intermediate Marine Fuel IF-420
03045 Intermediate Marine Fuel IF-460

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INTERMEDIATE MARINE FUEL

Name	CAS Nr	Range in %

Name	CAS Nr	Range in %
Atmospheric tower petroleum residues (CAS No. 64741453) or light vacuum petroleum residues (CAS No. 64741566) blended with heavy catalytic cracked petroleum distillates (CAS No. 64741613), light catalytic cracked petroleum distillates (CAS No. 64741599), catalytic cracked clarified petroleum oils (CAS No. 64741624), or pyrolysis fuel oil (CAS No. 69013214) to prescribed viscosity ranges.		100

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

WARNING STATEMENT
WARNING !
FLAMMABLE HEADSPACE VAPORS MAY BE PRESENT
MAY CAUSE DIZZINESS AND DROWSINESS
CONTAINS OR MAY RELEASE HYDROGEN SULFIDE GAS (H2S) H2S GAS IS HARMFUL OR FATAL IF INHALED H2S GAS IS IRRITATING TO EYES AND RESPIRATORY TRACT H2S GAS MAY ACCUMULATE IN CONFINED SPACES
MAY CAUSE EYE IRRITATION
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS CATALYTICALLY CRACKED CLARIFIED OIL WHICH MAY CAUSE CANCER AND BIRTH DEFECTS BASED ON ANIMAL DATA
CONTAINS MIDDLE DISTILLATES WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA
PRECAUTIONARY MEASURES:
-Keep away from heat, sparks or flame.
-Use only with adequate ventilation.
-H2S gas deadens sense of smell. Do not depend on odor to detect presence of gas.
-Use supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Rescue procedures should be attempted ONLY after notifying others of emergency and ONLY if appropriate personal equipment is available.
-Keep container closed.
-Wash thoroughly after handling.
HMIS

Health:
1

3. HAZARD IDENTIFICATION (cont'd)

Flammability:
2
Reactivity:
0
Special:
-
NFPA

Health:
1
Flammability:
2
Reactivity
0
Special:
-
Primary Route of Exposure:
EYES
SKIN
INHALATION
EFFECTS OF OVEREXPOSURE

Acute:

Eyes:
May cause irritation, experienced as mild discomfort and seen as slight excess redness of the eye.
Skin:
Brief contact may cause slight irritation. Prolonged contact, as with clothing wetted with material, may cause more severe irritation and discomfort, seen as local redness and swelling.
Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact, see other effects, below, and Section 11 for information regarding potential long term effects.
Prolonged, widespread, or repeated skin contact may result in the absorption of potentially harmful amounts of material.
Inhalation:
Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea, and drowsiness.
Contains or may release hydrogen sulfide (H2S) gas. H2S concentrations above permissible concentrations can cause irritation of the eyes and respiratory tract, headache, dizziness, nausea, vomiting, diarrhea, and pulmonary edema. At concentrations above 300 ppm, respiratory paralysis, causing unconsciousness and death, can occur Prolonged or repeated overexposure may result in the absorption of potentially harmful amounts of material.

3. HAZARD IDENTIFICATION (cont'd)

Ingestion:
If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur.
Sensitization Properties:
Unknown.
Chronic:
Repeated skin contact may cause a persistent irritation or dermatitis.
Medical Conditions Aggravated by Over Exposure:
Because of its irritating properties, repeated skin contact may aggravate an existing dermatitis (skin condition).
Other Remarks:
Heating or calcining (in temperatures between 350 and 1800 F) or other processing may release particulate and/or gaseous polynuclear aromatic hydrocarbons (polycyclic aromatic hydrocarbons). These are also known as coal tar pitch volatiles. IARC has concluded that there is sufficient evidence for carcinogenicity for coal tar pitches in humans and laboratory animals. The ACGIH TLV/TWA is 0.2 mg/m3.

4. FIRST AID MEASURES

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.
Skin:
Wash skin with plenty of soap and water until all traces of material are removed. Remove and clean contaminated clothing (See Other Instructions). Destroy non-resistant footwear. Get medical attention if skin irritation persists or contact has been prolonged.
Ingestion:
If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.
Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.
Other Instructions:
Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.
Note to Physician:
Inhalation exposure may result in respiratory tract injury, the delayed onset of pulmonary edema, and may predispose patient to secondary respiratory infection. Persons exposed to high concentrations should be hospitalized for observation. Contact a Poison Center for additional treatment information.

5. FIRE-FIGHTING MEASURES

Ignition Temperature - AIT (degrees C):
Not determined.
Flash Point (degrees C):
60.00 (CC)
Flammable Limits (%):

Recommended Fire Extinguishing Agents and Special Procedures:
Use water spray, dry chemical, foam or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers.
Unusual or Explosive Hazards:
Vapor space in closed container can contain hydrogen sulfide (H2S) in explosive concentrations. Hydrogen sulfide gas may be released when heated. Toxic vapors formed on burning.
Extinguishing Media Which Must Not be Used:
Not evaluated.
Special Protective Equipment for Firefighters:
Wear full protective clothing and positive pressure breathing apparatus.
FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Procedures in Case of Accidental Release, Breakage or Leakage:
Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

7. HANDLING AND STORAGE

Precautions to be Taken in

Handling:
This product contains residual fuels which must be considered as a potential flammability risk. Light hydrocarbons may be released in the headspace vapors of bunker tanks, cargo tanks, and land based terminal storage tanks. The headspace vapors may be flammable at temperatures below the flashpoint of the liquid.
Storage:
Store away from heat and open flame. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment (Type)

Eye/Face Protection:
Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.

Skin Protection:
Protective clothing such as coveralls or lab coats should be worn. Launder or dry-clean when soiled. Gloves and boots resistant to chemicals and petroleum distillates required.

Respiratory Protection:
When Hydrogen Sulfide (H2S) concentrations are unknown or are equal to or greater than 10 ppm, (as in such activities as: loading, unloading, guaging, cleaning large spills or upon entry into tanks, vessels, or other confined spaces, and during rescue of individuals suspected to be overexposed to H2S), use supplied-air (airline or self-contained breathing apparatus) respiratory protection (NIOSH/MSHA Approved). The respirators must be equipped with pressure-demand regulators and operated in the pressure-demand mode ONLY. If airline units are used, a 5-minute egress bottle MUST also be carried. GAS MASKS OR OTHER AIR-PURIFYING RESPIRATORS MUST NEVER BE USED FOR H2S DUE TO POOR WARNING PROPERTIES OF THE GAS.

Ventilation:
Local exhaust ventilation recommended if generating vapor, dust, or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

Exposure Control for Total Product:
None established for product. Recommend coal tar pitch volatiles (benzene soluble fraction): Coal tar pitch volatiles: OSHA PEL-TWA 0.2 mg/m3. Hydrogen sulfide: OSHA PEL-TWA 10 ppm, STEL 15ppm. ACGIH TLV-TWA 10 ppm, STEL 15 ppm.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
N.D.

Odor:
Not determined

Boiling Point (degrees C):
Not determined.

Melting/Freezing point (degrees C):
Not applicable.

Specific Gravity (water=1):
Not determined.

pH of undiluted product:
Not applicable.

Vapor Pressure:
Not determined.

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9. PHYSICAL AND CHEMICAL PROPERTIES (cont'd)

Viscosity (degrees C):
30 - 460 cSt (50.00)
VOC Content:
Not determined.
Vapor Density (air=1):
Not determined.
Solubility in Water (%):
Not determined.
Other:
None

10. STABILITY AND REACTIVITY

This material reacts violently with:
Strong Oxidizers
Comments:
None
Products Evolved When Subjected to Heat or Combustion:
Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and ketones. May evolve hydrogen sulfide, sulfur oxides and other sulfur containing compounds.

Hazardous Polimerizations:
No

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose

Oral:
LD50 Believed to be > 5.00 g/kg (rat) practically non-toxic
Inhalation:
Not determined.
Dermal:
LD50 Believed to be > 2.00 g/kg (rabbit) practically non-toxic
Irritation Index, Estimation of Irritation (Species)

Skin:
(Draize) Believed to be > .50 - 3.00 /8.0 (rabbit) slightly irritating
Eyes:
(Draize) Believed to be > 15.00 - 25.00 /110 (rabbit) slightly irritating
Sensitization:
Not determined.

11. TOXICOLOGICAL INFORMATION (cont'd)

Other:

Repeated dermal application of Catalytically Cracked Clarified Oil to experimental animals has been reported to elicit skin cancer, mortality and toxic effects towards the liver, thymus and bone marrow, the latter effect was accompanied by anemia. The kidney and adrenal glands have also been reported as target organs of this material. Dermal application of Catalytically Cracked Clarified Oil to preganant experimental animals has also been reported to elicit toxic effects towards the developing offspring. Catalytically Cracked Clarified Oil has been reported as a genetic toxicant in experimental studies.

Middle distillates have caused skin irritation and skin cancer in laboratory animals when repeatedly applied and left in place between applications. Studies to further evaluate the carcinogenic potential of middle distillates are currently underway. Kidney damage has also been observed in laboratory animals exposed to middle distillates.

A similar product, Texaco Fuel Oil C, is mutagenic to bacteria in the Modified Ames Test.

12. DISPOSAL CONSIDERATIONS

Waste Disposal Methods:

Dispose of this product in accordance with local and/or national regulations.

US/RCRA Waste Disposal Methods:

This product (as presently constituted) has the RCRA characteristics of ignitability, and, if discarded in its present form, would have the hazardous waste number of D001. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may change the classification to non-hazardous, or hazardous for reasons other than, or in addition to ignitability.

Remarks:

None

13. TRANSPORT INFORMATION

DOT:

Diesel fuel

3

Identification Number:

UN1202

Packing Group:

III

Label Required:

Flammable liquid

IMDG:

Not evaluated

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13. TRANSPORT INFORMATION (cont'd)

ICAO:
Not evaluated
TDG:
Not evaluated

14. REGULATORY INFORMATION

Regulatory Information:

SARA 311 Hazard Categorization:
Acute
Chronic
Fire
Regulated Chemicals:

WHMIS:
Not determined
Regulatory Comments:
This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

The Japanese Ministry of International Trade and Industry (MITI) inventory status of this product has not been determined.

The European Inventory of Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS) status of this product has not been determined.

The Canadian Domestic Substances List (DSL) status of this product has not been determined.

The Australian Inventory of Chemical Substances (AICS) status of this product has not been determined.

15. ENVIROMENTAL INFORMATION

Aquatic Toxicity:
Not determined.
Mobility:
Not determined.
Persistence and Biodegradability:
Not determined.
Potential to Bioaccumulate:
Not determined.
Remarks:
None

16. OTHER INFORMATION

Other Information:

Hazardous concentrations of hydrogen sulfide (H2S) gas can accumulate in storage and rundown tanks, marine vessel compartments, sump pits or other confined spaces. When opening valves, hatches and dome covers, stand upwind, keep face as far from the opening as possible and avoid breathing any gases or vapors. When exposure concentrations are unknown and respiratory protection is not used, personal H2S warning devices should be worn. These devices should not be relied on to warn of life threatening concentrations. H2S fatigues the sense of smell rapidly. The rotten egg odor of H2S disappears quickly, even though high concentrations are still present. The ACGIH TLV/TWA for H2S is 10 ppm, the ACGIH STEL is 15 ppm.

Texaco recommends that all exposures to this product be minimized by strictly adhering to recommended occupational controls procedures to avoid any potential adverse health effects.

The ash from combustion products will contain nickel, vanadium, and other potentially toxic heavy metal oxides. Take appropriate precautions to avoid contact with and inhalation of ash from combustion and exhaust spaces.

THIS PRODUCT IS INTENDED FOR USE AS A FUEL ONLY.

17. PRODUCT LABEL

MATERIAL IDENTITY

Product code and name:
GEN08 INTERMEDIATE MARINE FUEL

This Material Safety Data Sheet may be used for the following products for Hazard Communications purposes only, not intended to imply identical performance/technical specifications:

03002 Intermediate Marine Fuel IF-30
03003 Intermediate Marine Fuel IF-40
03004 Intermediate Marine Fuel IF-60
03006 Intermediate Marine Fuel IF-80
03008 Intermediate Marine Fuel IF-100
03010 Intermediate Marine Fuel IF-120
03013 Intermediate Marine Fuel IF-150
03015 Intermediate Marine Fuel IF-180
03020 Intermediate Marine Fuel IF-240
03025 Intermediate Marine Fuel IF-280
03030 Intermediate Marine Fuel IF-320
03035 Intermediate Marine Fuel IF-380
03040 Intermediate Marine Fuel IF-420
03045 Intermediate Marine Fuel IF-460

Koppers020479

17. PRODUCT LABEL (cont'd)

Atmospheric tower petroleum residues (CAS No. 64741453) or light vacuum petroleum residues (CAS No. 64741566) blended with heavy catalytic cracked petroleum distillates (CAS No. 64741613), light catalytic cracked petroleum distillates (CAS No. 64741599), catalytic cracked clarified petroleum oils (CAS No. 64741624), or pyrolysis fuel oil (CAS No. 69013214) to prescribed viscosity ranges.
CAS | % 100.00

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).
WARNING STATEMENT
WARNING !
FLAMMABLE HEADSPACE VAPORS MAY BE PRESENT
MAY CAUSE DIZZINESS AND DROWSINESS
CONTAINS OR MAY RELEASE HYDROGEN SULFIDE GAS (H2S) H2S GAS IS HARMFUL OR FATAL IF INHALED H2S GAS IS IRRITATING TO EYES AND RESPIRATORY TRACT H2S GAS MAY ACCUMULATE IN CONFINED SPACES
MAY CAUSE EYE IRRITATION
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS CATALYTICALLY CRACKED CLARIFIED OIL WHICH MAY CAUSE CANCER AND BIRTH DEFECTS BASED ON ANIMAL DATA
CONTAINS MIDDLE DISTILLATES WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA
PRECAUTIONARY MEASURES:
-Keep away from heat, sparks or flame.
-Use only with adequate ventilation.
-H2S gas deadens sense of smell. Do not depend on odor to detect presence of gas.
-Use supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Rescue procedures should be attempted ONLY after notifying others of emergency and ONLY if appropriate personal equipment is available.
-Keep container closed.
-Wash thoroughly after handling.
HMIS

Health:
1
Flammability:
2
Reactivity:
0
Special:
-

17. PRODUCT LABEL (cont'd)

NFPA

Health:
1
Flammability:
2
Reactivity
0
Special:
-

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

Skin:
Wash skin with plenty of soap and water until all traces of material are removed. Remove and clean contaminated clothing (See Other Instructions). Destroy non-resistant footwear. Get medical attention if skin irritation persists or contact has been prolonged.

Ingestion:
If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.

Note to Physician:
Inhalation exposure may result in respiratory tract injury, the delayed onset of pulmonary edema, and may predispose patient to secondary respiratory infection. Persons exposed to high concentrations should be hospitalized for observation. Contact a Poison Center for additional treatment information.

FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

DOT:
Diesel fuel
3

Identification Number:
UN1202

Packing Group:
III

Label Required:
Flammable liquid

17. PRODUCT LABEL (cont'd)

Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Telephone numbers:

Transportation emergency:
(914) 831-3400
Health emergency-Company: (914) 831-3400

Product Code	:GEN08
Date Issued: 1999-10-25	Supersedes:

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT FOR PURPOSE OF HAZARD COMMUNICATION AS PART OF THE COMPANY'S PRODUCT STEWARDSHIP PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL THE COMPANY'S PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL THE COMPANY'S PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN. TO DETERMINE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, USER SHOULD CONSULT HIS LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. THE COMPANY DOES NOT UNDERTAKE TO FURNISH ADVICE ON SUCH MATTERS.

CALORIA HT 43
EXXON COMPANY, U.S.A

DATE ISSUED: 02/22/95
SUPERSEDES DATE: 09/15/93

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
CALORIA HT 43

PRODUCT CODE
333296

PRODUCT CATEGORY
Petroleum Process Oil

PRODUCT APPEARANCE AND ODOR
Clear liquid, light yellow color
Faint petroleum hydrocarbon odor

MEDICAL EMERGENCY TELEPHONE NUMBER
(713) 656-3424

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Greater than 99%
or	or	
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	
Proprietary additives	Mixture	Less than 1%

This product, as manufactured by Exxon, does not contain polychlorinated biphenyls (PCB's).

All components of this product are listed on the U.S. TSCA inventory.

See Section E for Health and Hazard Information.

See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT	BASIS
5 mg/m3 for oil mist (s[illegible]ol) for	OSHA Regulation 29 CFR 1910.1000 and

(ACGIH). ACGIH states that the air is to be sampled by a method that does not collect vapor; in addition, it lists a 10 mg/m3 STEL.

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN
In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry-clean clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION
Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION
If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
199~C (390~F)
ASTM D 92, Cleveland Open Cup

AUTOIGNITION TEMPERATURE
Greater than 315~C (600~F)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

HANDLING PRECAUTIONS
Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

involving this type of p. duct, depending on size of potential size of fire and circumstances related to the situation. Plan fire protection and response [illegible]rategy through consultation with local fire protection authorities or [illegible]opriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam or carbon dioxide to extinguish the fire. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMP[illegible] CO[illegible]TAINER WARNING
"E[illegible] containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT [illegible]ESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely [illegible]ired, properly bunged and promptly returned to a drum reconditioner. All [illegible]er containers should be disposed of in an environmentally safe manner and [illegible]accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repair[illegible] welding, or other contemplated operations.

B. [illegible]EALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
Prolonged or repeated skin contact may cause skin irritation.

NATURE OF HAZARD AND TOXICITY INFORMATION
Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of [illegible]fection.

[illegible]accordance with the current OSHA Hazard Communication Standard criteria, [illegible]is product does not require a cancer hazard warning. This is because the product is formulated from base stocks which are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. Alternatively, it may consist of components not otherwise affected by IARC criteria, such as atmospheric distillates or synthetically

Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria.

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to sever pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE
None recognized

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE
Approximately 293~C (560~F)
by ASTM D 2887

SPECIFIC GRAVITY (15.6~C/15.6~C)
0.88

MOLECULAR WEIGHT
Approximately 372

pH
Essentially neutral

POUR, CONGEALING OR MELTING POINT
-6~C (20~F)
Pour Point by ASTM D 97

VISCOSITY
160 SSU @ 100~F

VAPOR PRESSURE
Less than 0.01 mm Hg @ 20~C

VAPOR DENSITY (AIR = 1)
Greater than 5

PERCENT VOLATILE BY VOLUME
Negligible from open container in 4 hours @ 38~C (100~F)

EVAPORATION RATE @ 1 ATM. AND 25~C (77~F) (n-BUTYL ACETATE = 1)
Less than 0.01

SOLUBILITY IN WATER @ 1 ATM. AND 25~C (77~F)
Negligible; less than 0.1%

. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium

Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

In order to prevent fire or explosion hazards, use appropriate equipment.

Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

PERSONAL HYGIENE

Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.

U.S. DOT HAZARDOUS MATERIALS SHIPPING DESCRIPTION

Not regulated

OSHA REQUIRED LABEL INFORMATION

In compliance with hazard and right-to-know requirements, where applicable OSHA Hazard Warnings may be found on the label, bill of lading or invoice accompanying this shipment.

Note: Product label may contain non-OSHA related information also.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order

H. ENVIRONMENTAL INFORMATION

N WATER ACT / OIL POLLUTION ACT
This product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface waters that cause a sheen must be reported to the National Response Center (1-800-424-8802).

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Recover free product. Add sand, earth, or other suitable absorbent to spill area. Minimize skin contact. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.

Assure conformity with applicable governmental regulations.

THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES:

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355
(SARA Sections 301-304)
No TPQ for product or any constituent greater than 1% or 0.1% (carcinogen).

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Section 313)
No toxic chemical is present greater than 1% or 0.1% (carcinogen).

ARDOUS CHEMICAL REPORTING, EPA REGULATION 40 CFR 370 (SARA Sections 311-312)

HAZARD CLASSIFICATION CODE:	Acute Hazard	Chronic Hazard	Fire Hazard	Pressure Hazard	Reactive Hazard	Not Applicable
						XXX

I. PROTECTION AND PRECAUTIONS

VENTILATION
Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, or use of flame or other ignition sources.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

S PROTECTION
e splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoi contaminating regular clothing, which could result in prolonged or repeated skin contact.

Repeated and/or prolonged contact to high concentrations of vapor may result in respiratory difficulties, central nervous system (CNS) effects and possible cardiovascular collapse.

INGESTION: Ingestion of material are unlikely, but may cause gastrointestinal disturbances including irritation, nausea, vomiting, abdominal pain.

OTHER: See Section XIII (Comments) for additional information on health effects.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Immediately seek medical aid.

SKIN CONTACT: Wash thoroughly with waterless hand cleaner. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible, submerge area in cold water. Pack with ice. Seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: If victim is conscious and alert, give 1-2 glasses of water or milk. Induce vomiting using ipecac syrup as directed on the label. After vomiting, the victim may be given a slurry of 100 g of activated charcoal in 8 oz. of water. Seek medical aid.

TO PHYSICIAN: DO NOT INDUCE VOMITING OR ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Individuals with erythrocyte glucose-6-phosphate dehydrogenase deficiency may be particularly sensitive to possible hemolytic effects.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: >65C (>150F) PMCC AUTOIGNITION TEMP: ND

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: ND UPPER: ND

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray. Water or foam may cause frothing, if molten.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire).

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Flush area with water. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water.

DOT REPORTABLE QUANTITIES

10 lbs. Benzene

WASTE DISPOSAL: Dispose of in accordance with local, state, and federal regulations. If disposing in a state other than California, dispose of as an industrial waste in accordance with local, state, and federal regulations. This product contains coal tar constituents, which have been determined by IARC to be a carcinogen. According to California hazardous waste regulations, substances posing a hazard to human health because of carcinogenicity are hazardous wastes. Dispose of as a hazardous waste in the state of California.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):

* coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m3 averaged over an 8 hour wo. shift, benzene soluble fraction of total particulate including dust, fumes and mists.

**skin

***OSHA Action Level - 0.5 ppm 8-hr. TWA

#Suspected Human Carcinogen

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)		
			OSHA-STEL	15	75
			NIOSH-TWA	10	50
			NIOSH-STEL	15	75
Cresol	1319-77-3	<5	ACGIH-TWA	5	22**
			OSHA-TWA	5	22**
			NIOSH-TWA	2.3	10
Indene	95-13-6	<5	ACGIH-TWA	10	48
			OSHA-TWA	10	45
Benz(a)anthracene	56-55-3	<1	NONE		
Benzo(b)fluoranthene	205-99-2	<1	NONE		
Benzo(k)fluoranthene	207-08-9	<1	NONE		
Benzo(j)fluoranthene	205-82-3	<0.5	NONE		
Benzo(a)pyrene	50-32-8	<1	NONE		
Dibenzo(a,h)anthracene	53-70-3	<0.5	NONE		
Indeno(1,2,3-cd)pyrene	193-39-5	<0.5	NONE		
Phenanthrene	85-01-8	<2	NONE		

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Naphthalene
Cresol
Benzene
Benz(a)anthracene
Benzo(b)fluoranthene/Benzo(k)fluoranthene
Phyenanthrene
Benzo(j)fluoranthene
Benzo(a)pyrene
Dibenzo(a,h)anthracene
Indeno(1,2,3-cd)pyrene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield.

SKIN PROTECTION: As required, industrial resistant flexible-type gloves. Depending on working conditions, i.e., contact potential, wear impervious protective garments such as head/neck cover, aprons, jackets, pants, coveralls, boots, etc. See "Guidelines" noted previously. Wear industrial-type work clothing and safety footwear. See Sect. XIII-Comments for additional information on skin protection recommendations.

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use MSHA/NIOSH approved units as per current 29 CFR1910.134 and manufacturers' "Instructions" and "Warnings". Combination filter/organic vapor cartridges or canisters may be used.

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Application of certain protective creams (sun screens for coal tar products) before working/several times during work may be beneficial.

STORAGE: Store in areas/buildings designed to comply with OSHA 1910.106. Keep in a closed, labeled container within a cool (well shaded), dry ventilated area. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions have been read/understood. Wash exposed

areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: None known

INCOMPATIBILITY: None known

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Toxic fumes may be emitted when burned.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: None

SECTION XI - PHYSICAL DATA

BOILING POINT: >100C (>212F) IBP SPECIFIC GRAVITY: >1.050

MELTING POINT: NA % VOLATILE BY VOL: Neglig.

VAPOR PRESSURE: <3mm Hg EVAPORATION RATE(ETHER=1): <1 Butylacetate=1

VAPOR DENSITY(AIR=1):>1 VISCOSITY: ND

SOLUBILITY: Negligible (WATER) pH: ND

%: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: negligible water*

APPEARANCE/ODOR: Black viscous liquid with aromatic odor.
*solubility

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ ELEVATED TEMPERATURE MATERIAL, LIQUID, N.O.S.
(CONTAINS BENZO(A)PYRENE, DIBENZO(A,H)ANTHRACENE)
CLASS 9 NA9259 PG III
ELECTRODE BINDER
MARKED: HOT 9259

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ ELEVATED TEMPERATURE MATERIAL, LIQUID, N.O.S.
(CONTAINS BENZO(A)PYRENE, DIBENZO(A,H)ANTHRACENE)
CLASS 9 NA9259 PG III
PITCH, COAL
MARKED: HOT 9259

SECTION XIII - COMMENTS

This product contains coal tar pitch. The IARC monographs (Vol. 35) [illegible]hat there is sufficient evidence that coal tar pitches are carcinogenic in humans and that there is sufficient evidence that occupational exposure to coal tars as it occurs during the destructive distillation of coal is causally associated with the occurrence of skin cancers in humans. It is also listed in NTP Report on Carcinogens & in OSHA Subpart Z.

Persons with a history of liver/kidney/skin/CNS/respiratory disease/blood forming organs, cataracts or exposure to materials harmful to these systems are at a greater than normal risk of developing adverse effects when working with this product.

This product contains benzene. The IARC monographs (Vol. 29) states that there is sufficient evidence for the carcinogenicity in humans and limited evidence for the carcinogenicity in animals. Benzene is also listed in the NTP Annual Report on Carcinogens and in the OSHA Subpart Z Table (Specifically Regulated Substances).

May be absorbed through the skin including mucous membranes and eye either by airborne mist, or more particularly, by direct contact. Skin contact should be avoided. To the extent necessary, the use coveralls, goggles or other appropriate personal protective equipment, engineering controls or work practices should be utilized to prevent or reduce skin absorption.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and [illegible]ous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of c[illegible]l mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Do not wear contact lens without proper eye protection when using this product.

Prepared By: Occupational Health and Product Safety Department

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REVISION DATE: 06/93 CODE NUMBER: IND00196JU9507
SPECIFICATION SHEET NUMBER: none REPLACES SHEET: IND00196DE9406
COMMODITY NUMBER: 42600001

SUPPLIER INFORMATION: Same as manufacturer.

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

MATERIAL SAFETY DATA SHEET

K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 826-3967

6/95

RS INDUSTRIES, INC.
JILLIAM PITT WAY
PITTSBURGH, PA. 15238

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Carbon Pitch Liquid

COMMODITY NUMBER: 42600001

SYNONYM: None

USE: Distilled to produce naphthalene, creosote & pitch

CHEMICAL FAMILY: Polynuclear aromatic hydrocarbons

FORMULA: Complex mixture of hydrocarbons

CAS NUMBER: 63996-89-6

NFPA 704M/HMIS RATING: 2/2 HEALTH 2/2 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A, Very Toxic Material - Class B, Division 3, Combustible Liquid

listed in Subchapter D Part 153 Table 1 Pollution Category D Hazard 5.2

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
MAY CAUSE CANCER
WARNING
HARMFUL TO THE SKIN, OR IF INHALED OR SWALLOWED
CAUSES EYE AND SKIN IRRITATION
AVOID PROLONGED AND/OR REPEATED CONTACT INCLUDING VAPORS
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: Overexposure to vapor can result in irritation and/or corneal changes. Direct eye contact may cause irritation. Contact with heated material may cause thermal burns.

SKIN: Contact with skin can result in irritation which when accentuated by sunlight may result in a phototoxic skin reaction. Repeated and/or prolonged contact may cause more serious skin disorders including cancer. Contact with heated material may cause thermal burns. See Section XIII for additional information.

INHALATION: Overexposure to vapor may result in respiratory tract irritation.

rating systems, together with Exxon's interpretation of the available data.

LUBRICANTS TECHNICAL ASSISTANCE CALL: 1-800-443-9966

FOR FUELS TECHNICAL ASSISTANCE CALL: 713-656-4955

FOR AN MSDS OR ASSISTANCE WITH AN MSDS, DIRECT INQUIRIES TO THE ADDRESS BELOW OR CALL:

MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
ROOM 2344
P. O. BOX 2180
HOUSTON, TX 77252-2180
(713) 656-5949

IF YOU HAVE AN IMMEDIATE NEED FOR AN MSDS, DIAL 1-800-298-4007 FOR A FAXED COPY.

MATERIAL SAFETY DATA SHEET
(English - FAMM)

MARINE DIESEL BLEND

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
MATERIAL IDENTITY

Product code and name:
00813 MARINE DIESEL BLEND
Chemical name and/or family or decription:
Marine Fuel Oil
Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Transportation emergency:
(504) 680-1900
CHEMTREC (USA): (800) 424-9300

Health emergency-Company: (504) 680-1900

MSDS Assistance (USA):(845)838-7204

2. COMPOSITION/INFORMATION ON INGREDIENTS
Product and/or component(s) Carcinogenic According to:

OTHER

-

Name	CAS Nr	Range in %
Blends of distillate and residual petroleum fractions to prescribed viscosity ranges.		100

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).

3. HAZARD IDENTIFICATION
EMERGENCY OVERVIEW

WARNING STATEMENT
WARNING !
MAY CAUSE DIZZINESS AND DROWSINESS
CAUSES SKIN IRRITATION
MAY CAUSE EYE IRRITATION
ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS MIDDLE DISTILLATES WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA

Koppers020496

3. HAZARD IDENTIFICATION (cont'd)

PRECAUTIONARY MEASURES:
-Use only with adequate ventilation.
-Keep away from heat and flame.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Keep container closed.
-Wash thoroughly after handling.

HMIS

Health:
2
Flammability:
2
Reactivity:
0
Special:
-

NFPA

Health:
2
Flammability:
2
Reactivity
0
Special:
-

Primary Route of Exposure:
EYES
SKIN
INHALATION

EFFECTS OF OVEREXPOSURE

Acute:

Eyes:
May cause irritation, experienced as mild discomfort and seen as slight excess redness of the eye.

Skin:
Causes severe irritation with pain, severe excess redness and swelling with chemical burns, blister formation, and possible tissue destruction.
Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact, see other effects, below, and Section 11 for information regarding potential long term effects.
Prolonged, widespread, or repeated skin contact may result in the absorption of potentially harmful amounts of material.

Koppers020497

3. HAZARD IDENTIFICATION (cont'd)

Inhalation:
Vapors or mist may cause irritation of the nose and throat.
Inhalation may cause dizziness, drowsiness, euphoria, loss of coordination, disorientation, headache, nausea, and vomiting. In poorly ventilated areas or confined spaces, unconsciousness and asphyxiation may result. Prolonged or repeated overexposure may result in the absorption of potentially harmful amounts of material.

Ingestion:
If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur. Aspiration may occur during swallowing or vomiting resulting in lung damage.

Sensitization Properties:
Unknown.

Chronic:
NIOSH has recommended that whole diesel exhaust be regarded as a potential occupational carcinogen, based on findings of carcinogenic responses in laboratory animals exposed to whole diesel exhaust. The excess cancer risk for workers exposed to diesel exhaust has not been calculated, the probability of developing cancer should be decreased by minimizing exposure to the lowest feasible limits.
Repeated skin contact may cause a persistent irritation or dermatitis.

Medical Conditions Aggravated by Over Exposure:
Skin contact may aggravate an existing dermatitis (skin condition).

Other Remarks:
None

4. FIRST AID MEASURES

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

Skin:
Immediately remove contaminated clothing and shoes. Under a safety shower, flush skin thoroughly with large amounts of running water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention immediately. Discard or decontaminate clothing and shoes before reuse.

Ingestion:
If person is conscious and can swallow, give two glasses of water (16 oz.) but do not induce vomiting. If vomiting occurs, give fluids again. Have medical personnel determine if evacuation of stomach or induction of vomiting is necessary. Do not give anything by mouth to an unconscious or convulsing person.

Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.

4. FIRST AID MEASURES (cont'd)

Other Instructions:
Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

Note to Physician:
Aspiration of this product during induced emesis may result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation. Contact a Poison Center for additional treatment information.

5. FIRE-FIGHTING MEASURES

Ignition Temperature - AIT (degrees C):
Not determined.

Flash Point (degrees C):
71.11 (CC)

Flammable Limits (%):

Recommended Fire Extinguishing Agents and Special Procedures:
Use water spray, dry chemical, foam or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers.

Unusual or Explosive Hazards:
None

Extinguishing Media Which Must Not be Used:
Not evaluated.

Special Protective Equipment for Firefighters:
Wear full protective clothing and positive pressure breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Procedures in Case of Accidental Release, Breakage or Leakage:
Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

7. HANDLING AND STORAGE

Precautions to be Taken in

7. HANDLING AND STORAGE (cont'd)

Handling:
Eye wash and safety shower should be available nearby when this product is handled or used.

Storage:
Store away from heat and open flame. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment (Type)

Eye/Face Protection:
Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.

Skin Protection:
Protective clothing such as coveralls or lab coats must be worn. Launder or dry-clean when soiled. Gloves resistant to chemicals and petroleum distillates required. When handling large quantities, impervious suits, gloves, and rubber boots must be worn.

Respiratory Protection:
Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

Ventilation:
Local exhaust ventilation recommended if generating vapor, dust, or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

Exposure Control for Total Product:
None established for product, refer to Section 2 for component exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Bright and clear liquid

Odor:
Petroleum odor

Boiling Point (degrees C):
337.78

Melting/Freezing point (degrees C):
Not applicable.

Specific Gravity (water=1):
0.844

Koppers020500

9. PHYSICAL AND CHEMICAL PROPERTIES (cont'd)

pH of undiluted product:
Not applicable.
Vapor Pressure:
< 10 mmHg (20.00)
Viscosity (degrees C):
2.5 cSt (37.78)
VOC Content:
Not determined.
Vapor Density (air=1):
Not determined.
Solubility in Water (%):
Not determined.
Other:
None

10. STABILITY AND REACTIVITY

This material reacts violently with:
Strong Oxidizers
Comments:
None
Products Evolved When Subjected to Heat or Combustion:
Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and ketones.

-
Hazardous Polimerizations:
No

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose

Oral:
LD50 Similar product 9.00 ml/kg (rat) practically non-toxic
Inhalation:
Not determined.
Dermal:
LD50 Similar product > 5.00 g/kg (rabbit) practically non-toxic
Irritation Index, Estimation of Irritation (Species)

Skin:
(Draize) Similar product 6.90 /8.0 (rabbit) extremely irritating

11. TOXICOLOGICAL INFORMATION (cont'd)

Eyes:
(Draize) Believed to be > 15.00 - 25.00 /110 (rabbit) slightly irritating
Sensitization:
Not determined.
Other:
Middle distillates have caused skin irritation and skin cancer in laboratory animals when repeatedly applied and left in place between applications. Studies to further evaluate the carcinogenic potential of middle distillates are currently underway. Kidney damage has also been observed in laboratory animals exposed to middle distillates.

12. DISPOSAL CONSIDERATIONS

Waste Disposal Methods:
Dispose of this product in accordance with local and/or national regulations.
US/RCRA Waste Disposal Methods:
This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
Remarks:
None

13. TRANSPORT INFORMATION

DOT:
Fuel Oil
Combustible liquid (LAND TRANSPORT ONLY-49CFR 173.120(b)(2))
Identification Number:
NA 1993
Packing Group:
III
IMDG:
Not evaluated
ICAO:
Not evaluated
TDG:
Not evaluated

14. REGULATORY INFORMATION

Regulatory Information:

14. REGULATORY INFORMATION (cont'd)

SARA 311 Hazard Categorization:
Acute
Chronic
Fire
Regulated Chemicals:

WHMIS:
Not determined
Regulatory Comments:
This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

The Japanese Ministry of International Trade and Industry (MITI) inventory status of this product has not been determined.

The European Inventory of Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS) status of this product has not been determined.

The Canadian Domestic Substances List (DSL) status of this product has not been determined.

The Australian Inventory of Chemical Substances (AICS) status of this product has not been determined.

15. ENVIROMENTAL INFORMATION

Aquatic Toxicity:
Not determined.
Mobility:
Not determined.
Persistence and Biodegradability:
Not determined.
Potential to Bioaccumulate:
Not evaluated.
Remarks:
Not evaluated.

16. OTHER INFORMATION

Other Information:
THIS PRODUCT IS NOT INTENDED FOR USE IN SPACE HEATERS. DO NOT USE IN AGRICULTURAL SPRAYS.
DO NOT USE THIS PRODUCT IN SPRAY APPLICATIONS.
Texaco recommends that all exposures to this product be minimized by strictly adhering to recommended occupational controls procedures to avoid any potential adverse health effects.

Koppers020503

17. PRODUCT LABEL

PRODUCT LABEL

MATERIAL IDENTITY

Product code and name:
00813 MARINE DIESEL BLEND

-
Blends of distillate and residual petroleum fractions to prescribed viscosity ranges.
CAS | % 100.00

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).
WARNING STATEMENT
WARNING !
MAY CAUSE DIZZINESS AND DROWSINESS
CAUSES SKIN IRRITATION
MAY CAUSE EYE IRRITATION
ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS MIDDLE DISTILLATES WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA
PRECAUTIONARY MEASURES:
-Use only with adequate ventilation.
-Keep away from heat and flame.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Keep container closed.
-Wash thoroughly after handling.
HMIS

Health:
2
Flammability:
2
Reactivity:
0
Special:
-
NFPA

Health:
2

Koppers020504

17. PRODUCT LABEL (cont'd)

Flammability:
2
Reactivity
0
Special:
-
First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.
Skin:
Immediately remove contaminated clothing and shoes. Under a safety shower, flush skin thoroughly with large amounts of running water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention immediately. Discard or decontaminate clothing and shoes before reuse.
Ingestion:
If person is conscious and can swallow, give two glasses of water (16 oz.) but do not induce vomiting. If vomiting occurs, give fluids again. Have medical personnel determine if evacuation of stomach or induction of vomiting is necessary. Do not give anything by mouth to an unconscious or convulsing person.
Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.
Note to Physician:
Aspiration of this product during induced emesis may result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation. Contact a Poison Center for additional treatment information.
FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.
DOT:
Fuel Oil
Combustible liquid (LAND TRANSPORT ONLY-49CFR 173.120(b)(2))
Identification Number:
NA 1993
Packing Group:
III
Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Koppers020505

17. PRODUCT LABEL (cont'd)

Telephone numbers:

Transportation emergency:
(504) 680-1900
Health emergency-Company: (504) 680-1900

Product Code : 00813

Date Issued: 2000-07-21 Supersedes: 1999-02-10

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT FOR PURPOSE OF HAZARD COMMUNICATION AS PART OF THE COMPANY'S PRODUCT STEWARDSHIP PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL THE COMPANY'S PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL THE COMPANY'S PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN. TO DETERMINE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, USER SHOULD CONSULT HIS LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. THE COMPANY DOES NOT UNDERTAKE TO FURNISH ADVICE ON SUCH MATTERS.

Koppers020506

MATERIAL SAFETY DA A SHEET
(English - FAMM)

FAMM

FUEL OIL #6

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATERIAL IDENTITY

Product code and name:
GEN07 FUEL OIL #6
Chemical name and/or family or decription:
Fuel Oil
Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Transportation emergency:
(914) 831-3400
CHEMTREC (USA): (800) 424-9300

Health emergency-Company: (914)831-3400

MSDS Assistance (USA): (914)838-7204

2. COMPOSITION/INFORMATION ON INGREDIENTS

Product and/or component(s) Carcinogenic According to:

OTHER

This Material Safety Data Sheet may be used for the following products for Hazard Communications purposes only, not intended to imply identical performance/technical specifications:

00753 Fuel Oil
00755 Fuel Oil
00821 Fuel Oil LSLA
00823 Fuel Oil PA
00840 Bunker Fuel Oil
00841 Fuel Oil C HV
00847 Fuel Oil C HV
00864 Fuel Oil VLS
00867 Fuel Oil LSHP
00868 Fuel Oil C
00878 Fuel Oil CHV
00880 Fuel Oil PSP
00885 Fuel Oil Heavy BKP
00887 Fuel Oil C
00891 Fuel Oil #6
00892 Fuel Oil C-IG

Koppers020507

Name	CAS Nr	Range in %
Blendstock of distillate and residual petroleum fractions to prescribed viscosity ranges.		100

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

WARNING STATEMENT
WARNING !
FLAMMABLE HEADSPACE VAPORS MAY BE PRESENT
CONTAINS OR MAY RELEASE HYDROGEN SULFIDE GAS (H2S) H2S GAS IS HARMFUL OR FATAL IF INHALED H2S GAS IS IRRITATING TO EYES AND RESPIRATORY TRACT H2S GAS MAY ACCUMULATE IN CONFINED SPACES
MAY CAUSE EYE IRRITATION
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS CATALYTICALLY CRACKED CLARIFIED OIL WHICH MAY CAUSE CANCER AND BIRTH DEFECTS BASED ON ANIMAL DATA
CONTAINS POLYNUCLEAR AROMATIC HYDROCARBONS WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA
PRECAUTIONARY MEASURES:
-Keep away from heat, sparks or flame.
-Use only with adequate ventilation.
-H2S gas deadens sense of smell. Do not depend on odor to detect presence of gas.
-Use supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Rescue procedures should be attempted ONLY after notifying others of emergency and ONLY if appropriate personal equipment is available.
-Keep container closed.
-Wash thoroughly after handling.
HMIS

Health:
2
Flammability:
2
Reactivity:
0
Special:
-

3. HAZARD IDENTIFICATION (cont'd)

NFPA

Health:
1
Flammability:
2
Reactivity
0
Special:
-
Primary Route of Exposure:
EYES
SKIN
INHALATION
EFFECTS OF OVEREXPOSURE

Acute:

Eyes:
May cause irritation, experienced as discomfort or pain, and seen as excess redness and swelling of the eye, and possible injury to the cornea.
Skin:
Brief contact may cause slight irritation. Prolonged contact, as with clothing wetted with material, may cause more severe irritation and discomfort, seen as local redness and swelling.
Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact, see other effects, below, and Section 11 for information regarding potential long term effects.
Prolonged, widespread, or repeated skin contact may result in the absorption of potentially harmful amounts of material.
Inhalation:
Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea, and drowsiness.
Contains or may release hydrogen sulfide (H2S) gas. H2S concentrations above permissible concentrations can cause irritation of the eyes and respiratory tract, headache, dizziness, nausea, vomiting, diarrhea, and pulmonary edema. At concentrations above 300 ppm, respiratory paralysis, causing unconsciousness and death, can occur Prolonged or repeated overexposure may result in the absorption of potentially harmful amounts of material.
Ingestion:
If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur.

3. HAZARD IDENTIFICATION (cont'd)

Sensitization Properties:
Unknown.

Chronic:
No adverse effects have been documented in humans as a result of chronic exposure. Section 11 may contain applicable animal data.

Medical Conditions Aggravated by Over Exposure:
Because of its irritating properties, repeated skin contact may aggravate an existing dermatitis (skin condition).

Other Remarks:
Heating or calcining (in temperatures between 350 and 1800 F) or other processing may release particulate and/or gaseous polynuclear aromatic hydrocarbons (polycyclic aromatic hydrocarbons). These are also known as coal tar pitch volatiles. IARC has concluded that there is sufficient evidence for carcinogenicity for coal tar pitches in humans and laboratory animals. The ACGIH TLV/TWA is 0.2 mg/m3.

4. FIRST AID MEASURES

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

Skin:
Wash skin with plenty of soap and water until all traces of material are removed. Remove and clean contaminated clothing (See Other Instructions). Destroy non-resistant footwear. Get medical attention if skin irritation persists or contact has been prolonged.

Ingestion:
If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.

Other Instructions:
Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

Note to Physician:
Inhalation exposure may result in respiratory tract injury, the delayed onset of pulmonary edema, and may predispose patient to secondary respiratory infection. Persons exposed to high concentrations should be hospitalized for observation. Contact a Poison Center for additional treatment information.

5. FIRE-FIGHTING MEASURES

Ignition Temperature - AIT (degrees C):
Not determined.
Flash Point (degrees C):
65 (PMCC)
Recommended Fire Extinguishing Agents and Special Procedures:
Use water spray, dry chemical, foam or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers.
Unusual or Explosive Hazards:
May polymerize violently upon exposure to heat from fire.
Special Protective Equipment for Firefighters:
Wear full protective clothing and positive pressure breathing apparatus.
FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Procedures in Case of Accidental Release, Breakage or Leakage:
Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

7. HANDLING AND STORAGE

Precautions to be Taken in

Handling:
This product contains residual fuels which must be considered as a potential flammability risk. Light hydrocarbons may be released in the headspace vapors of bunker tanks, cargo tanks, and land based terminal storage tanks. The headspace vapors may be flammable at temperatures below the flashpoint of the liquid.
Storage:
Store away from heat and open flame. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment (Type)

Eye/Face Protection:
Avoid eye contact. Chemical type goggles should be worn. Do not wear contact lenses.
Skin Protection:
Protective clothing such as coveralls or lab coats should be worn. Launder or dry-clean when soiled. Gloves and boots resistant to chemicals and petroleum distillates required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (cont'd)

Respiratory Protection:
When Hydrogen Sulfide (H2S) concentrations are unknown or are equal to or greater than 10 ppm, (as in such activities as: loading, unloading, guaging, cleaning large spills or upon entry into tanks, vessels, or other confined spaces, and during rescue of individuals suspected to be overexposed to H2S), use supplied-air (airline or self-contained breathing apparatus) respiratory protection (NIOSH/MSHA Approved). The respirators must be equipped with pressure-demand regulators and operated in the pressure-demand mode ONLY. If airline units are used, a 5-minute egress bottle MUST also be carried. GAS MASKS OR OTHER AIR-PURIFYING RESPIRATORS MUST NEVER BE USED FOR H2S DUE TO POOR WARNING PROPERTIES OF THE GAS.

Ventilation:
Local exhaust ventilation recommended if generating vapor, dust, or mist. If exhaust ventilation is not available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

Exposure Control for Total Product:
None established for product. Recommend coal tar pitch volatiles (benzene soluble fraction): Coal tar pitch volatiles: OSHA PEL-TWA 0.2 mg/m3. Hydrogen sulfide: OSHA PEL-TWA 10 ppm, STEL 15ppm. ACGIH TLV-TWA 10 ppm, STEL 15 ppm.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Black liquid

Odor:
Oil-type odor

Boiling Point (degrees C):
Not determined.

Melting/Freezing point (degrees C):
Not applicable.

Specific Gravity (water=1):
.946

pH of undiluted product:
Not determined.

Vapor Pressure:
Not determined.

Viscosity (degrees C):
68 cSt (50.00)

VOC Content:
Not determined.

Vapor Density (air=1):
Not determined.

Solubility in Water (%):
Not determined.

Other:
None

10. STABILITY AND REACTIVITY

This material reacts violently with:
Strong Oxidizers
Comments:
None
Products Evolved When Subjected to Heat or Combustion:
Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and ketones. May evolve hydrogen sulfide, sulfur oxides and other sulfur containing compounds.
Hazardous Polimerizations:
No

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose

Oral:
LD50 Believed to be > 5.00 g/kg (rat) practically non-toxic
Inhalation:
Not determined.
Dermal:
LD50 Believed to be > 2.00 g/kg (rabbit) practically non-toxic
Irritation Index, Estimation of Irritation (Species)

Skin:
(Draize) Believed to be > 0.5-3.0 /8.0 (rabbit) slightly irritating
Eyes:
(Draize) Believed to be > 25.0-50.0 /110 (rabbit) moderately irritating
Sensitization:
Not determined.
Other:
Repeated dermal application of Catalytically Cracked Clarified Oil to experimental animals has been reported to elicit skin cancer, mortality and toxic effects towards the liver, thymus and bone marrow, the latter effect was accompanied by anemia. The kidney and adrenal glands have also been reported as target organs of this material. Dermal application of Catalytically Cracked Clarified Oil to preganant experimental animals has also been reported to elicit toxic effects towards the developing offspring. Catalytically Cracked Clarified Oil has been reported as a genetic toxicant in experimental studies.
Middle distillates have caused skin irritation and skin cancer in laboratory animals when repeatedly applied and left in place between applications. Studies to further evaluate the carcinogenic potential of middle distillates are currently underway. Kidney damage has also been observed in laboratory animals exposed to middle distillates.
A similar product, Texaco Fuel Oil C, is mutagenic to bacteria in the Modified Ames Test.

12. DISPOSAL CONSIDERATIONS

US/RCRA Waste Disposal Methods:

This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.

Remarks:

None

13. TRANSPORT INFORMATION

DOT:

Fuel Oil

Combustible liquid (See 49CFR 172.101(d)(4))

Identification Number:

NA1993

Packing Group:

III

Label Required:

None

IMDG:

Not evaluated

ICAO:

Not evaluated

TDG:

Not evaluated

14. REGULATORY INFORMATION

Regulatory Information:

SARA 311 Hazard Categorization:

Fire

Acute

Chronic

Regulated Chemicals:

WHMIS:

Not determined

Regulatory Comments:

This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

The Japanese Ministry of International Trade and Industry (MITI) inventory status of this product has not been determined.

The European Inventory of Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS) status of this product has not been determined.

The Canadian Domestic Substances List (DSL) status of this product has not been

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14. REGULATORY INFORMATION (cont'd)

determined.

The Australian Inventory of Chemical Substances (AICS) status of this product has not been determined.

15. ENVIROMENTAL INFORMATION

Aquatic Toxicity:
Not determined.
Mobility:
Not determined.
Persistence and Biodegradability:
Not determined.
Potential to Bioaccumulate:
Not determined.
Remarks:
None

16. OTHER INFORMATION

Other Information:
THIS PRODUCT IS INTENDED FOR USE AS A FUEL ONLY.
Hazardous concentrations of hydrogen sulfide (H2S) gas can accumulate in storage and rundown tanks, marine vessel compartments, sump pits or other confined spaces. When opening valves, hatches and dome covers, stand upwind, keep face as far from the opening as possible and avoid breathing any gases or vapors. When exposure concentrations are unknown and respiratory protection is not used, personal H2S warning devices should be worn. These devices should not be relied on to warn of life threatening concentrations. H2S fatigues the sense of smell rapidly. The rotten egg odor of H2S disappears quickly, even though high concentrations are still present. The ACGIH TLV/TWA for H2S is 10 ppm, the ACGIH STEL is 15 ppm.
Texaco recommends that all exposures to this product be minimized by strictly adhering to recommended occupational controls procedures to avoid any potential adverse health effects.
The ash from combustion products will contain nickel, vanadium, and other potentially toxic heavy metal oxides. Take appropriate precautions to avoid contact with and inhalation of ash from combustion and exhaust spaces.

17. PRODUCT LABEL

MATERIAL IDENTITY

Product code and name:
GEN07 FUEL OIL #6

This Material Safety Data Sheet may be used for the following products for Hazard Communications purposes only, not intended to imply identical performance/technical specifications:

00753 Fuel Oil
00755 Fuel Oil
00821 Fuel Oil LSLA
00823 Fuel Oil PA

17. PRODUCT LABEL (cont'd)

00840 Bunker Fuel Oil
00841 Fuel Oil C HV
00847 Fuel Oil C HV
00864 Fuel Oil VLS
00867 Fuel Oil LSHP
00868 Fuel Oil C
00878 Fuel Oil CHV
00880 Fuel Oil PSP
00885 Fuel Oil Heavy BKP
00887 Fuel Oil C
00891 Fuel Oil #6
00892 Fuel Oil C-IG

Blendstock of distillate and residual petroleum fractions to prescribed viscosity ranges.
CAS | % 100.00

PRODUCT IS HAZARDOUS ACCORDING TO OSHA (1910.1200).
WARNING STATEMENT
WARNING !
FLAMMABLE HEADSPACE VAPORS MAY BE PRESENT
CONTAINS OR MAY RELEASE HYDROGEN SULFIDE GAS (H2S) H2S GAS IS HARMFUL OR FATAL IF INHALED H2S GAS IS IRRITATING TO EYES AND RESPIRATORY TRACT H2S GAS MAY ACCUMULATE IN CONFINED SPACES
MAY CAUSE EYE IRRITATION
COMBUSTIBLE LIQUID AND VAPOR
USE ONLY AS A FUEL
CONTAINS CATALYTICALLY CRACKED CLARIFIED OIL WHICH MAY CAUSE CANCER AND BIRTH DEFECTS BASED ON ANIMAL DATA
CONTAINS POLYNUCLEAR AROMATIC HYDROCARBONS WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA
PRECAUTIONARY MEASURES:
-Keep away from heat, sparks or flame.
-Use only with adequate ventilation.
-H2S gas deadens sense of smell. Do not depend on odor to detect presence of gas.
-Use supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.
-Avoid breathing vapor, mist, or gas.
-Avoid contact with eyes, skin, and clothing.
-Rescue procedures should be attempted ONLY after notifying others of emergency and ONLY if appropriate personal equipment is available.
-Keep container closed.
-Wash thoroughly after handling.

17. PRODUCT LABEL (cont'd)

HMIS

Health:
2
Flammability:
2
Reactivity:
0
Special:
-

NFPA

Health:
1
Flammability:
2
Reactivity
0
Special:
-

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

Skin:
Wash skin with plenty of soap and water until all traces of material are removed. Remove and clean contaminated clothing (See Other Instructions). Destroy non-resistant footwear. Get medical attention if skin irritation persists or contact has been prolonged.

Ingestion:
If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.

Note to Physician:
Inhalation exposure may result in respiratory tract injury, the delayed onset of pulmonary edema, and may predispose patient to secondary respiratory infection. Persons exposed to high concentrations should be hospitalized for observation. Contact a Poison Center for additional treatment information.

FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

17. PRODUCT LABEL (cont'd)

DOT:
Fuel Oil
Combustible liquid (See 49CFR 172.101(d)(4))
Identification Number:
NA1993
Packing Group:
III
Label Required:
None
Manufacturer's name and address:
FUEL AND MARINE MARKETING LLC
or its Subsidiaries
2000 Westchester Avenue
White Plains, NY 10650

Telephone numbers:

Transportation emergency:
(914) 831-3400
Health emergency-Company: (914)831-3400

Product Code :GEN07

Date Issued: 1999-10-25 Supersedes:

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT FOR PURPOSE OF HAZARD COMMUNICATION AS PART OF THE COMPANY'S PRODUCT STEWARDSHIP PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL THE COMPANY'S PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL THE COMPANY'S PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN. TO DETERMINE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, USER SHOULD CONSULT HIS LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. THE COMPANY DOES NOT UNDERTAKE TO FURNISH ADVICE ON SUCH MATTERS.

Koppers020518

Letters

PACIFIC TERMINAL SERVICES, INC.
910 SW Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

01 March 2000

Captain of the Port
U.S. Coast Guard Marine Safety Office
ATTN: Facilities & Containers
6767 N. Basin Ave.
Portland, OR 97217

Dear Sir:

Please accept this as our Letter of Intent to operate a facility capable of transferring oil or hazardous materials in bulk to or from a vessel with a capacity of 250 barrels or more. The information in this letter is intended to update a current letter on file for the Pacific Northern Oil (PNO) facility. Ownership of the facility has changed from PNO to Fuel and Marine Marketing (FAMM). Pacific Terminals Services will manage the facility. The following information is provided to your office under the provisions of Title 33, Code of Federal Regulations, Part 154.110;

Facility Owner:	Fuel & Marine Marketing, LLC 100 W. Harrison North Tower #420 Seattle, WA 98119
Facility Operator:	Pacific Terminal Services, Inc. P.O. Box 24005 Seattle, WA 98124 (206) 628-0051
Facility Information:	Fuel & Marketing Marketing, LLC Portland Marine Fuel Oil Facility 7900 NW St. Helens Road Portland, OR 97210 (503) 286-9621

Geographic Location: The facility is located on the western shore of the Willamette River approximately 6.5 miles upstream of the mouth of the Willamette River, between the St. Johns Bridge and the Railroad Bridge. Geographically, the location is 45 degrees 35 minutes North, and 122 degrees 46 minutes West.

The enclosed Operations Manuals are submitted for review per 33 CFR 154.300. PTSI will utilize this manual in the operation of this facility after approval. All employees shall follow the guidelines and directives in this manual in the performance of their duties. Plan holders are authorized to make appropriate expenditures in order to execute plan provisions.

Sincerely,

George C. Clark
Director, Regulatory Affairs

Enclosure

PACIFIC TERMINAL SERVICES, INC.
910 SW Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

01 March 2000

Mr. Mike Zollitsch
Oregon Dept. of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204

Dear Mr. Zollitsch:

Please accept this as our Letter of Intent to operate a facility capable of transferring oil or hazardous materials in bulk to or from a vessel with a capacity of 250 barrels or more. The information in this letter is intended to update a current letter on file for the Pacific Terminal Services, Inc. (PTSI) facility. Pacific Terminals Services will manage the facility for Fuel And Marine Marketing, LLC (FAMM). The Operations Manuals submitted with this letter are intended to be used following approval by your office and the U.S. Coast Guard.. The following information is provided to your office

Facility Owner:	Fuel & Marine Marketing, LLC 100 W. Harrison North Tower #420 Seattle, WA 98119
Facility Operator:	Pacific Terminal Services, Inc. P.O. Box 24005 Seattle, WA 98124 (206) 628-0051
Facility Information:	Fuel & Marketing Marketing, LLC Portland Marine Fuel Oil Facility 7900 NW St. Helens Road Portland, OR 97210 (503) 286-9621

Geographic Location: The facility is located on the western shore of the Willamette River approximately 6.5 miles upstream of the mouth of the Willamette River, between the St. Johns Bridge and the Railroad Bridge. Geographically, the location is 45 degrees 35 minutes North, and 122 degrees 46 minutes West.

PTSI accepts the enclosed operations manual for use at this facility after regulatory approval. PTSI and its employees are hereby committed to the execution of the manual and plan holders are authorized to make appropriate expenditures in order to execute plan provisions.

Sincerely,

George C. Clark
Director, Regulatory Affairs

CITY OF

PORTLAND, OREGON

BUREAU OF FIRE, RESCUE & EMERGENCY SERVICES

Jim Francesconi Commissioner of Public Utilities
Edward A. Wilson, Fire Chief
Richard Grace, Emergency Operations Chief
55 SW Ash Street
Portland, Oregon 97204-3590
Main Phone (503) 823-3700

08/01/2001

Dear Mr. Robertson,

In response to our telephone conversation, the following would be the Fire Bureau response to your location if a fire were reported there:

1 Fireboat
5 Engines
2 Trucks
2 Battalion Chief's

f needed, a second alarm would bring the following additional equipment:

3 Engines
2 Trucks
1 Squad
1 Rescue
1 Deputy Chief
1 Battalion Chief
Miscellaneous support staff and equipment

Additional "Greater Alarm's" add 4 Engines and 1 Truck to the response.
The response time to your location with lights and siren would be about 4 minutes.
The closest Fire Station to your location is Station 22. They are located at 7205 N Alta Ave. The phone number there is 823-3849.

Thank you for your inquiry and I hope this will assist you. Please call if we can be of any further assistance.

Sincerely,

Merrill Gonterman

Lt. Merrill Gonterman
(503) 823-3873

Koppers020523

CONTINGENCY, SPCC, AND POLLUTION PREVENTION PLAN

KOPPERS INDUSTRIES, INC.
PORTLAND PLANT
PORTLAND, OR

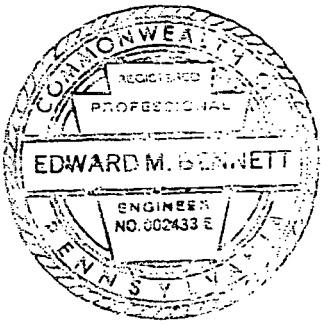
CONTINGENCY PLAN,
SPILL PREVENTION, CONTROL
AND COUNTERMEASURES (SPCC) PLAN
AND
STORM WATER POLLUTION PREVENTION PLAN
KOPPERS INDUSTRIES, INC.
PORTLAND PLANT
PORTLAND, OR
December 7, 1994

CERTIFICATION

I hereby certify that I have inspected the subject facility, and being familiar with the provisions of 40 CFR 112 for SPCC requirements and 40 CFR 122 for Storm Water Pollution Prevention requirements, attest that this Plan has been prepared in accordance with good engineering practices.

Edward M. Bennett
Tar Products Engineer
PENNA. #002433E

Date: 12/20/94



MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Amos S. Kamerer
Plant Manager

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SPCC AND CONTINGENCY PLAN, PORTLAND PLANT, KOPPERS INDUSTRIES

1.0 INTRODUCTION

This plan has been developed to; a) provide a basis for planning for and responding to potential spills, accidents, fires, or other contingencies and b) describe and implement practices to minimize and control pollutants in storm water discharges and ensure discharge permit compliance. It includes the requirements for the Contingency Plan as required by the Resources Conservation and Recovery Act (RCRA), the Spill Prevention, Control, and Countermeasures (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) of the Clean Water Act, and the inventory reporting requirements of the Emergency Planning and Community Right-to-Know Act (SARA Title III).

Questions concerning this plan may be directed to:

Amos S. Kamerer	Plant Manager	(503) 286-3681
T.J. Turner	General Foreman	(503) 286-3681

1.1 FACILITY LOCATION

The Portland plant is located in Multnomah county in the city of Portland, OR. The terminal is located on approximately 6.4 acres of leased property. The property owner is the Northwest Gas company, 220 NW 2nd Ave., Portland, OR, 97209. The portion of the property that Koppers Industries leases is addressed as 7540 N.W. St. Helens Rd., Portland OR, 97210. The property is bounded by St. Helens Rd (Oregon State Highway 30) on the south, the Nortwest Natural Gas Company property extending to the shore of the Willamette River on the North, The Northwest Gas Company liquified Natural Gas Plant on the west. A service road separates Koppers property from Wacker Siltronic Corporation, on the eastern boundary. Approximately 11 people are employed at the terminal (4 salaried people, seven hourly people). Normal operating hours are 8:00 a.m. to 4:30 p.m., Monday through Friday. However, approximately every third week we operate 24 hours a day from 4:00 p.m. Sunday through 4:30 p.m. on Friday. Generally, the plant is closed on the weekends.

1.2 OPERATION

Coal tar pitch and other related products are shipped into the terminal from our four domestic production plants via tank cars or are imported via bulk cargo ships. These products are then stored or further remanufactured at the terminal, prior to the distribution to our customers. Outbound shipments are then made via tank truck or tank cars.

Koppers020527

All products and/or chemicals used or handled through the terminal are covered by material safety data sheets which are on file. All employees have been trained on the usage of these materials and educated in the proper manner of reading and understanding of the material safety data sheets. This training is mandatory and retraining is given annually.

1.3 COORDINATED EMERGENCY SERVICES

This plan is written to facilitate the quick and efficient coordination of emergency response actions between Koppers Industries Inc. (Koppers) and any emergency response companies or agencies which may be needed. Copies of this plan, and updates, are provided to the following:

U. S. EPA Region X
Oregon Department of Environmental Quality
Portland Fire Department
Plant Supervisors
City of Portland, Environmental Services Dept.

Instructions on how and when to obtain assistance for emergency situations, including agency and contractor phone numbers, are included in section 4 of this plan.

1.4 SPCC AND SWPPP PLAN MAINTENANCE

This Plan must be kept up to date. Notify Koppers' Environmental Program Manager in the event of any change made. Automatic review, evaluation and recertification by a Professional Engineer is required once every three years from the date of the latest certification. This Plan must also be amended whenever there is a change in design, construction, operation or maintenance which materially affects the facility's potential for discharge, and the amendment fully implemented as soon as possible and no later than within six months.

A copy of this Plan is to be maintained in the plant's office. All changes to the Plan must be maintained in the same manner.

Notify the Environmental Program Manager if any amendment needs to be made to this Plan.

2.0 INVENTORY OF OIL AND HAZARDOUS MATERIALS

2.1 Discussion

Various materials are used at the Koppers facility which are considered hazardous based on the toxicity or flammability of the materials. These include preservatives which are used in the industrial processes to pressure treat wood products, unusable waste products from these processes, boiler water treatment chemicals, and fuel and lubricants for plant vehicles and equipment.

2.2 Business Information and Identification

The following information applies to the Koppers Industries Portland Plant:

Business Name:	Koppers Industries, Inc.
Business Phone:	(503) 286-3681
Owner:	Koppers Industries, Inc. 436 Seventh Ave. Pittsburgh, PA 15219
Operator:	Same as owner.
SIC Code:	2865
EPA ID Number:	ORD 027734359
Site Address:	7540 N.W. St. Helens Rd. Portland, OR 97210
Mail Address:	same as above
Type of Business:	Creosote, Refined Tars and Coal Tar Pitch Terminal

2.3 Emergency Contacts/Emergency Coordinators

Name/Address	Title	Home Phone
Amos S. Kamerer 5912 S.W. Knights Bridge Dr. Portland,OR	Plant Manager	[redacted]
T.J.Turner 17815 N.E. 152nd Ave. Brush Prairie, WA 98606	General Foreman	[redacted]

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator (when there is a night shift) can be reached at (503)286-3681.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, holidays, and weekends, the shift foreman will be the acting Emergency Coordinator. During these times, the shift foreman will notify the Emergency Coordinator, above, who will assume responsibility for implementation upon his arrival at the plant. Also on nights,weekends and holidays when there is no shift work occuring the plant is patrolled by N.W. Natural Gas guards who make rounds of the plant hourly. The guards have been provided a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 14.

2.4 Hazardous Materials Inventory

The primary hazardous materials which are used or stored on the Koppers site are listed by tank in Table 3.7, Tank Listings Table (page 9). The tanks and facilities are shown on the site map by number or name.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids, spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.7, lists all the tanks used at the Koppers plant by number along with their name, contents, and capacity. Locations can be found for processes and tanks on the site map.

3.2 Conformance with SPCC Standards and Guidelines

This facility meets the minimum requirements for diversionary structures and equipment to prevent discharged oil or hazardous substances from reaching navigable waters as required by 40 CFR 112.7(c) by providing secondary containment for all major tanks and process equipment.

The Portland plant is in conformance with the applicable guidelines of 40 CFR 112.7(e). Rainwater is collected, stored and then inspected prior to discharge. Tank installations are equipped with secondary containment and are regularly inspected by operators. The creosote tank car unloading station is top unloading. Spill prevention details for equipment and processes are discussed more fully below.

3.3 Inspections and Security

The operational areas in the plant are checked hourly by the operator on duty throughout each shift. The tank area is routinely checked by the operator on duty. Any problems or unusual circumstances which can not be immediately resolved are reported to the Supervisor.

3.4 General Plant Spill Prevention

A hazardous material spill can occur any place, any time. All employees must be prepared to respond immediately to control damage and to notify management. Containing a spill to the smallest area possible is the first step.

Containments can quickly be constructed using available equipment and supplies; usually by placing dirt, sand, or sawdust around the lower side of a spill with Koppers loaders. If possible, a spill should be prevented from reaching the surface water drainage, where it will spread more rapidly and have greater environmental and health impact.

Loading operations should be supervised by employees familiar with the equipment involved. Buckets or pans should be placed under hose connections to collect drips. Be prepared for hoses and pipes to be full and for liquid to be behind valves. Properly and promptly cleanup any drips or spills. Supervisors must be notified of any spills which are outside of containments. Oil, creosote, and other hazardous material deliveries are made by vehicles complying with DOT spill control regulations. Unloading is supervised by plant operators.

Maintenance, repair and plant modification projects also present a potential for causing spills since work often involves pipes and equipment which cannot be fully stripped of liquids. Workers must plan ahead and expect liquid whenever opening the pipe systems. Collection pans should first be readily available. Collected material must be returned to the processes or be properly containerized for disposal.

3.5 Surface Drainage

The plant property is at 37' above sea level and our outfall for pumping of collected storm runoff is located on the very south eastern tip of the property approximately 10' ft. elevation above a creek that flows to the Willamette River.

In the Portland terminal there are two run-off patterns for site drainage. The first is directly in front of the office and away from any creosote, tar handling or process area. This area would not be threatened by a spill. All other run-off channels from the tank farm, into a concrete storm run-off sump. Dual sump pumps (one operating and one standby) lift the run-off into the waste water storage tanks #1, #2, #3,#4,#5 and #6. When these tanks fill they are sampled and the samples are taken to an Oregon Department of Environmental Quality approved laboratory for analysis. Then, in accordance with the rules governing our N.P.D.E.S. permit, the samples are checked for temperature, p.h., oil and grease content and phenol content. When the laboratory reports the results and it is certified that the water in the waste water tanks is within the parameters allowed in the N.P.D.E.S. permit, the water is pumped to the out-fall and into the creek that flows into the Willamette River.

Equipment,including secondary spill containment, has been installed and procedures implemented to prevent oil or hazardous materials from leaving the plant. A spill is most likely to occur in the process area and if not contained, would drain into the ditch.

Koppers has installed extensive paving at the heat exchanger location including paving between the rail tracks and the loading area for trucks. In addition, a below grade sealed concrete sump was installed as a catch basin. This catch basin has approximately 1500 gallon capacity. Also two sump pumps have been installed. The first pump, manually activated, pumps collected storm water to the storm water runoff collection system for further handling.

The second pump is energized only when we are unloading creosote rail cars. This pump is on a float activated switch and is piped to #39 tank, which is now designated as the emergency response tank at this location. Tank #39 is of sufficient capacity to hold the gallonage of a full tank car if needed, 20,000 gallons. It is the duty of the loading/unloading employee to clear the catch basin of water, then open the valve to 39 tank and emergize the automatic pump. In this way, should a creosote spill occur, all precautions are in place to contain the release.

In the case of a spill in which hazardous materials or oils reach either of the drainage ditches, immediate action must be taken to contain the spill. Temporary earth dams should be constructed using plant equipment along the ditches, creating a series of impoundments to contain the flow. Sorbent booms may be used to remove containments from the water held behind the dams, if needed.

These dams can only hold back a limited amount of water, so emergency help should be contacted at the first sign that such a spill has occurred or may occur.

3.6 Tank Car and Truck Unloading

Tank cars are unloaded at the Unloading Station, where the process transfer pipelines are all above ground. The potential spill sources in this area include leaks from the process tanks, valves, pumps, and pipe systems. These leaks can best be prevented by proper valve and pump maintenance and equipment inspection during creosote transfers. Any leaks or drips must be cleaned up immediately.

As part of the operating procedures, drains and outlets on tank trucks and tank cars are checked for leakage before and after each loading and unloading operation. Operations personnel performing loading and unloading activities are instructed to inspect piping and pumps associated with these activities and to report spills or leakage.

The driver performs a visual inspection of the truck and trailer after each loading and prepares a Driver Vehicle Inspection Report which is filed and if repairs are needed the truck is shopped for repairs.

The operating procedures included in this plan form the basis for the training of operations personnel in the prevention of creosote or coal tar discharge. Job positions within the Portland plant require that new personnel, working in unfamiliar process areas will have a senior experienced employee to guide them. Personnel are also instructed in the operation and maintenance of equipment to prevent discharges.

3.7 Tank Farm

All preservative tanks are in the concrete-wall-lined and earth-diked tank farm. Containment capacity of approximately 2,900,000 gallons is provided.

Koppers020534

Table 3.7
TANK LISTING TABLE
Koppers Industries, Portland Plant

Tank No.	Contents	Size	Capacity (000) (Gallons)
1.	Empty-out of service		660 M
2.	Not on lease		1065 M
3.	Methyl Solvent		99 M
4.	Lite Uncorrected Creosote		99 M
11.	Not on Lease		254 M
12.	Not on Lease		57 M
13.	Empty--Out of Service		20 M
17.	Heavy OilBottoms		20 M
18.	Empty--Out of Service		20 M
19.	Priming & Refractory Oil		20 M
20.	R.T. Creosote Bottoms		317 M
23.	Lite Unc. Bottoms		20 M
27.	Empty--Out of Service		20 M
33.	Heavy Oil--Pitch & Creosote		45 M
34.	N.S.R.		45 M
39.	P1/P13 Bottoms		20 M
53.	Empty-out of service		10 M
65.	Melter Pitch		761 M
66.	Empty-out of service		191 M
67.	Creosote		102 M
68.	Storage Pitch		245 M
74.	Empty-out of serive		20 M
99.	Creosote Bottoms		209 M
101.	Empty-out of service		758 M
102.	Fume Tank		
WW #1	Water-Effluent		45 M
WW #2	Water-Effluent		45 M
WW #3	Water-Effluent		45 M
WW #4	Water-Effluent		45 M
WW #5	Water-Effluent		20 M
WW #6	Water-Effluent		20 M
V 207	Empty-out of service		

3.8 Fuel and Lubricating Oil

Lubricating oil is stored in 55-gallon drums, most of which are store in the oil house building. Drums should be stored upright and kept sealed. Dispensing areas should be kept clean. Oil drippage should be contained. Any minor spills should be cleaned up immediately.

Koppers020535

3.9 Hazardous Waste Storage Facilities

All hazardous waste that is in process is stored in drums on the steel bay located east of the pitch storage building. Once full, the drum or drums are disposed of through RCRA approved facilities.

4.0 EMERGENCY RESPONSE PROCEDURES

4.1 General

This section of the Plan describes the actions that are to be taken by Koppers personnel in response to any injury, accident, fire, explosion, or unplanned release of any hazardous material to the air, soil, or water.

4.2 Emergency Coordination

As soon as an emergency situation is discovered by an employee, that person shall quickly estimate the extent the problem, take safe and appropriate control action, and then notify the plant management immediately. Once notified, the Plant Manager or the supervisor highest on the emergency notification list in Section 2.3, page #, 3 who is present will assume the responsibilities of Emergency Coordinator (EC). Other personnel will respond as a team under the direction of the EC as needed based on the type of emergency, individual skills, and plant responsibilities.

The EC has Koppers Industries' commitment to spill prevention and response and has the authority to commit plant employees and contract labor and equipment to response actions and to purchase needed supplies. The EC is responsible for the appropriate implementation of this plan in an emergency.

Effective communication is vital in any emergency response. All plant employees have portable two-way radios which will be used for communication and coordination between the plant offices and yard areas. Phones may also be used between offices.

4.3 Immediate Response

As soon as an employee discovers an emergency situation, he shall quickly determine the extent of the problem. If a simple action can be taken to control a release or other emergency, such as shutting a valve to stop the flow from a ruptured pipe, and can be done safely, then the control action should be completed first. If there is no simple, safe control action or after taking such action, the person shall immediately notify the plant management and any other personnel who may be endangered by the incident by phone or radio.

Koppers020536

4.4 Response Procedures

4.4.1 Upon discovery or notification that an emergency exists, the EC, assisted by the management team, shall:

- Determine the extent of the emergency,
- Implement plant evacuation, if needed, to prevent injury,
- Call for outside assistance as needed,
- Start immediate control actions,
- Implement cleanup or other responses,
- Notify local, state, and federal agencies as required,
- Notify Koppers Pittsburgh office,
- Assure completion of cleanup,
- Provide for storage of cleanup material, inc. hazardous waste,
- Evaluate possible hazards to human health or environment,
- Make a final written incident report.

Many of these actions may occur concurrently.

4.4.2 Whenever there is an imminent or actual emergency situation, the emergency coordinator, or his designee, shall:

- Immediately call by radio or phone to notify all facility personnel;
- Immediately notify appropriate federal, state, and/or local agencies with designated response roles if their help is needed;
- Make other notifications as stated in Section 3.5, Emergency Notifications.

4.4.3 Whenever there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source, amount, and area extent of any released materials. This may be done by observation or review of facility records or manifests and, if necessary, by chemical analysis. Form 4.1 should be used to document the information needed for notifications.

4.4.4 Concurrently, the Emergency Coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

4.4.5 If the Emergency Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside of the facility, or if the released amount of hazardous or extremely hazardous material exceeds the Reportable Quantity (RQ), the findings shall be immediately reported to the National Response Center as in Section 4.5, Emergency Notifications.
Note that the reportable quantities for materials are listed in Section 4.5.

If his assessment indicates that evacuation of local areas may be advisable, appropriate local authorities shall be notified immediately. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

4.4.6 During an emergency, the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes or materials at the plant. These measures could include turning water sprays onto tanks, stopping and isolating processes, shutting off power to areas, collecting and containing released materials, or moving and isolating other containers.

4.4.7 If some or all operations are stopped in response to an emergency, the emergency coordinator shall monitor tanks, pipes, valves, and other process equipment for leaks, pressure build-up or ruptures wherever appropriate.

4.4.8 Immediately after an emergency, the Emergency Coordinator shall provide for treating, storing, or disposing of recovered materials or wastes, contaminated soil, surface water, or any other material that results from a release, fire, or explosion.

4.4.9 Before resuming operations, the Emergency Coordinator shall:

a. Insure that clean-up is complete to the point that operations will not interfere or create further potential for hazardous waste release,

b. Insure that all emergency equipment is cleaned and fit for use, and

c. If hazardous wastes or a hazardous waste unit has been involved, then advise the Dept. of Environmental Quality and EPA Region X that Steps a. and b. above are complete.

4.4.10 If hazardous wastes or a hazardous waste unit has been involved, the Emergency Coordinator shall submit a written report within 15 days of the incident to the Dept. of Environmental Quality. Form 4.1, completed, may fulfill this purpose or will at least provide a basis for the report. A copy of the completed report shall be maintained in the Operating Record.

4.5 Emergency Notifications

4.5.1 The emergency coordinator shall ensure that the necessary notifications are made. Form 4.1 entitled, "Emergency and/or Hazardous Materials Incident Report" is to be used.
Page one is organized to provide all the information needed for the initial verbal notification of the National Response Center or other agencies. As soon as a spill or other incident is discovered, the supervisor/manager who will do the reporting should begin filling in the information.

Page 2 should be used as a log of notifications made. Get the position and name of the person who accepts the phone notifications. Also, if an incident number is assigned, as by the National Response Center, that number should be recorded. As more is learned about the incident, the report should be updated. Updates can be recorded on page 2 as well.

Pages 1 and 2, completed either by hand or typed, can be used for the required written notification of agencies. These should be sent with cover letters showing everyone who will get copies. Copies must be kept in the plant's Operating Record.

Finally, page 3 should be used for Koppers Industries internal reporting of additional related information. KII has an obligation to report all spills which could possibly impact over-all cleanup work. The complete report, Pages 1, 2, and 3 should be sent to ~~W.~~E. S~~wearingen~~, Environmental Program Manager including original photographs. He will provide the required notification to Beazer East, Inc.
4.5.2 WHAT SPILLS OR INCIDENTS MUST BE REPORTED AND TO WHOM?

Following is a summary. Note that more than one category may apply.

<u>If outside help is needed, IMMEDIATELY:</u>

Call fire and/or other appropriate emergency agencies, describe incident and needed assistance, such as fire suppression, medical aid, evacuation, and/or crowd control.

If release or threatened release of hazardous material, IMMEDIATELY:

Call 911-FIRE for immediate help, then call the Oregon Emergency Management Office at 1-800-452-0311 This report shall be made unless it is determined that the release poses no significant hazard to human health and safety, property, or the environment and is less than the reportable quantity for the material.

Such releases which cannot be recovered must also be included in the SARA Title III annual reports.

If health threat or release outside of facility; OR

If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water; OR

If release of hazardous or extremely hazardous material exceeds the Title III Reportable Quantity, IMMEDIATELY:

Call National Response Center at 800-424-8802.

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented; IMMEDIATELY AND NOT LATER THAN 24 HOURS:

Call the Oregon Emergency Management office at #1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:
595 Cottage Street, N.E.
Salem, Oregon 97310

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**

Call the U. S. Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS**!

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following primary contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone
Bill Swearingen, Program Manager	(412)227-2677	[redacted]
Lee Allison, Mgr. Occ. Health	(412)227-2592	
Randy Collins, Mgr. Loss Control	(412)227-2456	

4.5.3 WHAT SPILLS ARE REPORTABLE?

For hazardous materials, Reportable Quantities (RQ) are specified by the EPA. Additional requirements may be set by some states. The Federal Quantities are:

Creosote	1 pound
Benzo (A) Pyrene	163 lbs. of solid pitch or 15 gal. of liquid pitch
Dibenzo (A,H) Anthracene	163 lbs.of solid pitch or 15 gal.of liquid pitch

The Clean Water Act also has reporting requirements. Generally if "oil" is released to or presents the potential to be released to navigable waters in amounts that result in a sheen on or discoloration of the water or adjoining shorelines, cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines, or violates an applicable water quality standard, then it is reportable and the National Response Center must be notified.

Gasoline, lubricating oils, and transmission fluid are all regulated as "oil". Unless released as above, reporting is not mandatory.

4.5.4 IF IN DOUBT, REPORT!

If a spill is large enough to require cleanup action but is not reportable, it generally is a good practice to make a courtesy report to the local agency contact. It shows that we are on top of the problem and provides valuable documentation of our response in case of a report by a third party. The attached written report form should also be completed and submitted internally.

Koppers020541

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Portland Plant
Street Addr: 7540 N.W. St. Helens
City, St, ZIP: Portland, OR 97210-3663
Phone: 503-286-3681
EPA ID #: ORD 027734359

FACILITY: Same as above

DATE OF INCIDENT: _____ TIME OF INCIDENT:_____

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle One) Hazardous Waste Spill, Injury Accident

Other: _____

MATERIALS INVOLVED:

Name	Quantity
_____	_____
_____	_____
_____	_____

EXTENT OF INJURIES, IF ANY:

_____

_____

_____

ASSESSMENT OF ACTUAL OR POTENTIAL HAZARDS TO HUMAN HEALTH OR THE ENVIRONMENT, WHERE APPLICABLE:

_____

_____

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored
_____		
_____		
_____		

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911(Emergency)		
Portland Police Dept.	911		
Oregon Emergency Management	1-800-452-0311		
National Response Center	800-424-8802		
OSHA	503-229-5910		
Environmental Program Manager-KII	412-227-2883	Bill Swearingen	
or Home:	304-737-0627		

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

REPORT BY (Name):_____ DATE:_____
REPORT REVISED: _____ DATE:_____
REPORT REVISED: _____ DATE:_____

Table 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

_____

_____

_____

_____

_____

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

_____

_____

_____

_____

DESCRIBE WHAT HAS OR WILL BE DONE TO PREVENT A RECURRENCE:

_____

_____

_____

_____

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

_____

_____

_____

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE OF PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND RESPONSE ACTIONS.

4.6 Available Equipment

The following equipment is available at the plant:

Front-end Hydraulic payloaders
1 Pickup Truck
Sawdust and sorbents
Lift Trucks
Portable Pump

The above equipment can be effectively used to control and clean a spill of oil, hazardous material, or hazardous waste. Trucks and tractors can be used to transport and place soil for containment dams, sorbent to soak up spilled liquid, and contaminated soil from cleanup actions. Pumps can be used to pump spilled liquid back into containments. After response action is complete, equipment should be placed on the drip pad or vehicle wash pad and be decontaminated with the steam cleaner prior to being released from the response.

4.7 Emergency Response Contract Services

Koppers has entered into a Corporate Agreement with O.H. Materials Corporation to provide various environmental services in the event of an emergency. O. H. Materials may be reached at their nationwide 24-hour line at 800-537-9540.

4.8 Fire and Disaster Response Plans

4.8.1 This section of the Plan provides additional information on specific response actions to be taken in the event of a major disaster, emergency, or other disruption. Such an event could include:

- Fire or explosion
- Earthquake
- Strike or civil strife.

4.8.2 Fire or Explosion

Fire disasters can occur anywhere in the plant environment, so all employees should be knowledgeable as to the proper method for handling all types of fires, and where the largest potential risk areas are located. Communications with and between plant employees is vital to a safe and effective response.

Koppers020545

4.8.3 Designated Response Stations

In the case of a disaster or other major incident, employees shall secure their work areas and processes and then report to the General Foreman and/or Plant Manager, if they are not directly involved in Emergency Response.

Plant Office Employees stay at office. Coordinate outside calls, inquires, and media contacts.

4.8.4 Evacuation

The need for evacuation shall be signalled by a message over the radio to all employees. Employees shall follow the safest path to meet and check in at the closest location outside the property fence, that is considered to be a safe area.

Supervisors shall account for all of their employees, notify the main office when they are "all clear" and relay further instructions. An alternate location will be designated and announced at the time of the incident if the service building is not a safe check-in location.

4.8.5 Fire Suppression Systems

Fire Hose and Hose Reels are located at strategic points around the plant. Employees must be familiar with ones within their work areas.

Fire Extinguishers are located throughout the plant and on rolling stock. CO-2 and ABC Dry Chemical types are used exclusively.

4.8.6 Civil Strife, Strike

Emergencies resulting from, or shutdowns as a result of, civil strife or strike situations require the control of people entering the plant, both authorized and unauthorized. Local law enforcement agencies can be helpful in achieving this goal, but in-plant security is management's immediate concern. When a total shutdown is planned, and security measures are to be implemented, the following should be observed.

Boiler

- Secure door locks.
- Follow established shutdown procedure.
- Assure that all steam line drains are open.

Koppers020546

Hazardous Waste Storage Facility
- Properly store all hazardous waste drums in facility.
- Lock doors.

Major Operations including Melter
- Secure electrical panels.
- Turn off air compressors, shut valves.
- Store and secure portable tools, cords, hoses, etc.
- Clean up area for safety and fire protection.

Rolling Stock
- Park centrally in area in front of shop.

Gates
- Keep locked at all times.
- Put on new locks to prevent unauthorized entry.

Access Roads
- Blockade with ties or lumber.

Security Patrols
- At least 2 persons will provide security patrols on shifts, 24 hours per day.
- Plant vehicles will be provided
- Communication will be maintained at all times between the patrols and the main office by radio.

Lighting

The plant has a general yard lighting system consisting of flood lights, street lights and incandescent lighting. Outdoor lighting is controlled by timers of photo cells.

4.9 Medical Emergency Plans

Emergency and first aid supplies are maintained at the following work locations:

Control Room
Maintenance Shop
Main Office (Main supply center)

First aid supplies are intended for use on minor cuts, abrasions, and burns requiring simple care such as band-aids, disinfectant, or ointment. Supplies are also available for the immediate treatment of severe injuries while awaiting professional medical care, such as gauze pads, bandages, and splints.

First aid applied at the plant by plant employees is in no way intended to replace any needed medical attention, but only to help prior to receiving professional treatment.

If a serious injury occurs, assure that an ambulance is called immediately.

5.0 STORM WATER POLLUTION PREVENTION PLAN

5.1 General

This section of the Plan describes the pollution prevention procedures and facilities for this plant to minimize the impact of storm water runoff to the surrounding environment. This section specifically addresses the requirements of the Storm Water General NPDES Permit.

5.2 Pollution Prevention Objectives and Process

All boiler blowdown water and stormwater runoff is collected in our tank farm and is handled under the terms and conditions of our NPDES permit. No discharges are made unless they meet these terms and conditions.

6.0 TRAINING

All plant employees shall receive training on the content of this plan. Supervisors will each receive a copy and become thoroughly familiar with it through training, discussion, and self study. Supervisors will train their employees in the overall plan and in the specific needs of their work areas.

Training will, at a minimum, include programs to ensure that facility personnel understand basic procedures for pollution prevention and good housekeeping and are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, as applicable to each employee's job function:

* Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
* Communications and alarm systems;
* Response to fires or explosions;
* Response to ground-water or surface water contamination incidents;

* Shutdown of operations;

* Methods for the safe handling of hazardous materials;

* Procedures for coordination with local emergency response organizations;

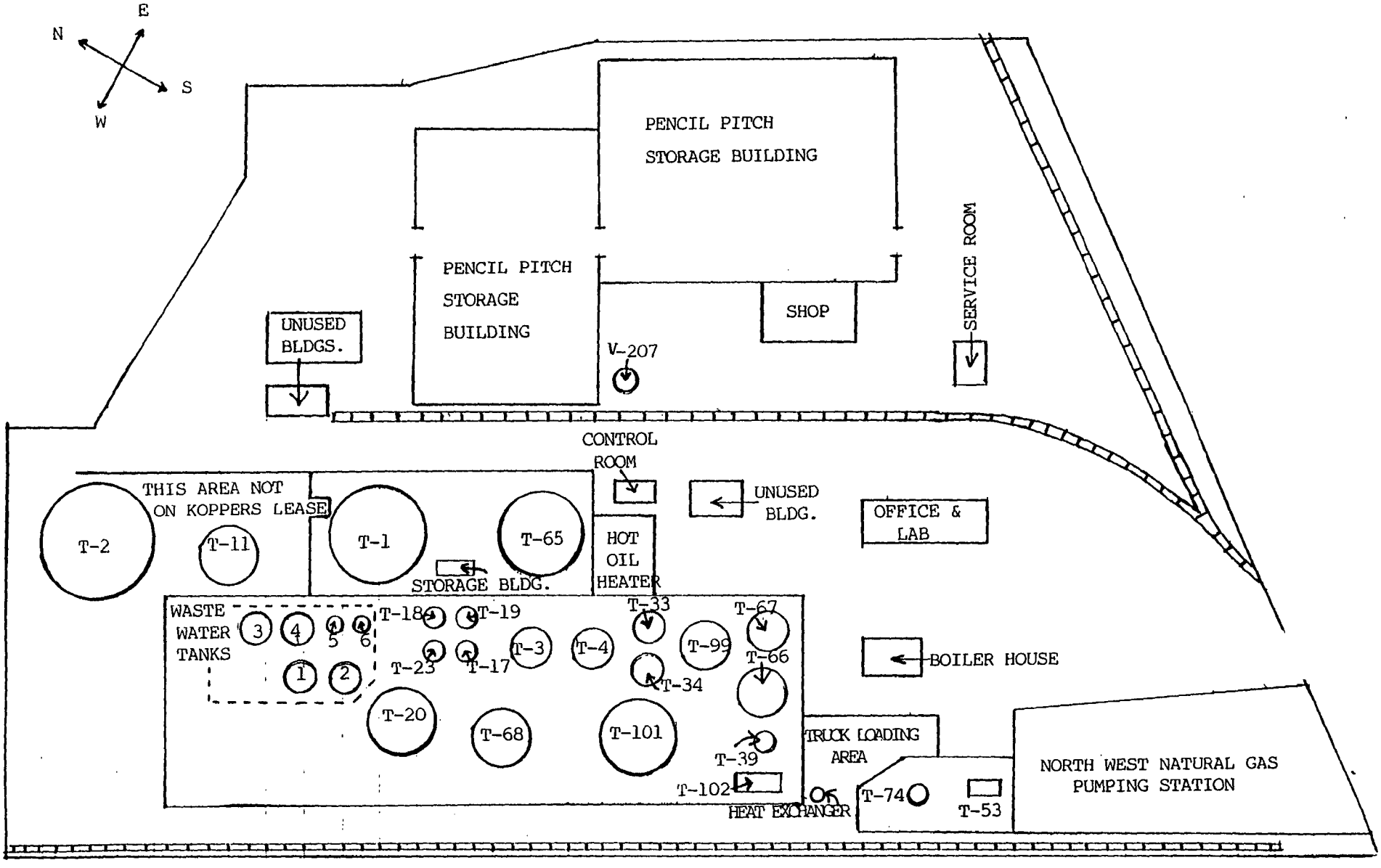
* Use and location of medical supplies;

* Use of emergency response equipment and supplies appropriate to work areas; and

* Emergency response procedures and plans contained within this SPCC and Contingency Plan.Refresher training will be provided at least annually. New employees will not work in unsupervised positions until they have completed all training required for those positions. Supervisors will provide training to their employees and management will assure that supervisors are properly trained.

Employees with specific additional job related training needs will also be given that training, such as hazardous waste handling training as required by RCRA and State regulations, hazardous waste operating procedures for fuel additive to the boiler, storm water pollution prevention, and waste water operations.

This training may be coordinated and take place concurrent with Hazard Communication and RCRA training, safety meetings, and annual updates.



SITE PLAN

KOPPERS INDUSTRIES INC., PORTLAND, OREGON

12/95

Koppers020550

KOPPERS

Koppers Inc.
Carbon Materials and Chemicals
7540 NW Saint Helens Road
Portland, OR 97210-3663
Tel 503 286 3681
Fax 503 285 2831
www.koppers.com

Fax

Date: 6/4/08

To: Traci

From: Jason

Pages: 3
Including cover

Subject:

Form k-Form-SHe-003

Sincerely,

Formzz

Environmental Incident Form
(to be used with K-SHE-014)
Incident: Por-20080110-E-1

Koppers Inc.
Form No. K-Form-SHE-003
Effective Date: 09/22/03
Revision No: 3

Facility: Portland	Date and time of Incident: 10-Jan-2008 14:00:00

INCIDENT

Note: Immediately make notifications to NRC, State, Local and Koppers (as applicable)

Type of Incident:
Environmental-PermitLimit Exceeded-Water

Location of Incident:
Portland Lower Tank farm

Description of Incident:
2 feet of water in lower tank farm, collected water samples turned it into Columbia Inspection, results of collection came back exceeding the MAO. Immediately did a full inspection of all sumps, drain systems, of the lower and upper tank farm, found no cause for the contamination. Collected a second sample and results came back elecated however, much lower than the first. A temporary batch discharge permit was granted by the city of Portland to release into the POTW, however we were not able to discharge due to the fact their was not a non rain event of 8 hours prior to and during the pumping. So we contacted Elliot Zias with the NPDES and explained that the lower tank farm was in imminent danger of catastrophic failure of equipment, potential danger of tanks floating, or possible environmental consequences. Eliot Zias acknowledged that due to the circumstances, the most viable option was immediate discharge to the river. Preventing a more serious environmental issue.

Materials Involved:

Material/Constituent	*Quantity Released*	*UOM*
Benzene	685.000	L
Polynuclear Aromatic	458.100	L
BTEX	1,837.000	L

Notification Log:

Agency	*Phone No.*	*Date*	*Name of Contact*	*Notes*
POR-Oregon DEQ - NPDES permit	(503) 229-5292	01/10/2008	Zais, Elliot	Mr. Zias acknowledged that due to the circumstances, the most viable option w. to immediate discharge to the river. Preventing a more serious environmentl. issue.

Assessment of Actual or potential hazards to human health or the environment:

INVESTIGATION

Acts or conditions causing incident (root cause):
Heavy rains. No cause was found for elevated sample due to personnel or spills

Formzz

Environmental Incident Form
(to be used with K-SHE-014)
Incident: Por-20080110-E-1

KOPPERS

Koppers Inc.
Form No. K-Form-SHE-003
Effective Date: 09/22/03
Revision No: 3

Containment and Cleanup Actions:

Action	*Responsible Person*	*Action Date*
Did a full inspection of all sumps, and drian systems of lower and upper tank farm. Also collected a second sample.	Turner, TJ	01/10/2008

Disposition of recovered material:

Action	*Responsible Person*	*Action Date*

Corrective action (describe what has been done or will be done to prevent recurrence):

Task ID#	*Action*	*Responsible Person*	*Action Date*	*Task Description*	*Comments and Findings*
18,364	Exceeded new water parameters of the MAO	Christensen, Jason C.	01/13/2008	Had to discharge water from lower tank farms to prevent future environmental consequences. Due to heavy rains flooding the lower tank farm.	

ADDITIONAL INFORMATION/RECOMMENDATIONS:

AGENCY CONTACT DUE TO THIS INCIDENT (Agency Inspector, Person Issuing NOV):

Include date, time, title, agency and summary of inspection/visit: *See Notification Log*

Please sign here to indicate that you have reviewed your plant's SPCC Plan and updated it with any required information.

Name: [signature] Date: 1-10-08

Attach photographs (if available) which show the incident area before and after response action. Mark date and time of each photo.

#Photos:

Report completed by: Jason Christensen

Title: Office administrator

Date: 1/10/08

PLEASE FAX OR EMAIL THIS FORM TO THE KOPPERS ENVIRONMENTAL DEPARTMENT

COLUMBIA INSPECTION, INC.

7133 N. Lombard Street • Portland, OR 97203 • Telephone: (503) 286-9464 • Fax: (503) 285-7831

March 27, 2002

L020327B.KII

Mr. Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, WA 97210-3681

Post-it® Fax Note 7671	Date 4/1/02	# of pages ▶
To Rachself	From Amos	
Co./Dept.	Co.	
~~Phone #~~ Please email & Call me.	~~Phone #~~	
Fax #	Fax # TX	

SUBJECT: The "Oil & Grease" Incident From March 12, 2002

Dear Amos:

On March 12, 2002, Columbia Inspection picked up the routine weekly stormwater sample collected by TJ Turner on 03/12/02 0930-Hrs. for the purpose of performing an oil & grease analysis. As you know, this process usually results in an oil & grease result that is either low or "none detected". On this day, I was the one who was responsible for performing your work (as well as a few other samples that had to be completed on a "RUSH" basis) so I have first-hand knowledge of what took place during testing.

This test requires a liquid-liquid extraction of the wastewater using reagent grade hexane in a two-liter separatory funnel. The sample is first poured into the sep-funnel so that the inside of the bottle can be rinsed with the solvent. The color of the water was slightly brownish-yellow which is unusual for your samples. The pH was checked to ensure proper preservation.

This initial rinsing of the bottle is done so that any oil adhering to the inside of the glass can be extracted. Since the majority of any oil present in a sample tends to stick to the inside of the bottle, the color of this rinsate is a good indicator of water quality. This rinsate was clear- a good sign. The hexane was then poured into the sep-funnel for the liquid-liquid extraction. The first extraction removed a noticeable amount of the color in the aqueous layer, forming an almost fluorescent yellow solvent layer. The water layer was drained off and the hexane extract filtered through an anhydrous sodium sulfate filter into a tared boiling flask. The second and third extractions also removed more of the color but to a lesser degree. After three extractions with solvent, the flask containing the extracts was evaporated to dryness using a vacuum/hot water bath and then dried in an oven. It was quite obvious at this point that I had extracted a yellow,

oily residue, most unusual for Koppers samples.

After drying and cooling, the flask was reweighed and found to contain a significant amount of oil & grease. Calculation yielded a value of 19.6 mg/L and I notified TJ of a potential for a problem.

Upon examination of the residue in the flask, I found crystals as well as a thick yellow oil. The residue had an odor similar to a pine oil (similar to cleaners which have that "pine fresh" scent. Since I had previously checked the flask for sodium sulfate crystals which might have passed through during the drying and filtration step, I was surprised to see crystals. However, in order to verify that I was weighing only oil and grease, I redissolved the residue with cold hexane, filtered, and evaporated the solvent off once again. This time, the crystals and most of the yellow were removed, yielding an oil and grease result that was "none detected". In addition to reprocessing the extract from the first sample, I tested a fresh grab sample collected by TJ on March 13 from the same tanks. It also came up "none detected".

In playing with the residue that didn't dissolve the second time, I found it to be a polar organic possibly a soap. That would explain why it was water soluble, not forming an oily layer on the bottle walls or on the surface of the water. I do not believe that the bottle was delivered contaminated prior to sampling since these bottles are certified clean and other bottles in the batch yielded nothing. I've talked to TJ about being on the alert for the unusual color and odor. Should I ever encounter it again, I will bring the flask by so that both of you can experience what I found. In this case, I was so focused on getting you clearance that I "destroyed the evidence".

Please feel free to call me should you have any questions.

Sincerely,

Richard D. Reid
Laboratory Director

KOPPERS INDUSTRIES

Amos S. Kamerer
Plant Manager

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Telephone: 503-286-3681
Fax: 503-285-2831

Rebecca Paul - Environmental Specialist
Oregon Department of Environmental Quality - Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

July 29, 1999

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED

JUL 29 1999

NORTHWEST REGION

Re: HW-Mulnomah County
Koppers Industries, Inc.
ORD 02773459
HWR-HW-99-042

Dear Ms. Paul:

As a follow up to my letter of July 9, 1999, our telephone conversation of July 13, 1999, and your telephone conversation with Traci Self in Koppers Industries, Inc.'s headquarters on July 19, 1999, we wish to provide additional details on how we propose to handle the three remaining issues arising from the above matter. Those issues are: (1) characterization of used oil, (2) submission of a spill report for material that leaked from the drum of aluminum brightener pre-wash, and (3) disposal of aluminum brightener pre-wash material.

In regard to the used oil in the drum that had previously contained a Chemcoa brand citrus based cleaning material, we understand that you do not feel our representations that this drum contains only used oil and that nothing was mixed with the used oil are sufficient. In response to your concerns, we have sent a sample of the used oil to Columbia Inspection, Inc. laboratories and will have the sample analyzed for density, ash, heating value, flash point, pour point, and sediment by extraction. We will share the results with you. Provided that the results are typical of used oil, we hope they will be sufficient to establish that the material in the drum is used oil.

In regard to the submission of a spill report for the material that leaked from the aluminum brightener pre-wash drum, the report is attached. Please let me know if I should submit this report to anyone other than you. While we still dispute whether the pH of this material was in excess of 12.5, even if it was, the RQ for corrosive hazardous substances is 100 pounds and this RQ was not exceeded by this spill. As such, we will not be filing a spill report with the National Response Center.

In regard to the aluminum brightener pre-wash material, in response to your concerns about this material, we will be disposing of this material as soon a means for doing so can be found. In the interim, the drum with the cracked lid has been placed in an overpack drum and photographs of the overpack drum are attached. However, we continue to disagree with your

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

Rebecca Paul - Environmental Specialist
Oregon Department of Environmental Quality - Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

July 29, 1999

Re: HW-Mulnomah County
Koppers Industries, Inc.
ORD 02773459
HWR-HW-99-042

Dear Ms. Paul:

As a follow up to my letter of July 9, 1999, our telephone conversation of July 13, 1999, and your telephone conversation with Traci Self in Koppers Industries, Inc.'s headquarters on July 19, 1999, we wish to provide additional details on how we propose to handle the three remaining issues arising from the above matter. Those issues are: (1) characterization of used oil, (2) submission of a spill report for material that leaked from the drum of aluminum brightener pre-wash, and (3) disposal of aluminum brightener pre-wash material.

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characterization that the material in the drum is a waste. We believe it is a commercial product that has not been contaminated by other material and we will continue to treat it as such until a means of disposal can be found. The manufacturer of the aluminum brightener pre-wash, American Equipment Co., Inc., Portland, Oregon suggested that if we mix both the caustic pre-wash and the acidic brightener, the resulting mixture would have a pH of 7 and would thus contain no hazardous substances, and could be safely disposed in a municipal sewer. However, we are unwilling to undertake such a course of action unilaterally. Accordingly, we have asked our contracted disposal contractor, Safety Kleen, Inc. to provide us with a quotation for the disposal of both the costic pre-wash and the acidic brightener products.

We hope our course of action meets with your approval. Also, as soon as the results of the testing on the used oil by Columbia Inspection are completed, I will forward them to you.

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

General Information:

Koppers Industries, Inc.
Amos S. Kamerer, Plant Manager
7540 NW Saint Helen's Road
Portland, Oregon 97210
(503)-286-3681

Spill Information:

The actual time and date of the spill are unknown; the estimated time and date is 1000 hours on May 26, 1999. No reports were made.

How did the release occur:

The drum containing the React material had been stored on our steel bay storage area in the past. As a result of some construction at the plant and some general clean up that was in process, we had a scrap dealer in the plant hauling off unneeded and unused steel items. Some of these items were also located on the steel bay, at some time with in the 2 weeks prior to the ODEQ visit, our employees moved the React drum off of the steel bay, giving better access of the area to the scraper, and placed it on the ground beside the steel bay. This drum has a 5" long crack in the top of the plastic drum, and apparently, during the moving process, some of the React material leaked down the side of the drum and onto the ground.

Impacts:

The impacts as a result of this spill were very minimal. The quantity that was cleaned up was two shovel's full of dirt and material. This material was then placed into a Hazardous Waste "in process" drum, on the plant.

What material was released:

The material was tested by the ODEQ at the time it was found, and a pH level of 14 was reported. The manufactures MSDS states that the pH is 11.9; regardless, the RQ for this material would have been 100 pounds, thus, we do not consider this a reportable spill.

No public agencies were notified, and thus none responded.

Who conducted the clean up:

Mr. T. J. Turner as described above.

Determination of cleanup level:

Mr. T. J. Turner personally supervised the clean up, to ensure that all of the material was removed.

Site sampling:

No sampling was done, other than what was done by the ODEQ.

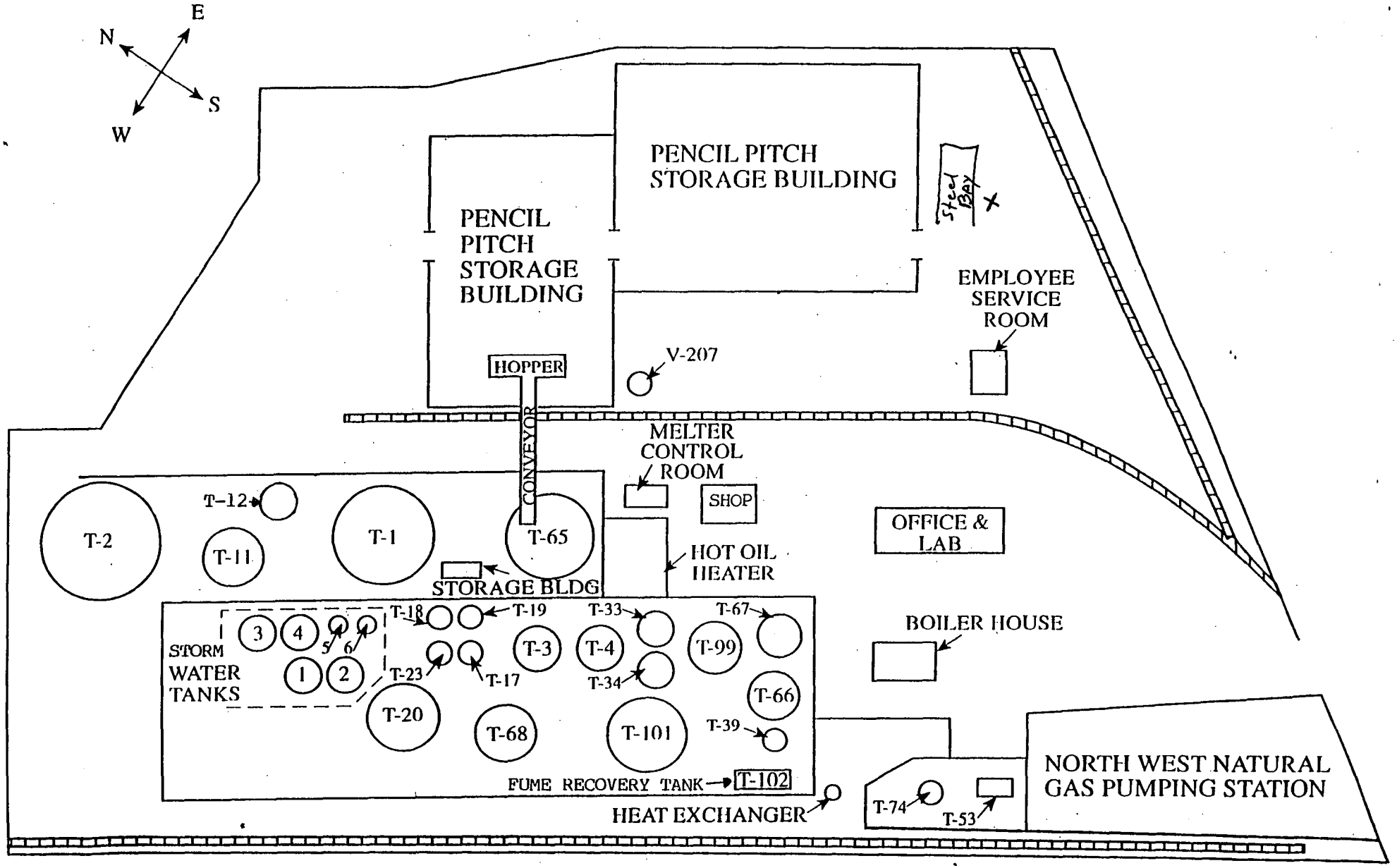
Map of the release site:

A plant map showing the spill area is attached.

Spill prevention:

A copy of our SPCC plan is attached. Further, we have implemented a weekly/monthly ? check list of all drums that are stored with in the plant, to avoid this type of thing happening again.

699NONSR
7/29/99



PROPERTY SITE PLAN

Koppers020561

CONTINGENCY, SPCC, AND

POLLUTION PREVENTION PLAN

KOPPERS INDUSTRIES, INC.

PORTLAND PLANT

PORTLAND, OR

CONTINGENCY PLAN,
SPILL PREVENTION, CONTROL
AND COUNTERMEASURES (SPCC) PLAN
AND
STORM WATER POLLUTION PREVENTION PLAN
KOPPERS INDUSTRIES, INC.
PORTLAND PLANT
PORTLAND, OR
May 1, 1998

CERTIFICATION

I hereby certify that I have inspected the subject facility, and being familiar with the provisions of 40 CFR 112 for SPCC requirements and 40 CFR 122 for Storm Water Pollution Prevention requirements, attest that this Plan has been prepared in accordance with good engineering practices.

James T. Dietz, P.E.
Manager of Engineering
PENNA. # PE-039031-E

Date: May 13, 1998

MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Amos S. Kamerer
Plant Manager

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1.0 INTRODUCTION

This plan has been developed to: a) provide a basis for planning for and responding to potential spills, accidents, fires, or other contingencies and b) describe and implement practices to minimize and control pollutants in storm water discharges and ensure discharge permit compliance. It includes the requirements for the Contingency Plan as required by the Resources Conservation and Recovery Act (RCRA), the Spill Prevention, Control, and Countermeasures (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) of the Clean Water Act, and the inventory reporting requirements of the Emergency Planning and Community Right-to-Know Act (SARA Title III).

Questions concerning this plan may be directed to:

Amos S. Kamerer	Plant Manager	(503) 286-3681
T.J. Turner	General Foreman	(503) 286-3681

1.1 FACILITY LOCATION

The Portland plant is located in Multnomah County in the city of Portland, OR. The terminal is located on approximately 6.4 acres of leased property. The property owner is the Northwest Natural company, 220 NW 2nd Ave., Portland, OR, 97209. The portion of the property that Koppers Industries leases is addressed as 7540 N.W. Saint Helens Rd., Portland OR, 97210. The property is bounded by Saint Helens Rd (Oregon State Highway 30) on the south, the Northwest Natural Company property extending to the shore of the Willamette River on the North, The Northwest Company Liquified Natural Gas Plant on the west. The end of N.W. Front Ave. separates Koppers property from Wacker Siltronic Corporation, on the eastern boundary. 11 people are employed at the terminal (4 salaried people, 7 hourly people). Normal operating hours are from 4:00 p.m. on, Sundays through 4:00 p.m. on Fridays. Generally, the plant is closed on the weekends.

1.2 OPERATION

Coal tar pitch and other related products are shipped into the terminal from our four domestic production plants via tank cars or are imported via bulk cargo ships. These products are then stored, or further remanufactured at the terminal, prior to the distribution to our customers. Outbound shipments are then made via tank truck or tank cars.

All products and/or chemicals used or handled through the terminal are covered by material safety data sheets which are on file. All employees have been trained on the usage of these materials and educated in the proper manner of reading and understanding of the material safety data sheets. This training is mandatory and retraining is given annually.

1.3 COORDINATED EMERGENCY SERVICES

This plan is written to facilitate the quick and efficient coordination of emergency response actions between Koppers Industries Inc. (Koppers) and any emergency response companies or agencies which may be needed. Copies of this plan, and updates, are provided to the following:

Oregon Department of Environmental Quality
Portland Fire Department
City of Portland, Environmental Services Dept.
U.S. Coast Guard
Plant Supervisors

Instructions on how and when to obtain assistance for emergency situations, including agency and contractor phone numbers, are included in section 4 of this plan.

1.4 SPCC AND SWPPP PLAN MAINTENANCE

This Plan must be kept up to date. Notify Koppers' Environmental Program Manager in the event of any change made. Automatic review, evaluation and recertification by a Professional Engineer is required once every three years from the date of the latest certification. This Plan must also be amended whenever there is a change in design, construction, operation or maintenance which materially affects the facility's potential for discharge, and the amendment fully implemented as soon as possible and no later than within six months.

A copy of this Plan is to be maintained in the plant's main office and the plant's melter control room.

Notify the Environmental Program Manager if any amendment needs to be made to this Plan.

2.0 INVENTORY OF OIL AND HAZARDOUS MATERIALS

2.1 Discussion

Various materials used at the Koppers facility are considered hazardous based on the toxicity or flammability of those materials. These include creosote that is used in the industrial processes to pressure treat wood products, unusable waste products from these processes, boiler water treatment chemicals, and fuel and lubricants for plant vehicles and equipment.

2.2 Business Information and Identification

The following information applies to the Koppers Industries Portland Plant:

Business Name:	Koppers Industries, Inc.
Business Phone:	(503) 286-3681
Business Fax:	(503) 285-2831
Owner:	Koppers Industries, Inc. 436 Seventh Ave. Pittsburgh, PA 15219
Operator:	Same as owner.
SIC Code:	2865
EPA ID Number:	ORD 027734359
Site Address:	7540 N.W. Saint Helens Rd. Portland, OR 97210
Mail Address:	same as above
Type of Business:	Creosote, Refined Tars and Coal Tar Pitch Terminal

Koppers020567

2.3 Emergency Contacts/Emergency Coordinators

Name/Address	Title	Home Phone
Amos S. Kamerer 5912 S.W. Knights Bridge Dr. Portland, OR 97219 Cellular Phone Number	Plant Manager	[redacted] [redacted]
T.J. Turner 17815 N.E. 152nd Ave. Brush Prairie, WA 98606	General Foreman	[redacted]

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator (when there is a night shift) can be reached at (503)286-3682.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, holidays, and weekends, the shift operator will be the acting Emergency Coordinator. During these times, the shift operator will notify the Emergency Coordinator, above, who will assume responsibility for implementation upon his arrival at the plant. Also on nights, weekends and holidays when there is no shift work occurring the plant is patrolled by N.W. Natural's Pinkerton Security guards who make rounds of the plant hourly. The guards have been provided with a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 14.

2.4 Hazardous Materials Inventory

The primary hazardous materials which are used or stored on the Koppers site are listed by tank in Table 3.7, Tank Listings Table, on page 10. The tanks and facilities are shown on the site map by number or name, on page 26.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids, spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.7, lists all the tanks at the Koppers plant by number along with contents, and capacity. Locations can be found for processes and tanks on the site map, on page, on page 26.

3.2 Conformance with SPCC Standards and Guidelines

This facility meets the minimum requirements for diversionary structures and equipment to prevent discharged oil or hazardous substances from reaching navigable waters as required by 40 CFR 112.7(c) by providing secondary containment for all major tanks and process equipment.

The Portland plant is in conformance with the applicable guidelines of 40 CFR 112.7(e). Rainwater is collected, stored and then inspected prior to discharge, all in accordance with our NPDES permit requirements. Tank installations are equipped with secondary containment and are regularly inspected by operators. Spill prevention details for equipment and processes are discussed more fully below.

3.3 Inspections and Security

The operational areas in the plant are checked hourly by the operator on duty throughout each shift. The tank area is routinely checked by the operator on duty. Any problems or unusual circumstances which can not be immediately resolved are reported to the Supervisor.

3.4 General Plant Spill Prevention

A hazardous material spill can occur any place, any time. All employees are prepared to respond immediately to control The situation and to notify management. Containing a spill to the smallest area possible is the first step.

Containments can quickly be constructed using available equipment and supplies; usually by placing dirt, sand, or available absorbent pads or absorbent containment booms around the lower side of a spill. If possible, a spill should be prevented from reaching the surface water drainage, where it will spread more rapidly and have greater environmental and health impact.

Loading operations are supervised by employees familiar with the equipment involved. Buckets or pans are placed under hose connections to collect drips. Be prepared for hoses and pipes to be full and for liquid to be behind valves. Properly, and promptly cleanup any drips or spills. Supervisors must be notified of any spills which are outside of containments. Oil, creosote, and other hazardous material deliveries are made by vehicles complying with DOT spill control regulations. Unloading is supervised by plant operators. Collection pans should first be readily available. Collected material must be returned to the processes or be properly containerized for disposal.

3.5 Surface Drainage

The plant property is at 37' above sea level and our outfall for pumping off the collected storm runoff is located on the very south eastern tip of the property, at approximately a 10 ft. elevation above a creek that flows to the Willamette River.

In the Portland terminal there are two run-off patterns for site drainage. The first is directly in front of the office and away from any creosote or pitch handling areas. This area would not be threatened by a spill. All other run-off areas from the plant feed into the tank farm and then into a concrete collection sump. Dual sump pumps (one operating and one standby) lift the run-off into the storm water storage tanks #1, #2, #3, #4, #5 and #6. When these tanks fill, they are sampled and the samples are taken to an Oregon Department of Environmental Quality approved laboratory for analysis in accordance with our N.P.D.E.S. permit. When the laboratory reports that the test results are within the parameters allowed in the N.P.D.E.S. permit, the water is pumped to the out-fall referenced above.

Equipment, including secondary spill containment, has been installed and procedures implemented to prevent oil or hazardous materials from leaving the plant. A spill is most likely to occur in the process area, where it can be contained.

Koppers has installed extensive paving at the creosote tank car heat exchanger unloading location, including paving between the rail tracks and the loading area for trucks. In addition, a below grade sealed concrete sump was installed as a catch basin. This catch basin has approximately 1500 gallon capacity. Also two sump pumps have been installed. The first pump is automatically activated and pumps collected storm water into the tank farm storm water runoff collection system for further handling.

The second pump is energized only when we are unloading creosote rail cars. This pump is on a float activated switch and is piped to #39 tank, which is now designated as the emergency response tank at this location. Tank #39 is of sufficient capacity to hold the gallonage of a full tank car or 20,000 gallons. It is the duty of the loading/unloading employee to clear the catch basin of water, then open the valve to 39 tank and energize the automatic pump. In this way, should a creosote spill occur, all precautions are in place to contain the release.

In the case of a spill in which hazardous materials or oils reach any of the drainage ditches, immediate action must be taken to contain the spill. Temporary earth dams should be constructed using plant equipment along the ditches, creating a series of impoundments to contain the flow. Sorbent booms may be used to remove containments from the water held behind the dams, if needed.

These dams can only hold back a limited amount of water, so emergency help should be contacted at the first sign that such a spill has occurred or may occur.

3.6 Tank Car and Truck Unloading

Tank cars are unloaded at the Unloading Station, where the process transfer pipelines are all above ground. The potential spill sources in this area include leaks from the process tanks, valves, pumps, and pipe systems. These leaks can best be prevented by proper valve and pump maintenance and equipment inspection during material transfers. Any leaks or drips must be cleaned up immediately.

As part of the operating procedures, drains and outlets on tank trucks and tank cars are checked for leakage before and after each loading and unloading operation. Operations personnel performing loading and unloading activities are instructed to inspect piping and pumps associated with these activities and to report spills or leakage.

The driver performs a visual inspection of the truck and trailer after each loading and if repairs are needed the truck is shopped for repairs.

The operating procedures included in this plan form the basis for the training of operations personnel in the prevention of creosote or coal tar discharge. Job positions within the Portland plant require that new personnel, working in unfamiliar process areas will have a senior experienced employee to guide them. Personnel are also instructed in the operation and maintenance of equipment to prevent discharges.

3.7 Tank Farm

All of the oil and hazardous material tanks are in the concrete-wall-lined and earth-diked tank farm. Containment capacity of this area is approximately 2,900,000 gallons is provided.

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Table 3.7
TANK LISTING TABLE
Koppers Industries, Portland Plant

Tank No.	Contents	Size	Capacity (000)
1.	Empty		660 M
2.	Empty		1065 M
3.	Methyl Solvent		99 M
4.	Lite Uncorrected Creosote		99 M
11.	Empty		254 M
12.	Empty		57 M
13.	Empty		20 M
17.	Empty		20 M
18.	Empty		20 M
19.	Empty		20 M
20.	Empty		317 M
23.	Empty		20 M
27.	Empty		20 M
33.	Heavy Oil		45 M
34.	N.S.R.		45 M
39.	Empty		20 M
53.	Empty		10 M
65.	Melter Pitch		761 M
66.	Empty		191 M
67.	Creosote		102 M
68.	Pitch Truck Storage Tank		245 M
74.	Empty		20 M
99.	Empty		209 M
101.	Empty		758 M
102.	Fume Recovery Tank (Creosote)		10 M
SW #1	Storm Water		45 M
SW #2	Storm Water		45 M
SW #3	Storm Water		45 M
SW #4	Storm Water		45 M
SW #5	Storm Water		20 M
SW #6	Storm Water		20 M
V 207	Empty		15 M

3.8 Fuel and Lubricating Oil

Lubricating Oil is stored in 55-gallon drums, most of which are stored in the oil house building. Drums are stored upright and kept sealed. Dispensing areas are kept clean. Oil drippage is contained. Any minor spills are contained and cleaned up immediately.

3.9 Hazardous Waste Storage Facilities

Hazardous waste is placed in drums when generated. Full drums are stored in drums in the rear storage area of the maintenance building. The drum or drums are disposed of through RCRA approved facilities, within less than 90 days.

4.0 EMERGENCY RESPONSE PROCEDURES

4.1 General

This section of the Plan describes the actions that are to be taken by Koppers personnel in response to any injury, accident, fire, explosion, or unplanned release of any hazardous material to the air, soil, or water.

4.2 Emergency Coordination

As soon as an emergency situation is discovered by an employee, that person shall quickly estimate the extent the problem, take safe and appropriate control action, and then notify the plant management immediately. Per the list in Section 2.3, page 3, the operator, who is present will assume the responsibilities of Emergency Coordinator (EC). Other personnel will respond as directed by the EC, as needed.

The EC has Koppers Industries' authority to commit plant employees and contract labor and equipment, or to purchase supplies as needed.

Effective communication is vital in any emergency response. All plant employees have portable two-way radios which will be used for communication and coordination between the plant offices and yard areas. Phones may also be used between offices.

4.3 Immediate Response

As soon as an employee discovers an emergency situation, he shall quickly determine the extent of the problem. If a simple action can be taken to control a release, or other emergency, such as shutting a valve to stop the flow from a ruptured pipe and can be done safely, then the control action should be completed first. If there is no simple safe control action, or after taking such action, the operator shall immediately notify the plant management and any other personnel who may be endangered by the incident by phone or radio.

4.4 Response Procedures

4.4.1 Upon discovery or notification that an emergency exists, the EC shall:

- Determine the extent of the emergency,
- Implement plant evacuation, if needed, to prevent injury,
- Call for outside assistance as needed,
- Start immediate control actions,
- Implement cleanup or other responses,
- Notify local, state, and federal agencies as required,
- Notify Koppers Pittsburgh Office,
- Assure completion of cleanup,
- Provide for storage of cleanup material, inc. hazardous waste
- Evaluate possible hazards to human health or environment,
- Make a final written incident report.
- Make other notifications as stated in Section 3.5, Emergency Notifications.

Many of these actions may occur concurrently.

4.4.2 Whenever there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source, the amount, and area affected by the incident. This may be done by observation, or review of facility records, or manifests and, if necessary, by chemical analysis. Form 4.5.5, pages 17 through 20, should be used to document the information needed for notifications.

4.4.3 Concurrently, the Emergency Coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

4.4.4 If the Emergency Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside of the facility, or if the released amount of hazardous or extremely hazardous material exceeds the Reportable Quantity (RQ), the findings shall be immediately reported to the National Response Center as in Section 4.5, Emergency Notifications.

Note: that the reportable quantities for materials are listed in Section 4.5.

If his assessment indicates that evacuation of local areas may be advisable, appropriate local authorities shall be notified immediately. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

4.4.5 During an emergency, the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes or materials at the plant. These measures could include turning water sprays onto tanks, stopping and isolating processes, shutting off power to areas, collecting and containing released materials, or moving and isolating other containers.

4.4.6 If some or all operations are stopped in response to an emergency, the emergency coordinator shall monitor tanks, pipes, valves, and other process equipment for leaks, pressure build-up or ruptures wherever appropriate.

4.4.7 Immediately after an emergency, the Emergency Coordinator shall provide for treating, storing, or disposing of recovered materials or wastes, contaminated soil, surface water, or any other material that results from a release, fire, or explosion.

4.4.8 Before resuming operations, the Emergency Coordinator shall:

a. Insure that clean-up is complete to the point that operations will not interfere or create further potential for hazardous waste release.

b. Insure that all emergency equipment is cleaned and fit for use, and

c. If hazardous wastes or a hazardous waste unit has been involved, then advise the Dept. of Environmental Quality and EPA Region X that Steps a. and b above are complete.

4.4.9 If hazardous wastes, or the hazardous waste unit has been involved, the Emergency Coordinator shall submit a written report as requested by the Dept. of Environmental Quality. A copy of the completed report shall be maintained in the Operating Record.

4.5 Emergency Notifications

4.5.1 The emergency coordinator shall ensure that the necessary notifications are made. Form 4.5.5 entitled, "Emergency and/or Hazardous Materials Incident Report" is to be used. Page one is organized to provide all of the information needed for the initial verbal notification of the National Response Center or other agencies. As soon as a spill or other incident is discovered, the supervisor/manager who will do the reporting should begin filling in the information.

Pages 2 should be used as a log of notification made. Get the position and name of the person who accepts the phone notifications. Also, if an incident number is assigned, as by the National Response Center, that number should be recorded. As more is learned about the incident, the report should be updated. Updates can be recorded on page 2 as well.

Pages 1, 2, and 3, completed either by hand or typed, can be used for the required written notification of agencies. These should be sent with cover letters showing everyone who will get copies. Copies must be kept in the plant's Operating Record.

Finally, page 4 should be used for Koppers Industries internal reporting of additional related information. KII has an obligation to report all spills which could possibly impact over-all cleanup work. The complete report, Pages 1, 2, 3, and 4 should be sent to the Environmental Program Manager including original photographs. He will provide the required notification to Beazer East, Inc.

4.5.2 WHAT SPILLS OR INCIDENTS MUST BE REPORTED AND TO WHOM?

Following is a summary. Note that more than one category may apply.

If outside help is needed, IMMEDIATELY:
Call fire and/or other appropriate emergency agencies, describe incident and needed assistance, such as fire suppression, medical aid, evacuation, and/or crowd control.

If a release or threatened release of hazardous material, IMMEDIATELY OR:

If health threat or release outside of facility: OR

If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water:

Call 911 for immediate help. If the release involved a Reportable Quantity (RQ), then call both the Oregon Emergency Management Office at 1-800-424-8802.

Such releases that cannot be recovered must also be included in the SARA Title III annual reports.

If the release results in or has the potential to reach the City Storm or Sanitary Sewer drains, IMMEDIATELY:
Call the Duty Officer at 823-7180

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented: IMMEDIATELY AND NOT LATER THAN 24 HOURS:
Call the Oregon Emergency Management Office at #1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:
595 Cottage Street, N.E.
Salem, Oregon 97310

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**

Call the U.S. Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS!**

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following primary contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone
Traci Self, Mgr. Environmental Compliance	412/227-2883	[redacted]
Mike Juba, Mgr. Health & Safety	412/227-2882	
Randy Collins, Mgr. Loss Control	412/227-2456	

4.5.3 WHAT SPILLS ARE REPORTABLE?

For hazardous materials, Reportable Quantities (RQ) are specified by the EPA. Additional requirements may be set by some states. The Federal Quantities are:

Creosote	1 pound
Benzo (A) Pyrene	163 lbs. of solid pitch or 15 gal. of liquid pitch
Dibenzo (A,H)Anthracene	163 lbs. of solid pitch or 15 gal. of liquid pitch.

The Clean Water Act also has reporting requirements. Generally if "oil" is released to or presents the potential to be released to navigable waters in amounts that result in a sheen on or discoloration of the water or adjoining shorelines, cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines, or violates an applicable water quality standard, then it is reportable and the National Response Center must be notified.

Gasoline, lubricating oils, and transmission fluid are all regulated as "oil. Unless released as above, reporting is not mandatory.

4.5.4 IF IN DOUBT, REPORT!

If a spill is large enough to require cleanup action but is not reportable, it generally is a good practice to make a courtesy report to the local agency contact. It shows that we are on top of the problem and provide valuable documentation of our response in case of a report by a third party. The attached written report form should also be completed and submitted internally.

Form 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR:	Koppers Industries, Inc.
Plant Name:	Portland Plant
Street Addr:	7540 N.W. Saint Helens Road.
City,St,ZIP:	Portland, Or. 97210-3663
Phone:	503-286-3681
EPA ID #:	ORD 027734359

FACILITY: Same as above

DATE OF INCIDENT:_____ TIME OF INCIDENT:_____

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle One) Hazardous Waste Spill, Injury Accident

Other: _____

MATERIALS INVOLVED:

Name	Quantity
_____	_____
_____	_____
_____	_____

EXTENT OF INJURIES, IF ANY:

_____

_____

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored
_____		
_____		

Form 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911		
Oregon Emergency Management	1-800-452-0311		
National Response Center	1-800-424-8802		
Oregon OSHA	229-5910		
City Duty Officer (For Storm, Sewer, Drain Contamination, only)	823-7180		
Northwest Natural Gas	224-3532		
Wacker Siltronics	243-2020		
Security for FAB #1	Ext. 7420		
Security for FAB #2	Ext. 4300		
Pacific Northern Fuels	286-9621		

Form 4..5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Manager of Environmental Compliance, Traci Self,

Office 412-227-2883
Home: 412-231-0246

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

_____

_____

_____

_____

REPORT BY (Name): _____ DATE_____
REPORT REVISED: _____ DATE_____
REPORT REVISED: _____ DATE_____

Table 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

_____

_____

_____

_____

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

_____

_____

_____

_____

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

_____

_____

_____

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA. BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE OF PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND RESPONSE ACTIONS.

4.6 Available Equipment

The following equipment is available at the plant:

EQUIPMENT	STORAGE LOCATION
Front-end Hydraulic payloaders	Shop area
1 Pickup Truck	Office parking lot
Sorbent Pads and Booms	Various Emergency Response Cabinets
Lift Trucks	Shop Area
Portable Pump	Shop Area

The above equipment can be effectively used to control and clean a spill of oil, hazardous material, or hazardous waste. Trucks and tractors can be used to transport and place soil for containment dams, sorbent to soak up spilled liquid, and contaminated soil from cleanup actions. Pumps can be used to pump spilled liquid back into containments. After response action is complete, equipment should be placed on the drip pad or vehicle wash pad and be decontaminated with the steam cleaner prior to being released from the response.

4.7 Emergency Response Contract Service

Koppers has entered into a Corporate Agreement with O.H. Materials Corporation to provide various environmental services in the event of an emergency. O.H. Materials has subcontracted this service in the Portland area to Foss Environmental Services, they can be reached at their local number 283-1150, all 24 hours a day.

4.8 Fire and Disaster Response Plans

4.8.1 This section of the Plan provides additional information on specific response actions to be taken in the event of a major disaster, emergency, or other disruption. Such an event could include:

- Fire or explosion
- Earthquake
- Strike or civil strife.

4.8.2 Fire or Explosion

Fire disasters can occur anywhere in the plant environment, so all employees should be knowledgeable as to the proper method for handling all types of fires, and where the largest potential risk areas are located. Communications with and between plant employees is vital to a safe and effective response.

4.8.3 Designated Response Stations

In the case of a disaster or other major incident, employees shall secure their work areas and processes and then report to the General Foreman and/or Plant Manager, at the main office, if they are not directly involved in Emergency Response.

Plant Office Employees stay at office. Coordinate outside calls, inquires, and media contacts.

4.8.4 Evacuation

The need for evacuation shall be signalled by a message over the radio to all employees. Employees shall follow the safest path to meet and check in at the closest location outside the property fence, that is considered to be a safe area.

Supervisors shall account for all of their employees, notify the EC when they are "all clear" and relay further instructions. An alternate location will be designated and announced at the time of the incident if the Main office is not a safe check-in location.

4.8.5 Fire Suppression Systems

Fire Hose and Hose Reels are located at strategic points around the plant. Employees must be familiar with ones within their work areas.

Fire Extinguishers are located throughout the plant and on rolling stock. CO-2 and ABC Dry Chemical types are used exclusively.

4.8.6 Civil Strife, Strike

Emergencies resulting from, or shutdowns as a result of, civil strife or strike situations require the control of people entering the plant, both authorized and unauthorized. Local law enforcement agencies can be helpful in achieving this goal, but in-plant security is management's immediate concern. When a total shutdown is planned, and security measures are to be implemented, the following should be observed.

Boiler

- Secure door locks.
- Follow established shutdown procedure.
- Assure that all steam line drains are open.

Hazardous Waste Storage Facility

- Properly store all hazardous waste drums in facility.
- Lock doors.

Major Operations

- Secure electrical panels.
- Turn off air compressors, shut valves.
- Store and secure portable tools, cords, hoses, etc.
- Clean up area for safety and fire protection.

Rolling Stock

- Park centrally in area in front of shop.

Gates

- Keep locked at all times.
- Put on new locks to prevent unauthorized entry.

Security Patrols

- Security patrols will be made 24 hours per day.
- Communication will be maintained at all times between the patrols and the main office by radio.

Lighting

The plant has general yard lighting system consisting of flood lights, street lights and incandescent lighting. Outdoor lighting in front of the main office is controlled by photo cells.

4.9 Medical Emergency Plans

Emergency and first aid supplies are maintained at the following work locations:

Main Office (Main supply center)
Control Room (Intermediate supply location)
Maintenance Shop (Intermediate supply location)

First aid supplies are intended for use on minor cuts, abrasions, and burns requiring simple care such as band-aids, disinfectant, or ointment. Supplies are also available for the immediate treatment of severe injuries while awaiting professional medical care, such as gauze pads, bandages, and splints.

First aid applied at the plant by plant employees is in no way intended to replace any needed medical attention, but only to help prior to receiving professional treatment.

If a serious injury occurs, assure that an ambulance is called immediately.

5.0 STORM WATER POLLUTION PREVENTION PLAN

5.1 General

This section of the Plan describes the pollution prevention procedures and facilities for this plant to minimize the impact of storm water runoff to the surrounding environment. This section specifically addresses the requirements of our Storm Water Industrial NPDES Permit.

5.2 Pollution Prevention Objectives and Process

All boiler blowdown water and stormwater runoff is collected in our tank farm and is handled under the terms and conditions of our NPDES permit. No discharges are made unless they meet these terms and conditions.

6.0 TRAINING

All plant employees shall receive training on the content of this plan. Supervisors will each receive a copy and become thoroughly familiar with it through training, discussion, and self study. Supervisors will train their employees in the overall plan and in the specific needs of their work areas.

Training will, at a minimum, include programs to ensure that facility personnel understand basic procedures for pollution prevention and good housekeeping and are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, as applicable to each employee's job function:

* Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

* Communications and alarm systems;

* Response to fires or explosions;

* Response to ground-water or surface water contamination incidents;
* Shutdown of operations;

* Methods for the safe handling of hazardous materials;

* Procedures for coordination with local emergency response organizations;

* Use and location of medical supplies;

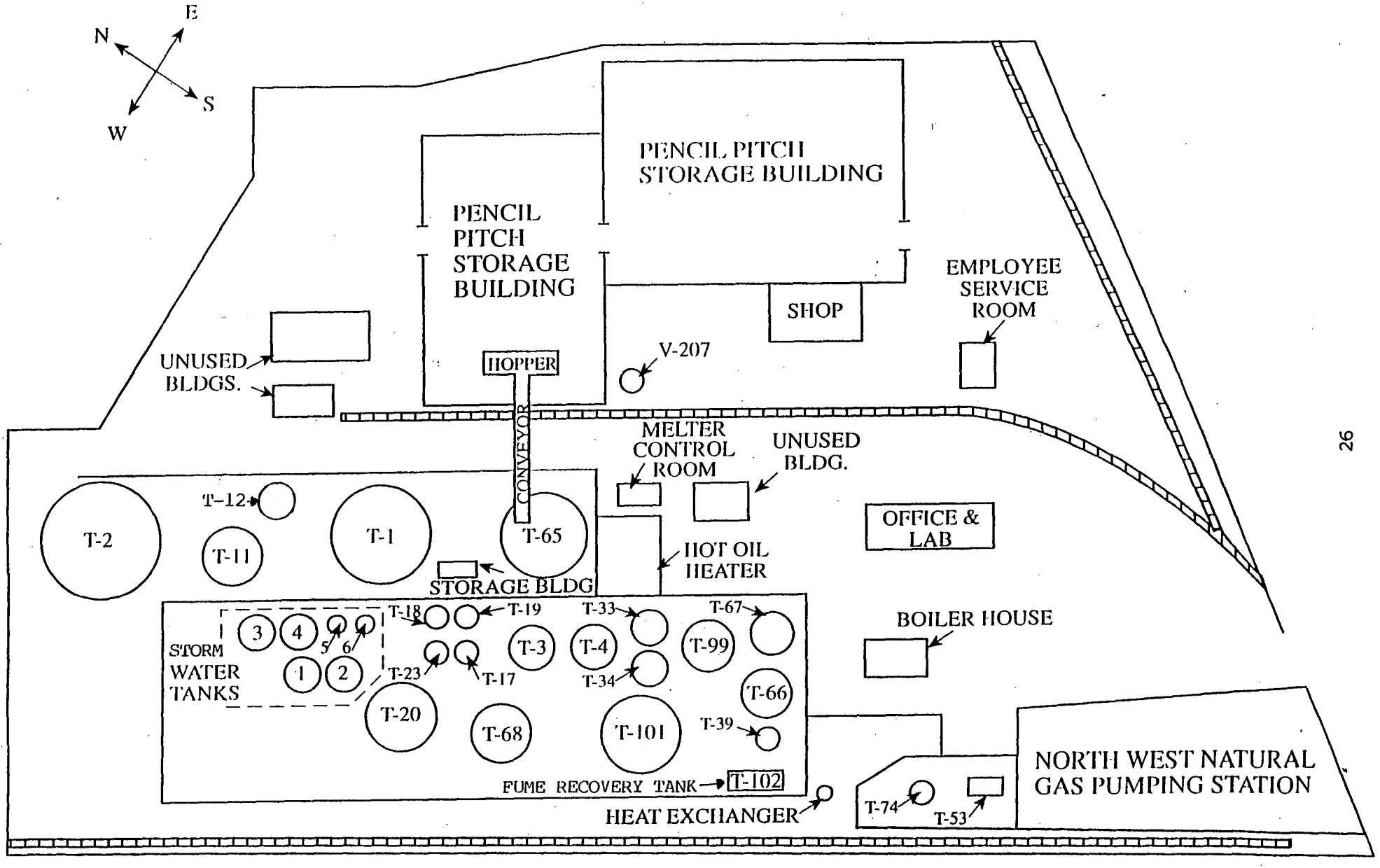
* Use of emergency response equipment and supplies appropriate to work areas;

* Emergency response procedures and plans contained within this SPCC and Contingency Plan.

Refresher training will be provided at least annually. New employees will not work in unsupervised positions until they have completed all training required for those positions. Supervisors will provide training to their employees and management will assure that supervisors are properly trained.

Employees with specific additional job related training needs will also be given that training, such as hazardous waste handling training as required by RCRA and State regulations, hazardous waste operating procedures for fuel additive to the boiler, storm water pollution prevention, and waste water operations.

This training may be coordinated and take place concurrent with Hazard Communication and RCRA training, safety meetings, and annual updates.



PROPERTY SITE PLAN

Koppers020589

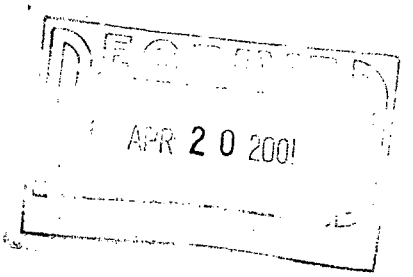
File

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831



April 16, 2001

Oregon Department of Environmental Quality
Northwest Region
2020 SW Forth Ave., Suite 400
Portland, Oregon 97202

Attention: Elliot J. Zais
Sr. Environmental Engineer

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Zais,

Attached please find a revised copy of page # 11 of our SPCC Plan dated February 24, 2000. After my letter to you last week updating pages # 11 & # 26 of the SPCC Plan, it was noticed by one of our employee's that the tank volumes listed on page # 11 of the SPCC Plan, did not match, in all cases, with our plant tank volume charts. An investigation of these differences showed that the volumes on the SPCC Plant tank list came from an old plant pre-construction drawing of these tanks. The plant volume tank list that is used every day, was developed after the tanks were constructed and are the accurate volumes that should be used. These differences are relatively minor, however, I felt it was important that our SPCC Plan, be correct.

I am sorry for the inconvenience this is causing you, sending you this revision, after just sending you the previous revision last week.

Should you have any questions in this regard, I can be reached at 503/286-3681.

Sincerely,

Amos S. Kamerer

CC: T. Self, KII
M. Cilley, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

April 16, 2001

United States Coast Guard
6767 N Basin Avenue
Portland, Oregon 97217-3992

Attention: LCDR Ed Parsons
Marine Safety Officer

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear LCDR Parsons,

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M. Cilley, KII

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Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

April 16, 2001

Portland Fire Bureau
2915 SE 13th Place
Portland, Oregon 97202

Attention: William N. Henle
Hazardous Materials Coordinator

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Henle,

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Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

April 16, 2001

City of Portland
Bureau of Environmental Services
6543 N Burlington Avenue
Portland, Oregon 97203-5452

Attention: Miguel Santana
Permit Manager

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Santana,

Attached please find a revised copy of page # 11 of our SPCC Plan dated February 24, 2000. After my letter to you last week updating pages # 11 & # 26 of the SPCC Plan, it was noticed by one of our employee's that the tank volumes listed on page # 11 of the SPCC Plan, did not match, in all cases, with our plant tank volume charts. An investigation of these differences showed that the volumes on the SPCC Plant tank list came from an old plant pre-construction drawing of these tanks. The plant volume tank list that is used every day, was developed after the tanks were constructed and are the accurate volumes that should be used. These differences are relatively minor, however, I felt it was important that our SPCC Plan, be correct.

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Sincerely,

Amos S. Kamerer

CC: T. Self, KII

Table 3.8
TANK LISTING TABLE
Koppers Industries, Northwest Plant

Tank No.	Current use	Last contained	Capacity (000)
1.	SW Surge	Crude Tar	660 M
2.	SW Surge	Crude Tar	1065 M
3.	SW Surge	Methyl Solvent	99 M
4.	SW Surge	Lt. Uncorrected Creosote	99 M
11.	SW Surge	Creosote	254 M
12.	SW Surge	Unknown	57 M
17.	SW Surge	Heavy Oil	20 M
18.	SW Surge	NSR Oil	20 M
19.	SW Surge	P & R Oil	20 M
20.	SW Surge	Creosote	317 M
23.	SW Surge	Lt. Uncorrected Creosote	20 M
33.	Heavy Oil	Heavy Oil	45 M
34.	SW Surge	NSR Oil .	45 M
39.	SW Surge	Creosote	20 M
53.	SW Surge	Creosote	10 M
65.	Liquid Pitch	Heavy Oil	761 M
66.	SW Surge	Creosote	191 M
67.	Heavy Oil	Heavy Oil	102 M
68.	Liquid Pitch	Liquid Pitch	248 M
74.	SW Surge	Creosote	20 M
99.	SW Surge	Creosote	209 M
101.	SW Surge	Creosote	759 M
102.	Fume Tank	Heavy Oil	9.3 M
200	Liquid Pitch	Liquid Pitch	2100 M
V201	SW Surge	Liquid Pitch	19 M
V207	SW Surge	Liquid Pitch	19 M
240	Heat Transfer Oil	Heat Transfer Oil	2 M
250	Heat Transfer Oil	Heat Transfer Oil	2 M
SW #1	Storm Water (SW)		45 M
SW #2	Storm Water (SW)		45 M
SW #3	Storm Water (SW)		45 M
SW #4	Storm Water (SW)		45 M
SW #5	Storm Water (SW)		20 M
SW #6	Storm Water (SW)		20 M

Koppers020594

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

RECEIVED
APR 16 2001

April 9, 2001

Oregon Department of Environmental Quality
Northwest Region
2020 SW Forth Ave., Suite 400
Portland, Oregon 97201-4987

Attention: Elliot J. Zais
Sr. Environmental Engineer

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Zais,

Attached please find revised copies of pages # 11 and # 26 of our SPCC Plan dated February 24, 2000. The changes are a result of a recent Portland Fire Bureau site inspection and their request that we number, and mark, the six buildings that are occupied here at the terminal. This has been done and the site map attached has been modified to reflect these changes.

Should you have any questions in this regard, I can be reached at 503/286-3681.

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Amos S. Kamerer

CC: T. Self, KII
M. Cilley, KII

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7540 N.W. St. Helens Road
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Amos S. Kamerer
Plant Manager

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Fax: 503-285-2831

April 9, 2001

City of Portland
Bureau of Environmental Services
6543 N Burlington Avenue
Portland, Oregon 97203-5452

Attention: Derik E. Vowels
Permit Manager

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Vowels,

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Marine Safety Officer

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Plant Manager

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April 9, 2001

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Hazardous Materials Coordinator

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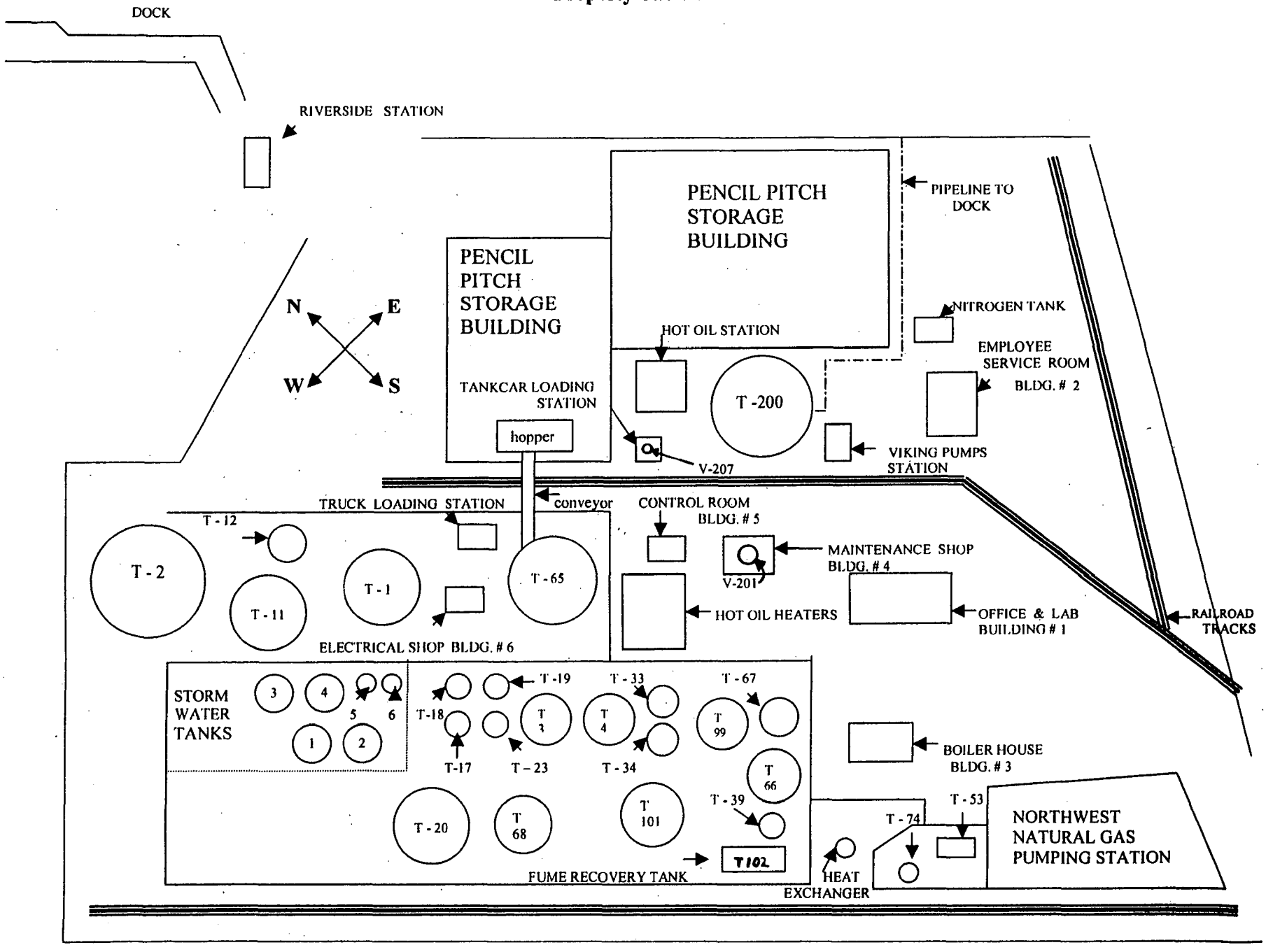
Property Site Plan



Koppers020600

CONTINGENCY, SPCC
AND
POLLUTION PREVENTION PLAN

KOPPERS INDUSTRIES, INC.

NORTHWEST TERMINAL

PORTLAND, OR

CONTINGENCY PLAN,
SPILL PREVENTION, CONTROL,
AND COUNTERMEASURES (SPCC) PLAN
AND
STORM WATER POLLUTION PREVENTION PLAN
KOPPERS INDUSTRIES, INC.
NORTHWEST TERMINAL
7540 NW Saint Helens Rd.
PORTLAND, OR 97210-3663
FEBRUARY 24, 2000

CERTIFICATION

I here by certify that I have inspected the subject facility, and being familiar with the provisions of 40 CFR 112 for SPCC requirements and 40 CFR 122 for Storm Water Pollution Prevention requirements, attest that this Plan has been prepared in accordance with good engineering practices.

William A. Meisinger

William A. Meisinger, P.E.
Manager of Engineering
PENNA. # PE-038022-E

Date: 2-24-00

MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Amos S. Kamerer
Plant Manager

William A. Meisinger 2-24-00

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Koppers020603

1.0 INTRODUCTION

This plan has been developed to; a) provide a basis for planning for and responding to potential spills, accidents, fires, or other contingencies and b) describe and implement practices to minimize and control pollutants in storm water discharges and ensure discharge permit compliance. It includes the requirements for the Contingency Plan as required by the Resources Conservation and Recovery Act (RCRA), the Spill Prevention, Control and Countermeasures (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) of the Clean Water Act, and the inventory reporting requirements of the Emergency Planning and Community Right-to Know Act (SARA Title III).

Questions concerning this plan may be directed to:

Amos S. Kamerer	Plant Manager	(503) 286-3681
T.J. Turner	General Foreman	(503) 286-3681

1.1 FACILITY LOCATION

The Northwest Terminal is located in Multnomah County in the city of Portland, OR. The terminal is located on approximately 6.4 acres of leased property. The property owner is the N W Natural, 220 NW 2nd. Ave., Portland, OR, 97209. The portion of the property that Koppers Industries leases is addressed as 7540 NW Saint Helens Rd., Portland, OR, 97210. The property is bounded by Saint Helens Road (Oregon State Highway 30) on the south, the N W Natural property extending to the shore of the Willamette River on the north. The N W Natural liquefied natural gas plant on the west. The south end of NW Front Ave. separates Koppers property from Wacker Siltronic Corporation, on the eastern boundary. 11 people are employed at the terminal (4 salaried people, 7 hourly people). Normal operating hours are from 4:00 p.m. on Sundays through 4:00 p.m. on Fridays. Generally, the plant is closed on the weekends.

1.2 OPERATION

Coal tar pitch is imported via bulk and/or liquid cargo vessels. This product is then stored at the terminal, prior to the distribution to our customers. Outbound shipments are made via tank truck or tank cars.

All products and/or chemicals used or handled through the terminal are covered by material safety data sheets, which are on file. All employees have been trained on the usage of these materials and educated in the proper manner of reading and understanding of the material safety data sheets. This training is mandatory and retraining is given annually.

1.3 COORDINATED EMERGENCY SERVICES

This plan is written to facilitate the quick and efficient coordination of emergency response actions between Koppers Industries, Inc. (Koppers) and any emergency response companies or agencies, which may be needed. Copies of this plan, and updates, are provide to the following:

Oregon, Department of Environmental Quality

Portland Fire Department

City of Portland, Bureau of Environmental Services

US Coast Guard

Plant Supervisors and Employee's

Instructions on how and when to obtain assistance for emergency situations including agency and contractor phone numbers are included in this plan.

1.4 SPCC AND SWPPP PLAN MAINTENANCE

This Plan must be kept up to date. Notify Koppers' Environmental Program Manager in the event of any changes made. Automatic review, evaluation and recertification by a Professional Engineer is required once every three years from the date of the latest certification. This Plan must also be amended whenever there is a change in design, construction, operation or maintenance which materially affects the facility's potential for discharge, and the amendment fully implemented as soon as possible and no later than within six months.

A copy of this Plan is to be maintained in the plant's main office and the plants control room.

Notify the Environmental Program manager if any amendment needs to be made to this Plan.

2.0 INVENTORY OF OIL AND HAZARDOUS MATERIALS

2.1 Discussion

Various materials used at the Koppers facility are considered hazardous based on the toxicity or flammability of those materials. These include coal tar distillate, coal tar pitch, boiler water treatment chemicals, fuel, heat transfer oil and lubricants for plant vehicles and equipment.

2.2 Business Information and Identification

The following information applies to the Koppers Industries Northwest Terminal:

Business Name:	Koppers Industries, Inc.
Business Phone:	(503) 286-3681
Business Fax:	(503) 285-2831
Owner:	Koppers Industries, Inc. 436 Seventh Ave. Pittsburgh, PA 15219
Operator:	Same as owner
SIC Code:	2865
EPA ID Number:	ORD 027734359
Site Address:	7540 NW Saint Helens Road Portland, OR 97210
Mail Address:	Same as above
Type of Business:	Coal Tar Pitch Terminal

2.3 Emergency Contacts/ Emergency Coordinators

Name/Address
Amos S. Kamerer, Plant Manager
5912 Knightsbridge Drive
Portland, OR 97219
Home Phone [redacted] Cellular Phone (503) 705-8748

T.J. Turner, General Forman
17815 NE 152nd. Ave.
Bush Prairie, WA 98606
Home Phone [redacted] Cellular Phone (503) 705-9507

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator, when there is a night shift during the normal 5 day work week, can be reached at (503) 286-3682 or cellular phone at (503) 250-0672.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, the shift operator will notify the Emergency Coordinator (above) who will assume responsibility for implementation upon his arrival at the terminal. Also, on weekends and holidays when there is no shift work occurring, the terminal is patrolled by NW Natural's Pinkerton Security guards who make rounds through the terminal, hourly. The guards have been provided with a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 14.

2.4 Hazardous Materials Inventory

The products used, or stored on the Koppers facility are listed by tank number in, Table 3.7. (Tank Listings Table) and is found on page 11. These tank's are also shown by number on the site map, found on page 26. All other buildings and structures are also shown on the site map.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids, spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.11, lists all the tanks at the Koppers terminal by number, along with contents and the tank capacities. The location of these can be found on the site map, on page 26.

3.2 Conformance with SPCC Standards and Guidelines

This facility meets the minimum requirements for diversionary structures and equipment to prevent discharged oil or hazardous substances from reaching navigable waters as required by 40 CFR 112.7© by providing secondary containment for all major tanks and process equipment.

The Northwest terminal is in conformance with the applicable guidelines of 40 CFR 112.7 ©. Rainwater is collected, stored and then tested prior to discharge, all in accordance with our NPDES permit requirements. Tank installations are equipped with secondary containment and are regularly inspected by operators. Spill prevention details for equipment and processes are discussed more fully below.

3.3 Inspections and Security

All operational areas in the plant are checked every 2 hours by the operator that is on duty, through out each shift. Any problems or unusual circumstances which can not be immediately resolved are reported to the Supervisor.

3.4 General Plant Spill Prevention

A hazardous material spill can occur any place, any time. All employees are prepared to respond immediately to control the situation and to notify management. Containing a spill to the smallest area possible is the first step.

Containment can quickly be constructed using available equipment and supplies; usually by placing dirt, sand, or available absorbent pads or absorbent containment booms around the lower side of a spill. If possible, a spill will be prevented from reaching the surface water drainage where it can spread more rapidly and have greater environmental and health impact.

Loading operations are supervised by employees familiar with the equipment involved. Buckets and/or pans are placed under hose connections to collect drips. The employees are trained to always be prepared that hoses and/or pipelines can be full of product and to take extra care when disconnecting hoses. Properly, and promptly cleanup any drips or spills. Supervisors must be notified of any spills that are outside of the containment areas. Collected materials will be returned to the processes or will be properly containerized for disposal.

3.5 Surface Drainage

The terminal property is at 37' above sea level and our out-fall for pumping off the collected storm runoff is located on the very southeastern tip of the property, at approximately a 10 ft elevation above a creek that flows to the Willamette River.

In the Northwest terminal there are two run-off patterns for site drainage. The first is directly in front of the office and away from any pitch handling areas. This area would not be threatened by a spill. All other run-off areas from the plant feed into the tank farm and then into a concrete collection sump. Dual sump pumps (one operation and one standby) lift the run-off into the storm water storage tanks #1, #2, #3, #4, #5, and #6. When these tanks fill, they are sampled and the samples are taken to an Oregon Department of Environmental Quality approved laboratory for analysis in accordance with our NPDES permit. When the laboratory reports that the test results are within the parameters allowed in the NPDES permit, the water is pumped to the out-fall referenced above.

Equipment, including secondary spill containment, has been installed and procedures implemented to prevent oil or hazardous materials from leaving the plant. A spill is most likely to occur in the process area, where it can be contained.

Koppers has installed extensive paving at the coal tar distillate tank car heat exchanger unloading station, including paving between the rail tracks and the loading area for trucks. In addition, a below grade sealed concrete sump was installed as a catch basin. This catch basin has approximately 1500-gallon capacity. Also two-sump pumps have been installed. The first pump is automatically activated and pumps collected storm water into the tank farm storm water run-off, collection system for further handling.

The second pump is energized only when unloading coal tar distillate rail cars. This pump is on a float activated switch and is piped to #39 tank, which is now designated as the emergency response tank at this location. Tank #39 is of sufficient capacity to hold the gallonage of a full tank car or 20,000 gallons. It is the duty of the loading/unloading employee to clear the catch basin of water, then open the valve to tank #39 and energize the automatic pump. In this way, should a creosote spill occur, all precautions are in place to contain the release.

In the case of a spill in which hazardous materials or oils reach any of the drainage ditches, immediate action must be taken to contain the spill. Temporary earth dams should be constructed using plant equipment along the ditches, creating a series of impoundments to contain the flow. Sorbent booms may be used to remove containments from the water held behind the dams, is needed.

These dams can only hold back a limited amount of water, so emergency help should be contacted at the first sign that such a spill has occurred or may occur.

3.6 Tank Car Unloading

Tank cars are unloaded at the unloading station, where the process transfer pipelines are all above ground. The potential spill sources in this area include leaks from the process tanks, valves, pumps, and pipe systems. These leaks can best be prevented by proper valve and pump maintenance and equipment inspection during material transfers. Any leaks or drips must be cleaned up immediately.

As part of the operation procedures, drains and outlets on tank trucks and tank cars are checked for leakage before and after each loading and unloading operation. Operations personnel performing loading and unloading activities are instructed to inspect piping and pumps associated with these activities and to report spills or leakage.

The driver performs a visual inspection of the truck and trailer after each loading and if repairs are needed the truck is shopped for repairs.

The operating procedures included in this plan form the basis for the training of operations personnel in the prevention of coal tar distillate or coal tar pitch discharges. Job positions within the Northwest terminal require that new personnel, working in unfamiliar process areas will have a senior experienced employee to guide them. Personnel are also instructed in the operation and maintenance of equipment to prevent discharges.

3.7 Vessel Unloading

As of December 1999 a project was completed which gives this facility the capability of unloading liquid coal tar pitch vessels at the GASCO dock, directly to a new storage tank T-200. The unloading is accomplished through a pipeline that runs from the GASCO dock on the Willamette River to tank T-200. The liquid coal tar pitch is unloaded at an elevated temperature of approximately 400 degrees F. To maintain the liquid pitch at these temperatures there is a companion line that is attached to the outside of the unloading line, with a heat transfer oil running through it to provide the maintenance heat that is required. There is containment on the GASCO dock, at the end of the pipeline, should a release occur. In an effort to minimize the impact of such a release, a leak detection monitoring system has been installed on the heat transfer oil lines, which will automatically shut off the flow of the heat transfer oil, to and from the dock. There is curbed containment at the on shore leak detection monitoring station; and also around the tank T-200 area, should a release occur at either location.

The discharges of our liquid coal tar pitch vessels, at the GASCO dock, will be handled through a contract for the tankermen services, with Pacific Terminal Services, Inc.(PTSI). PTSI has amended their operating authority letter with the U. S. Coast Guard, their Oil Spill Contingency Plan, and their Operating Manual, to reflect the addition of the handling our liquid coal tar pitch.

3.8 Tank Farm

The concrete-wall-lined and earth-diked tank farm has a total containment capacity of approximately 2,900,000 gallons. Operators regularly walk and inspect this area, checking for corrosion, leaks or stains, or anything out of the ordinary. They also do any housekeeping, as necessary.

Table 3.8
TANK LISTING TABLE
Koppers Industries, Northwest Plant

Tank No.	Current use	Last contained	Capacity (000)
1.	SW Surge	Crude Tar	60 M
2.	SW Surge	Crude Tar	1065 M
3.	SW Surge	Methyl Solvent	99 M
4.	SW Surge	Lt. Uncorrected Creosote	99 M
11.	SW Surge	Creosote	254 M
12.	SW Surge	Unknown	57 M
17.	SW Surge	Heavy Oil	20 M
18.	SW Surge	NSR Oil	20 M
19.	SW Surge	P & R Oil	20 M
20.	SW Surge	Creosote	317 M
23.	SW Surge	Lt. Uncorrected Creosote	20 M
33.	Heavy Oil	Heavy Oil	45 M
34.	SW Surge	NSR Oil .	45 M
39.	SW Surge	Creosote	20 M
53.	SW Surge	Creosote	10 M
65.	Liquid Pitch	Heavy Oil	761 M
66.	SW Surge	Creosote	191 M
67.	Heavy Oil	Heavy Oil	102 M
68.	Liquid Pitch	Liquid Pitch	245 M
74.	SW Surge	Creosote	20 M
99.	SW Surge	Creosote	758 M
102.	Fume Tank	Heavy Oil	10 M
200	Liquid Pitch	Liquid Pitch	2000 M
V207	SW Surge	Liquid Pitch	17 M
240	Heat Transfer Oil	Heat Transfer Oil	2 M
250	Heat Transfer Oil	Heat Transfer Oil	2 M
SW #1	Storm Water (SW)		45 M
SW #2	Storm Water (SW)		45 M
SW #3	Storm Water (SW)		45 M
SW #4	Storm Water (SW)		45 M
SW #5	Storm Water (SW)		20 M
SW #6	Storm Water (SW)		20 M

3.9 Fuel and Lubrication Oil

Lubricating Oil is stored in 55-gallon drums, most of which are stored in the oil house building. Drums are stored upright and kept sealed. Dispensing areas are kept clean. Oil drippage is contained. Any minor spills are contained and cleaned up immediately.

3.10 Hazardous Waste Storage Facilities

Hazardous waste is placed in drums when generated. Full drums are stored in the drum storage area adjacent to the track 5 heating station. The drum or drums are then disposed of through RCRA approved facilities, within less than 90 days.

4.0 EMERGENCY RESPONSE PROCEDURES

4.1 General

This section of the Plan describes the actions that are to be taken by Koppers personnel in response to any injury, accident, fire explosion, or unplanned release of any hazardous material to the air, soil, or water.

4.2 Emergency Coordination

As soon as an employee discovers an emergency situation, that person shall quickly estimate the extent of the problem, take safe and appropriate control action, and then notify the terminal management immediately. Per the list in Section 2.3 page 7, the operator, who is present will assume the responsibilities of Emergency Coordinator (EC). Other personnel will respond as directed by the EC as needed.

The EC has Koppers Industries' authority to commit plant employees and contract labor and equipment, or to purchase supplies as needed.

Effective communication is vital in any emergency response. All terminal employees have portable two-way radios, which will be used for communication and coordination between the plant offices and yard areas. Phones may also be used between offices.

4.3 Immediate Response

As soon as an employee discovers an emergency situation, he should quickly determine the extent of the problem. If a simple action can be taken to control the situation, such as shutting a valve to stop the flow from a ruptured pipe and can be done safely, then the control action should be completed first. If there is no simple safe control action, or after taking such action, the operator shall immediately notify the terminal management and any other personnel who may be endangered by the incident, by phone or radio.

4.4 Response Procedures

4.4.1 Upon discovery or notification that an emergency exists, the EC shall:

- Determine the extent of the emergency.
- Implement plant evacuation, if needed, to prevent injury.
- Call for outside assistance as needed.
- Start immediate control actions.
- Implement cleanup or other responses.
- Notify local, state, and federal agencies as required.
- Notify Koppers Pittsburgh Office.
- Assure completion of cleanup.
- Provide for storage of cleanup material, including hazardous waste.
- Evaluate possible hazards to human health or environment.
- Make a final written incident report.
- Make other notifications as stated in Section 3.5, Emergency Notifications.

Many of these actions may occur concurrently.

4.4.2 Whenever there is a release, fire, or explosion, the emergency coordinator should immediately identify the character, exact source, the amount, and area affected by the incident. This may be done by observation, or review of facility records, or manifests and if necessary, by chemical analysis. Form 4.5.5, pages 17 – 20, should be used to document the information needed for notifications.

4.4.3 Concurrently, the Emergency Coordinator shall assess possible hazard to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any hazardous or asphyxiating gases that are generated or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

4.4.4 If the Emergency Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside of the facility, or if the released amount or hazardous or extremely hazardous material exceeds the

Reportable Quantity (RQ). These findings shall be immediately reported to the National Response Center as in Section 4.5, Emergency Notifications.

Note: That the reportable quantities for materials are listed in Section 4.5.

If his assessment indicates that evacuation of local areas may be advisable, appropriate local authorities shall be notified immediately. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

4.4.5 During an emergency, the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes or materials at the plant. These measures could include turning water sprays onto tanks, stopping and isolating processes, shutting off power to areas, collecting and containing released materials, or moving and isolating other containers.

4.4.6 If some or all operations are stopped in response to an emergency, the emergency coordinator shall monitor tanks, pipes, valves, and other process equipment for leaks, pressure build-up or ruptures wherever appropriate.

4.4.7 Immediately after an emergency, the Emergency Coordinator shall provide for treating, storing, or disposing of recovered materials or wastes, contaminated soil, surface water, or any other material that results from a release, fire or explosion.

4.4.8 Before resuming operations, the Emergency Coordinator shall:

a. Insure that clean-up is complete to the point that operations will not interfere or create further potential for hazardous waste release.

b. Insure that all emergency equipment is cleaned and fit for use.

c. If hazardous wastes or a hazardous waste unit has been involved, then advise the Dept. of Environmental Quality and EPA region X that Steps a and b above are complete.

4.4.9 If hazardous wastes or the hazardous waste unit has been involved, the Emergency Coordinator shall submit a written report as requested by the Dept. of Environmental Quality. A copy of the completed report shall be maintained in the Operating Record.

4.5 Emergency Notifications

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4.5.1 The Emergency Coordinator shall ensure that the necessary notifications are made. Form 4.5.5 entitled, "Emergency and/or Hazardous Materials Incident Report" is to be used. Page one is organized to provide all of the information needed for the initial verbal notification of the National Response Center of other agencies. As soon as a spill or other incident is discovered, the supervisor/manager who will do the reporting should begin filling in the information.

Page 2 should be used as a log of notification made. Get the position and name of the person who accepts the phone notifications. Also, if an incident number is assigned, as by the National Response Center, that number should be recorded. As more is learned about the incident, the report should be updated. Updates can be recorded on page 2 as well.

Pages 1,2, and 3, competed either by hand or typed, can be used for the required written notification of agencies. These should be sent with cover litters showing everyone who will get copies. Copies must be kept in the plant's Operating Record.

Finally, page 4 should be used for Koppers Industries internal reporting of additional related information. KII has an obligation to report all spills, which could possibly, impact over-all cleanup work. The complete report, Pages 1,2,3, and 4 should be sent to the Environmental Program Manager including original photographs. He will provide the required notification to Beazer East. Inc.

4.5.2 What spills or incidents must be reported and to whom?

The following is a summary. Note that more than one category may apply.

<u>If outside help is needed. IMMEDIATELY:</u>
Call fire and/or other appropriate emergency agencies describe incident and needed assistance, such as fire suppression, medical aid, evacuation and/or crowd control.

<u>If a release or threatened release of hazardous material: OR</u>

<u>If a health threat or release outside of facility: OR</u>

<u>If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water:</u>

Call 911 for immediate help. If the release involved a Reportable Quantity (RQ) then call both the Oregon Emergency Management Office at 1-800-424-8802 and the National Response Center at 1-800-424-8802.

Such releases that cannot be recovered must also be included in the SARA Title III annual reports.

If the release results in or has the potential to reach the City Storm or Sanitary Sewer drains, IMMEDIATELY:

Call the Duty Officer at 823-7180

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented: IMMEDIATELY AND NOT LATER THAN 24 HOURS:
Call the Oregon Emergency Management Office at 1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:

595 Cottage Street. N.E.
Salem, Oregon 97310

If the release impacts the waters of the United States, a written report must also be sent to the EPA, as follows: Environmental Protection Agency

Director, Region X
1200 Sixth Avenue
Seattle, Wash. 98101

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**
Call the US Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS!**

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone	Cellular Phone
Traci Self, Mgr. Environmental Compliance	412/227-2883	[redacted]	412/913-9358
Mike Juba, Mgr. Health & Safety	412/227-2882		412/897-8407
Randy Collins, Mgr. Loss Control	412/227-2456		412/551-4554

Form 4.5.3

EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Northwest Terminal
Street Address: 7540 N.W. Saint Helens Road.
City/State/Zip: Portland, Or 97210-3663
Phone: (503) 286-3681
EPA ID#: ORD 0267734359

FACILITY: Same as above

DATE OF INCIDENT: _____ TIME OF INCIDENT: _____

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(circle one) Hazardous Waste Spill, Injury Accident

Other: _____

MATERIAL INVOLVED:

Name	Quantity	Media (soil, water, etc.)

EXTENT OF INJURIES, IF ANY:

_____

_____

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored

Form 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911		
Oregon Emergency Management	1-800-452-0311		
National Response Center	1-800-424-8802		
Oregon OSHA	229-5910		
City Duty Officer (For Storm, Sewer, Drain Contamination, only)	823-7180		
Northwest Natural	224-3532		
Wacker Siltronics	243-2020		
Security for FAB #1	Ext. 7420		

Security for FAB #2 Ext. 4300 _____ _____

Fuel & Marine Marketing, LLC _____ _____
286-5321

Form 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Manager of Environmental Compliance, Traci Self

Office 412-227-2883
Home 412-247-5515
Cellular 412-913-9358

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

REPORT BY (Name): _____ DATE_____

REPORT REVISED: _____ DATE_____

REPORT REVISED: _____ DATE_____

Table 4.5.3
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of the report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

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ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE ON PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND THE RESPONSE ACTIONS TAKEN.

4.6 Available Equipment

The following equipment is available at the plant:

EQUIPMENT	STORAGE LOCATION
Front-end loaders	2 in the pitch storage building and 1 outside the shop.
1 Pickup Truck	Office parking lot
Absorbent Pads and Booms	Various Emergency Response Cabinets
Lift Truck	Shop area
Portable Pump	Shop area
Sand	Along the wall, to the West of the boiler house

The above equipment can be effectively used to control and clean a spill of oil, hazardous material, or hazardous waste. Trucks and tractors can be used to transport and place soil for containment dams, absorbing spilled liquid, and contaminated soil from cleanup actions. Pumps can be used to pump spilled liquid back into containments. After response action is complete, equipment should be placed on the drip pad or vehicle wash pad and be decontaminated with the steam cleaner prior to being released from the response.

4.7 Emergency Response Contract Service

Koppers has a Corporate Agreement with IT Corporation to provide for any environmental services in the event of an emergency. IT Corporation can be reached 24 hours per day at # 1-800-537-9540. Ask for the "EMERGENCY RESPONSE MANAGER". IT Corporation is to provide notification within 30 minutes after receipt of the emergency call, of its acceptance of the work and their expected response time.

4.8 Fire and Disaster Response Plans

4.8.1 This section of the Plan provides additional information on specific response actions to be taken in the event of a major disaster, emergency, or other disruption. Such an event could include:

- Fire or explosion
- Earthquake
- Strike or civil strife

4.8.2 Fire disasters can occur anywhere in the plant environment, so all

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employees should be knowledgeable as to the proper method for handling all types of fires, and where the largest potential risk areas are located. Communications with and between plant employees is vital to a safe and effective response.

4.8.3 Designated Response Stations

In the case of a disaster or other major incident, employees shall secure their work areas and processes and then report to the Plant Manager and/or General Foreman, at the main office, if they are not directly involved in Emergency Response.

Plant Office Employees stay at the office. Coordinate outside calls, inquiries, and media contacts.

4.8.4 Evacuation

The need for evacuation shall be signaled by a message over the radio to all employees. All employees shall follow the safest path to meet at the closest location outside the property fence. If the main entrance is **not** affected, the employees should meet at Wacker Siltronics guard shack on the entrance road. If the main entrance **is** effected, than the closed safe location outside the property fence will have to be determined; generally, that would be towards N W Naturals LNG plant or towards the river behind the pencil pitch storage buildings.

Supervisors shall account for all of their employees, notify the EC when they are "all clear" and relay further instructions. An alternate location will be designated and announced at the time of the incident if the Main office is not a safe check-in location.

4.8.5 Fire Suppression Systems

Fire Hose and Hose Reels are located at strategic points around the terminal. Employees must be familiar with ones within their work areas.

Fire Extinguishers are located throughout the plant and on rolling stock. CO-2 and ABC Dry Chemical types are used exclusively.

Dry Fire Water Suppression piping system is located at the ship unloading dock.

4.8.6 Civil Strife, Strike

Emergencies resulting from or shutdowns as a result of, civil strife or strike situations require the control of people entering the plant, both authorized and unauthorized. Local law enforcement agencies can be helpful in achieving this goal, but in-plant security is management's immediate concern. When a total shutdown is planned, and security measures are to be implemented, the following should be observed.

Boiler

- Secure door locks.
- Follow established shutdown procedure.
- Assure that all steam line drains are open

Hazardous Waste Storage Area

- Properly store all hazardous waste drums in the Boiler House.
- Lock doors.

Major Operations

- Secure electrical panels.
- Turn off air compressors, shut valves.
- Store and secure portable tools, cords, hoses, etc.
- Clean up area for safety and fire protection.

Rolling Stock

- Park centrally in area in front of shop.

Gates

- Keep locked at all times.
- Put on new locks to prevent unauthorized entry.

Security Patrols

- Security patrols will be made 24 hours per day.
- Communication will be maintained at all times between the patrols and the main office by radio.

Lighting

- The plant has general yard lighting system consisting of flood lights, streetlights and incandescent lighting. Outdoor lighting in front of the main office is controlled by photocells.

4.9 Medical Emergency Plans

Emergency and first aid supplies are maintained at the following work locations:

Main Office (Main supply Center)
Control Room (Intermediate supply location)
Maintenance Shop (Intermediate supply location)

First aid supplies are intended for use on minor cuts, abrasions, and burns requiring simple care such as band-aids, disinfectant, or ointment. Supplies are also available for the immediate treatment of severe injuries while awaiting professional medical care, such as gauze pads, bandages, and splints.

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Any First aid applied at the plant by plant employee's, is in no way intended to replace any needed medical attention, but only to help prior to receiving professional treatment.

If serious Injury occurs, assure that an ambulance is called immediately.

5.0 STORM WATER POLLUTION PREVENTION PLAN

5.1 General

This section of the Plan describes the pollution prevention procedures and facilities for this plant to minimize the impact of storm water runoff to the surrounding environment. This section specifically addresses the requirements of our Storm Water Industrial NPDES Permit.

5.2 Pollution Prevention Objectives and Process

All boiler blowdown water and storm water runoff is collected in our tank farm and is handled under the terms and conditions of our NPDES permit. No discharges are made unless they meet these terms and conditions.

6.0 TRAINING

All plant employees shall receive training on the content of this plan. Supervisors will each receive a copy and become thoroughly familiar with it through training, discussion, and self study. Supervisors will train their employees in the overall plan and in the specific needs of their work areas.

Training will, at a minimum, include programs to ensure that facility personnel understand basic procedures for pollution prevention and good housekeeping and are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, as applicable to each employee's job function:

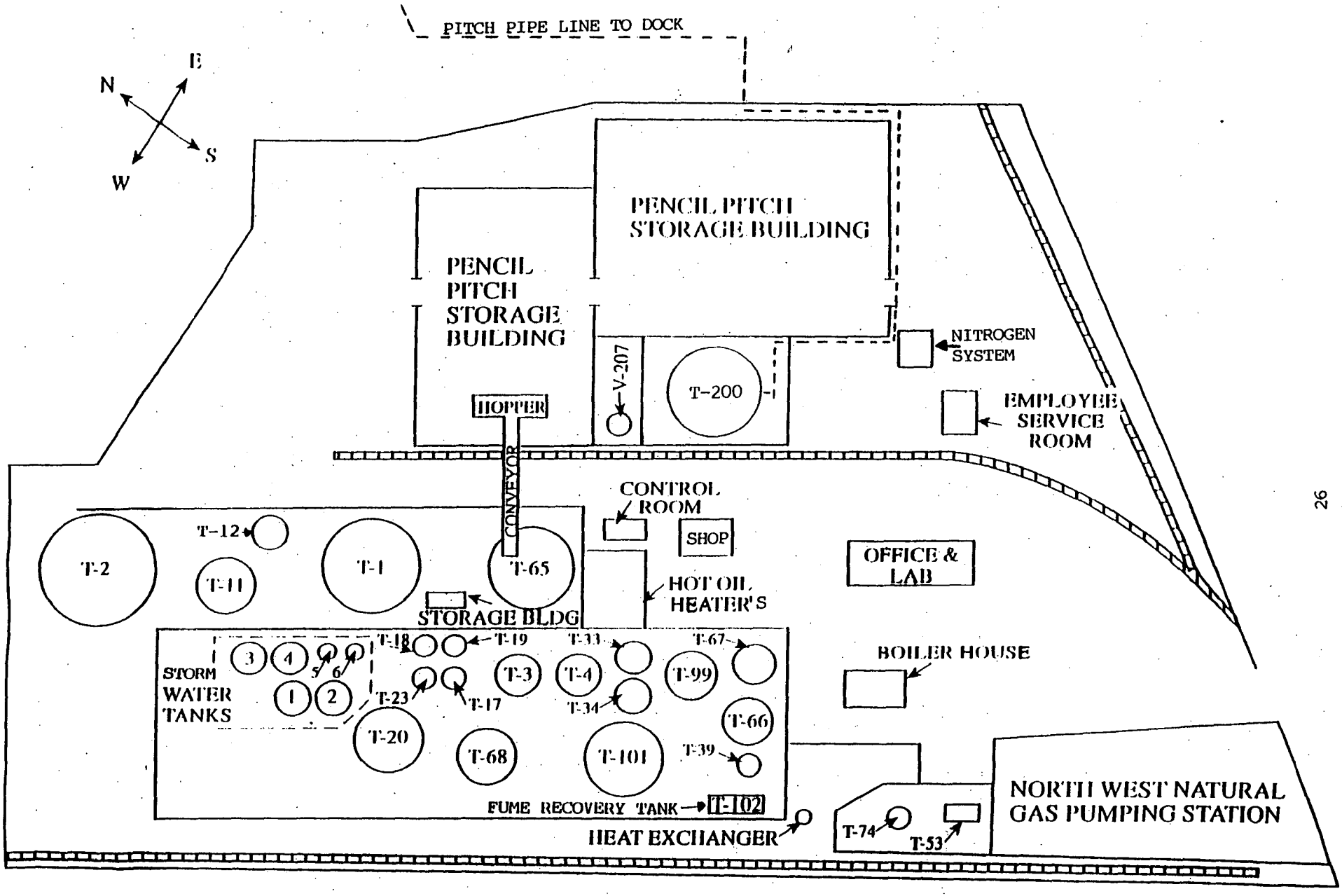
- Procedures for using, inspection, repairing, and replacing facility emergency and monitoring equipment;
- Communications and alarm systems;
- Response to fires or explosions;
- Response to ground water or surface water contamination
- Shutdown of operations;
- Methods for the safe handling of hazardous materials;

- Procedures for coordination with local emergency response organizations;
- Use and location of medical supplies;
- Use of emergency response equipment and supplies appropriate to work areas;
- Emergency response procedures and plans contained within this SPCC and Contingency Plan.

Refresher training will be provided at least annually. New employees will not work in unsupervised positions until they have completed all training required for those positions. Supervisors will provide training to their employees and management will assure that supervisors are properly trained.

Employees with specific additional job related training needs will also be given that training, such as hazardous waste handling training as required by RCRA and State regulations, hazardous waste operating procedures for fuel additive to the boiler, storm water pollution prevention, and waste water operations.

This training may be coordinated and take place concurrent with Hazard Communication and RCRA training. Safety meetings, and annual updates.



PROPERTY SITE PLAN

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Pacific Terminal Services, Inc.

Oil Spill Contingency Plan Supplement - Coal Tar Pitch (Molten)

Portland Marine Fuel Oil Facility

7900 NW St. Helens Rd.
Portland, Oregon 97210

November 1999

NOV 12 1999

Pacific Terminal Services, Inc.
Oil Spill Response Plan
Supplement - Coal Tar Pitch (Molten)

CONTENTS

This supplement follows the same outline as the Oil Spill Response Plan. Section Numbers are the same. This Supplement contains only information specific to coal tar pitch which is different than for petroleum products. This supplement indicates where the procedure or information is the same for coal tar pitch and petroleum products. Both the Supplement and the Oil Spill Response Plan are to be read together to obtain all the information.

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GENERAL AND ADMINISTRATION

1.1 PURPOSE AND SCOPE

1.1.1 Purpose

The purpose of this supplement is to provide particular information regarding coal tar pitch (molten) which is also received at the Pacific Terminal Services, Inc., Portland Marine Fuel Oil Facility.

In addition to oil tank vessels, the Portland Marine Fuel Oil Facility receives bulk cargo ships fitted with deep tanks for carriage of liquid coal tar pitch (molten). After hook-up by hoses from the discharging ship to the receiving pipeline on the Pacific Terminal Services Inc. Pier, liquid coal tar pitch is pumped from the discharging ship through the pier pipeline and overland to storage tanks located upland adjacent to St. Helens Road (a distance of about 2000 feet).

This Supplement to the Oil Spill Response Plan covers releases, discharges, or spills of coal tar pitch (molten) into the waters of the Willamette River. Generally, the Oil Spill Response Plan covers all spills of petroleum or hazardous materials. The Oil Spill Response Plan is the primary guide and all procedures and notifications contained in the Oil Spill Response Plan apply to any spills of liquid coal tar pitch. This Supplement deals only with those factors that are unique to the liquid coal tar pitch (molten) operation.

1.1.2 Affected Geographical Areas

Same as in the Oil Spill Response Plan.

1.1.3 Portland Oil Facility Information

This Supplement addresses the operations of Portland Terminal Services, Inc. (PTSI) at the Portland Marine Fuel Oil Facility for Koppers Industries, Inc. in connection with transfer of liquid coal tar pitch (molten) to upland storage and distribution tanks.

Koppers Industries owns portions of the pier and the pipeline from the pier to the storage tanks located upland adjacent to St. Helens Road. The pipeline is approximately 2000 feet long from the ship connection on the pier to the shut off valves near the tank connections. Koppers Industries owns the pipeline and the storage tanks and distributions facilities on St. Helens Road. Koppers Industries, Inc. leases the land from NW Natural.

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Pacific Terminal Services, Inc.
Oil Spill Response Plan
Supplement - Coal Tar Pitch (Molten)

Liquid Coal Tar Pitch Facility Owner:

CORPORATE:

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219

(412) 227-2001

LOCAL:

Koppers Industries, Inc.
540 NW St. Helens Road
Portland, Oregon 97210

(503) 286-3681

Land owner:

NW Natural
220 NW Second Avenue
Portland, Oregon 97209
(503) 226-4211

Regulatory Jurisdiction

For purpose of dividing the federal regulatory jurisdiction between the EPA and the USCG, the liquid coal tar pitch (molten) facility owned by Koppers Industries, Inc. is defined as a complex consisting of non-transportation related facility and a marine transportation related facility.

The non-transportation related facility includes several above ground storage tanks and interconnecting process and distribution piping. Refer to the attached Facility Site Plan.

The non-transportation related facility complex is regulated by the EPA.

The marine transportation related facility portion of the complex consists of an above ground liquid coal tar pitch (molten) transfer pipeline running from the pier to the upland storage tanks. The liquid coal tar pitch (molten) pipeline is insulated and heat traced to heat the liquid coal tar pitch (molten) in the pipeline before transfers begin. The heating medium is a petroleum based process oil.

The marine transportation related part of the facility complex is regulated by the U. S. Coast Guard.

The boundary between the non-transportation related part of the complex and the marine transportation related portion is the valve in the liquid coal tar pitch (molten) transfer pipeline at the shore end of the dock walkway on the upstream end of the pier.

For State Regulations the jurisdiction of the Oregon Department of Environmental Quality covers the entire facility.

1.1.4 Tanks and Facility Operations

The liquid coal tar pitch (molten) facility is designed to receive liquid coal tar pitch (molten) from ships. After the hose between a ship and the dock connection is made up, the ship pumps liquid coal tar pitch (molten) through a pipeline to the upland storage facility located next to St. Helens Road. At this upland facility liquid coal tar pitch (molten) is blended and processed for sale and distribution by tank truck and rail tank car. The Site Identification Code (SIC) for Koppers Industries, Inc. is 2865. The above ground storage tanks and pipeline operated by Koppers Industries, Inc. are shown on the Site Plan (attached).

1.1.5 Dock Pipelines

Liquid coal tar pitch transfers from the pier to the upland storage tanks are made through a single 8" product transfer pipe. This pipe increases in size to 10" just after crossing the top of the riverbank. The pipe is heat "traced" with 1" and 2" hot oil pipes attached to the product pipe. The product and heat trace pipes are completely encased with 6" thick insulation. The heat trace fluid is a petroleum based oil similar to diesel fuel oil with higher flash point.

The liquid coal tar pitch transfer pipe has shut off valves at the ship connection on the pier (two valves - one manual and one remotely motor operated), a valve at the top of the river bank (manually operated), and manually operated valves near the storage tanks to direct the product to the proper tank.

The transfer pipe runs above ground from the pier connection to the storage tank area. The total length of the pipeline is approximately 2000 feet. The product line-fill capacity is approximately 200 barrels from the ship connection on the pier to the shut off valve near the tank. The heat trace line-fill capacity is approximately 5 barrels from the end of the pier to the shut off valves at the meter shed abut 150 feet inshore of the top of the bank.

1.1.6 Volume of Liquid Coal Tar Pitch (Molten) Transfers

Ships bringing coal tar pitch will discharge about 8,400 metric tons (50,000 barrels) of product. Six to twelve ships a year will discharge at the facility. Each discharge will take 36 to 48 hours.

1.1.7 Vessel Information

In addition, liquid coal tar pitch (molten) is transferred in bulk from ships to upland storage tanks. A steel transfer hose will be directly connected between the ship and the pier transfer pipe connection. The ships are conventional dry bulk/container carriers fitted with special deep tanks for carriage and transfer of liquid coal tar pitch. The deep tanks are approximately 8900 metric ton capacity (approximately 60,000 barrels). The vessels are about 40,000 DWT ton capacity and approximately 650' long by 95' wide.

1.1.8 Simultaneous Operations

Only one ship carrying liquid coal tar pitch can transfer at a time. Other operations which may occur simultaneously with ship unloading may occur in the upland process and tank area. These operations include inter tank transfers, truck loading, and rail car loading.

1.1.9 Calculation of Liquid Coal Tar Pitch Spill Planning Volumes

Worse case planning volumes are calculated to determine the amount of liquid coal tar pitch spill response resources that are necessary to have available. The ODEQ, the EPA, and the USCG have different requirements and definitions of worse case planning volumes.

In calculation of these worst case volumes consideration much be given to the nature of the liquid coal tar pitch (molten). Liquid coal tar pitch is a solid at ambient temperatures. If there is a leak or a spill of the liquid coal tar pitch (molten) it will immediately start to cool and therefor start to solidify. Generally, small leaks will solidify almost immediately. Larger leaks and spills will spread out. While larger leaks are spreading out, the surface of the leaking material will congeal and solidify. This solidifying action will retain the spill to a definite area. Calculations indicate that even if the largest storage tank in the facility ruptures and spreads the liquid coal tar pitch (molten) over the surface of the ground, the liquid coal tar pitch (molten) will solidify and contain itself before the material reaches the river. On this basis there is no containment provided around the storage tanks in the upland portion of the facility. Any spills of the hot liquid coal tar pitch (molten) into the water will cause steam and water agitation. Spills into the water should be immediately apparent to the Persons in Charge on the pier and on board the discharging ship.

<u>ODEQ Worst Case Spill</u>

The ODEQ Worst Spill is the entire volume of the largest above ground storage tank. The volume of the largest above ground coal tar pitch (molten) tank is 50,000 barrels.

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EPA Non-Transportation Related Facility Worst Case Discharge

The EPA Worst Case Discharge planning volume is 100% of the capacity of the largest above ground storage tank. The volume of the largest above ground coal tar pitch (molten) tank is 50,000 barrels.

USCG Marine Transportation Related Facility Worst Case Discharge

The USCG also defines the Worst Case Discharge planning volume as the largest foreseeable discharge in adverse weather conditions. Adverse weather conditions include consideration of wave height, ice, temperature, visibility, and currents. The Worst Case Discharge is based on the discharge from all pipes carrying product between the marine transfer manifold and the non-transportation related portion of the facility. The marine transportation related facility pipe extends from the connection with the vessel to the distribution valves near the storage tank in the upland non-transportation related portion of the facility.

The discharge from each pipe is calculated as follows:

a) The maximum time to discover an oil release from the pipe in hours, plus
b) The maximum time to shutdown the oil flow from the pipe in hours, multiplied by
c) The maximum flow rate in the pipe expressed in barrels per hour, plus
d) The drainage volume for the pipeline between the marine manifold and the non-transportation related facility in barrels.

In addition, the USCG defines the Maximum Most Probable Discharge as the lessor of 1200 barrels or 10% of the volume of the USCG Worst Case Discharge.

Finally, the USCG defines the Average Most Probable Discharge as the lessor of 50 barrels or 1% of the volume of USCG Worst Case Discharge.

At the Portland facility there is a single pipeline between the liquid coal tar pitch (molten) storage tanks and the pier. The line fill capacity of this pipeline is:

Pipeline Diameter (Inches)	Pipeline Line fill Capacity (Barrels)	Pollution Category 46 CFR Part 153 Table 1
8 & 10	200	A

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During transfer operations, the transfer pipeline is monitored hourly by the Koppers Plant personnel. For planning purposes, it is assumed that it could take 60 minutes for the facility personnel to discover a liquid coal tar pitch (molten) release. The time required to shut down the liquid coal tar pitch (molten) operation is less than 15 minutes. The maximum liquid coal oil tar pitch (molten) flow rate is about 1,100 barrels per hour. Therefore, the U. S. Coast Guard Worst Case Discharge planning volume is:

Pollution Category 46 CFR Part 153 Table 1	Worst Case Discharge (Barrels)	Maximum Most Probable Discharge (Barrels)	Average Most Probable Discharge (Barrels)
A	1400	140	14

1.1.10 Hazardous Material Spill Response Planning Scenarios

The ODEQ, the EPA, and USCG each have different requirements and definitions for hazardous material spill response scenarios as follows:

ODEQ Hazardous Material Spill Scenarios

a) Small spill less than 500 gallons or approximately 12 barrels.
b) ODEQ Worst Case Spill of 50,000 barrels.

EPA Hazardous Material Spill Scenarios

a) EPA Worst Case Discharge of 50,000 barrels.
b) A discharge of 2,100 gallons or 50 barrels.
c) of the capacity of the largest above ground hazardous material storage tank at the facility but not more than 36,000 gallons and not less than or equal to 2,100 gallons which is 36,000 gallons or approximately 857 barrels.

USCG Hazardous Material Spill Scenarios

a) Average Most Probable Discharge of 14 barrels.
b) Maximum Most Probable Discharge of 140 barrels.
c) USCG Worst Case Discharge of 1400 barrels to the maximum extent practicable.

To cover all of these different scenario cases for which the spill response actions may be basically the same, Appendix G presents three spill scenarios in accordance with the EPA requirements:

a) Small spill: 50 barrels,
b) Medium spill: 857 barrels, and
c) Worst case spill: 80,000 barrels.

1.1.11 Initial (One Hour) Response

Same as Oil Spill Response Plan.

1.2 UPDATES AND DISTRIBUTIONS

1.2.1 Updates

Same as Oil Spill Response Plan

1.2.2 Distribution

The approved Plan and Supplement will be distributed as follows:

Plan Holder	Copy Number
1. Portland Facility Operations (Boiler Room)	#1
2. Portland Facility Office	#2
3. George Markwood, Facility Manager	#3
4. PTSI, File Copy	#4
5. Terry Bergman	#5
6. ODEQ	#6,7,8
7. USCG	#9,10
8. EPA	#11,12,13
9. NWNG	#14
10. Koppers Industries, Portland Facility	#15

Within 30 calendar days of an approved change or amendment, Pacific Terminal Services, Inc. will distribute the amended page(s) to all plan holders.

The Field Manual (Appendix H) will be distributed as follows:

Plan Holder	Copy Number
1. Portland Facility Operations (Boiler Room)	#1
2. Portland Facility Operations (Dock Shack)	#2
3. Portland Facility Office	#3
4. George Markwood, Facility Manager	#4
5. PTSI, File Copy	#5
6. Terry Bergman	#6
7. ODEQ	#7,8,9
8. USCG	#10,11
9. EPA	#12,13,14
10. Koppers Industries, Portland Facility	#15

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1.3 USE OF OIL SPILL PLAN

Same as Oil Spill Response Plan

1.4 COORDINATION OF PLANS AND RESPONSE ORGANIZATIONS

Same as Oil Spill Response Plan

1.5 PRIMARY RESPONSE CONTRACTORS

Same as Oil Spill Response Plan

2.0 SPILL RESPONSE

2.1 DETECTION

On the Koppers Industries, Inc. Facility there are no detection or monitoring devices for detecting discharges of liquid coal tar pitch. The detection of leaks of liquid coal tar pitch would generally be by personnel observations.

During transfer operations, the Koppers Industries, Inc. personnel will monitor the pipeline from the dock to the storage tanks prior to any transfer. During transfer personnel will inspect the pipeline every hour.

The heat trace piping on the pipeline between the upland storage tanks and the dock has flow meters that measure the flow of the supply hot oil and the return hot oil. Any difference in the flow will result in shut down of the heat trace flow by automatic closing of the isolation valves at the meter shed about 150' from the top of the bank near the upstream pier access bridge.

2.1.1 Assessment of Spill Volume

The quantity of liquid coal tar pitch (molten) spilled for medium and smaller spills on land or in the containment area on the pier is determined by visual inspection. The small spills will immediately solidify and the amount can be determined by calculating the volume of the solid material. For spills greater than 200 barrels of liquid coal tar pitch (molten), the quantity spilled will be estimated and verified by gauging the discharging ship's tanks.

If the spill is in the water, the liquid coal tar pitch (molten) will immediately solidify and most of the material will sink. A small portion of the material may

stay afloat if it contains vapor pockets caused by the agitation resulting from the mixing of the liquid with the water.

2.1.2 Prediction of Spill Movement

Except for a small amount of material which may stay afloat, the coal tar pitch material will not move away from the spill site. The coal tar pitch that is solidified will sink and will remain on the bottom adjacent to the site where the material flowed into the water.

2.2 ACTION PLAN - FLOWCHART AND CHECKLIST

2.2.1 Overall Response Strategy

Liquid coal tar pitch (molten) will solidify shortly after any spill. If spilled in the water it will solidify and sink. After solidifying coal tar pitch is not an immediate environmental or personnel hazard. The plan for responding to a spill is:

- First: Stop the leak
- Second: Clean-up and disposal

2.2.2 Flow Sheet and Checklist

Same as Oil Spill Response Plan

2.2.3 Estimate of Initial Response Time

Same as Oil Spill Response Plan

2.3 EMERGENCY SHUTDOWN AND DAMAGE CONTROL

2.3.1 Emergency Shutdown Procedures

The shutdown of the pumps is accomplished by the ship's crew. The Person in Charge on the pier shall notify the ship's Person in Charge to shut off the transfer pumps. The flow of liquid coal tar pitch (molten) is stopped and the pipeline is isolated by closing the valves at the ship connection, the valve at the top of the bank near the end of the upstream bridge walkway, and the tank distribution valves in the upland tank area.

2.3.2 *Specific Liquid Coal Tar Pitch Mitigation Procedures*

Same as Oil Response Plan

2.4 NOTIFICATIONS

ALL SPILLS REQUIRE REPORTING

2.4.1 *Call-Out Checklist*

After a spill, the on-duty shift supervisor will immediately call:

911 IN CASE OF INJURY, FIRE OR EXPLOSION

After shutting off all pumps, closing all valves, and assessing details of the spill listed on the Oil Spill Response Report Form, the on-duty shift supervisor will call the following people:

1.	PTSI Facility Manager: George Markwood (Spill Response Manager and Qualified Individual (QI))	Office: Home: Pager:	(206) 298-5283 (360) 638-1965 (206) 994-2767
	If no answer: Vince Godfrey: (Alternate QI)	Office Home: Pager:	(206) 628-0051 (206) 236-2126 (888) 785-0054
2.	Koppers Industries, Inc. Facility Manager: Amos Kamerer	Office: Home: Cell:	(503) 286-8631 (503) 246-8045 (503) 705-8748
	If no answer: T. J. Turner, Foreman:	Office: Home:	(503) 286-3681 (360) 896-5139
3.	Primary Response Contractor:		
	Foss Environmental	**at Portland:** **at Seattle:**	**(503) 283-1150** **(206) 281-3810** **(800) 33707455**
4.	NWNG, Security (at facility gate):		(503) 286-5250

Immediately, upon receiving the call and details about the spill, the QI, or the designated alternate QI, will call the following:

1.	USCG National Response Center (NRC) at:	**1-800-424-8802**	or	(202) 267-2675
2.	Oregon Emergency Management (OEM) at:	**1-800-452-0311**	or	(503) 378-6377
3.	Local USCG Marine Safety Office at:			**(503) 240-9301**
4.	Alternate QI: Vince Godrrey		Office: Home: Pager:	(206) 628-0051 (206) 236-2126 (888) 785-0054

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5. Northwest Natural Gas Company
   Sandi hart at Office: ext. 4322 (503) 226-4211
   or distribution dispatch night supervisor: (503) 226-4211

6. Corp. of Engineers: Corp. of Engineers Office: (503) 221-4188
   Bill Switzenberg, Shipyard Chief Office: (503) 326-5636
   Brandon Smith, Envir. Coord Office: (503) 326-2477

7. Portland Fire Department **911**

If there is no answer at any of these numbers, call the next number, and after 5 minutes, try calling the unanswered number again.

Facility Response Personnel

NAME	JOB DESCRIPTION	RESPONSE ROLL	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
T. J. Turner	Foreman	Operations	On-duty	(503) 286-3681	(360) 896-5139

Spill Management Team

If spilled material is from the Koppers Industry's ship or pipeline; the Spill Response Manager or (QI or alternate) will also call in Koppers Industries personnel as follows:

NAME	JOB DESCRIPTION	RESPONSE ROLL	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
Amos Kamerer	Facility Manager	Planning/ Operations	2 hours	(503) 286-3681	(360) 896-5139

2.4.2 Notification

Same as Oil Spill Response Plan

2.4.3 Spill Categorization

Same as Oil Spill Response Plan

2.5 PERSONNEL

Same as Oil Spill Response Plan.

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2.6 RESPONSE EQUIPMENT

Liquid coal tar pitch (molten) is solid at normal temperatures. Containment is basically passive (requires no action) because it will solidify and limit the amount which will spread out. In the water it will sink and stay in place.

Generally, clean up will require the use of picks, chipping tools, scrapers, shovels and other mechanical means.

Material that enters the water will require the use of divers to recover the sunken material.

The remainder of **2.6** is the same as the Oil Spill Response Plan.

2.7 COMMUNICATIONS

Same as the Oil Spill Response Plan

2.8 SPILL RESPONSE OPERATIONS SITES

Same as the Oil Spill Response Plan.

2.9 SIMULTANEOUS AND PERIPHERAL PROCEDURES

Liquid coal tar pitch (molten) is a combustible material. In the liquid state it is similar to the petroleum products handled at the facility. Any vapors of the liquid coal tar pitch (molten) will pose a very low hazard to facility employees and/or the surrounding community. Evacuation of the facility or the surrounding community is not likely to be necessary because of a liquid coal tar pitch (molten) spill.

The rest of **2.9** is the same as the Oil Spill Response Plan.

3.0 CONTAINMENT, CLEANUP, AND DISPOSAL

Once spilled in the water, liquid coal tar pitch (molten) becomes a solid. It will sink and stay in place except for small amounts, which may float because of vapor pockets formed during the cooling and solidifying process.

Generally, the floating material will be contained within the oil spill containment boom and recovered by personnel in a small boat.

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Solid material on land or in the water will be recovered mechanically. If there are large amounts; bulldozers, front-end loaders, and clam shell bucket cranes may be used. Recovered material will be loaded into dump trucks or steel waste drop boxes (depending on amounts). The material may be moved to temporary staging areas in the Koppers facility for sorting into salvageable and disposable materials. Eventually, salvageable material will be reprocessed and disposable material incinerated or dumped in approved hazardous material disposal facilities.

4.0 DRILLS AND EXCERCISES

Same as Oil Spill Response Plan.

5.0 SPILL PREVENTION MEASURES

Same as Oil Spill Response Plan.

6.0 SPILL RISK VARIABLES

Same as Oil Spill Response Plan.

7.0 ENVIRONMENTAL VARIABLES

Same as Oil Response Plan.

8.0 LOGISTICAL RESOURCES

Same as Oil Response Plan.

CONTINGENCY, SPCC, AND

POLLUTION PREVENTION PLAN

KOPPERS INDUSTRIES, INC.

PORTLAND PLANT

PORTLAND, OR

CONTINGENCY PLAN,
SPILL PREVENTION, CONTROL
AND COUNTERMEASURES (SPCC) PLAN
AND
STORM WATER POLLUTION PREVENTION PLAN
KOPPERS INDUSTRIES, INC.
PORTLAND PLANT
PORTLAND, OR
May 1, 1998

CERTIFICATION

I hereby certify that I have inspected the subject facility, and being familiar with the provisions of 40 CFR 112 for SPCC requirements and 40 CFR 122 for Storm Water Pollution Prevention requirements, attest that this Plan has been prepared in accordance with good engineering practices.

James T. Dietz, P.E.
Manager of Engineering
PENNA. # PE-039031-E

Date: May 18, 1998

MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Amos S. Kamerer
Plant Manager

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1.0 INTRODUCTION

This plan has been developed to: a) provide a basis for planning for and responding to potential spills, accidents, fires, or other contingencies and b) describe and implement practices to minimize and control pollutants in storm water discharges and ensure discharge permit compliance. It includes the requirements for the Contingency Plan as required by the Resources Conservation and Recovery Act (RCRA), the Spill Prevention, Control, and Countermeasures (SPCC) Plan and Storm Water Pollution Prevention Plan (SWPPP) of the Clean Water Act, and the inventory reporting requirements of the Emergency Planning and Community Right-to-Know Act (SARA Title III).

Questions concerning this plan may be directed to:

Amos S. Kamerer	Plant Manager	(503) 286-3681
T.J. Turner	General Foreman	(503) 286-3681

1.1 FACILITY LOCATION

The Portland plant is located in Multnomah County in the city of Portland, OR. The terminal is located on approximately 6.4 acres of leased property. The property owner is the Northwest Natural company, 220 NW 2nd Ave., Portland, OR, 97209. The portion of the property that Koppers Industries leases is addressed as 7540 N.W. Saint Helens Rd., Portland OR, 97210. The property is bounded by Saint Helens Rd (Oregon State Highway 30) on the south, the Northwest Natural Company property extending to the shore of the Willamette River on the North, The Northwest Company Liquified Natural Gas Plant on the west. The end of N.W. Front Ave. separates Koppers property from Wacker Siltronic Corporation, on the eastern boundary. 11 people are employed at the terminal (4 salaried people, 7 hourly people). Normal operating hours are from 4:00 p.m. on, Sundays through 4:00 p.m. on Fridays. Generally, the plant is closed on the weekends.

1.2 OPERATION

Coal tar pitch and other related products are shipped into the terminal from our four domestic production plants via tank cars or are imported via bulk cargo ships. These products are then stored, or further remanufactured at the terminal, prior to the distribution to our customers. Outbound shipments are then made via tank truck or tank cars.

All products and/or chemicals used or handled through the terminal are covered by material safety data sheets which are on file. All employees have been trained on the usage of these materials and educated in the proper manner of reading and understanding of the material safety data sheets. This training is mandatory and retraining is given annually.

1.3 COORDINATED EMERGENCY SERVICES

This plan is written to facilitate the quick and efficient coordination of emergency response actions between Koppers Industries Inc. (Koppers) and any emergency response companies or agencies which may be needed. Copies of this plan, and updates, are provided to the following:

Oregon Department of Environmental Quality
Portland Fire Department
City of Portland, Environmental Services Dept.
U.S. Coast Guard
Plant Supervisors

Instructions on how and when to obtain assistance for emergency situations, including agency and contractor phone numbers, are included in section 4 of this plan.

1.4 SPCC AND SWPPP PLAN MAINTENANCE

This Plan must be kept up to date. Notify Koppers' Environmental Program Manager in the event of any change made. Automatic review, evaluation and recertification by a Professional Engineer is required once every three years from the date of the latest certification. This Plan must also be amended whenever there is a change in design, construction, operation or maintenance which materially affects the facility's potential for discharge, and the amendment fully implemented as soon as possible and no later than within six months.

A copy of this Plan is to be maintained in the plant's main office and the plant's melter control room.

Notify the Environmental Program Manager if any amendment needs to be made to this Plan.

2.0 INVENTORY OF OIL AND HAZARDOUS MATERIALS

2.1 Discussion

Various materials used at the Koppers facility are considered hazardous based on the toxicity or flammability of those materials. These include creosote that is used in the industrial processes to pressure treat wood products, unusable waste products from these processes, boiler water treatment chemicals, and fuel and lubricants for plant vehicles and equipment.

2.2 Business Information and Identification

The following information applies to the Koppers Industries Portland Plant:

Business Name:	Koppers Industries, Inc.
Business Phone:	(503) 286-3681
Business Fax:	(503) 285-2831
Owner:	Koppers Industries, Inc. 436 Seventh Ave. Pittsburgh, PA 15219
Operator:	Same as owner.
SIC Code:	2865
EPA ID Number:	ORD 027734359
Site Address:	7540 N.W. Saint Helens Rd. Portland, OR 97210
Mail Address:	same as above
Type of Business:	Creosote, Refined Tars and Coal Tar Pitch Terminal

2.3 Emergency Contacts/Emergency Coordinators

Name/Address	Title	Home Phone
Amos S. Kamerer 5912 S.W. Knights Bridge Dr. Portland, OR 97219 Cellular Phone Number	Plant Manager	[redacted] [redacted]
T.J. Turner 17815 N.E. 152nd Ave. Brush Prairie, WA 98606	General Foreman	[redacted]

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator (when there is a night shift) can be reached at (503)286-3682.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, holidays, and weekends, the shift operator will be the acting Emergency Coordinator. During these times, the shift operator will notify the Emergency Coordinator, above, who will assume responsibility for implementation upon his arrival at the plant. Also on nights, weekends and holidays when there is no shift work occurring the plant is patrolled by N.W. Natural's Pinkerton Security guards who make rounds of the plant hourly. The guards have been provided with a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 14.

2.4 Hazardous Materials Inventory

The primary hazardous materials which are used or stored on the Koppers site are listed by tank in Table 3.7, Tank Listings Table, on page 10. The tanks and facilities are shown on the site map by number or name, on page 26.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids, spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.7, lists all the tanks at the Koppers plant by number along with contents, and capacity. Locations can be found for processes and tanks on the site map, on page, on page 26.

3.2 Conformance with SPCC Standards and Guidelines

This facility meets the minimum requirements for diversionary structures and equipment to prevent discharged oil or hazardous substances from reaching navigable waters as required by 40 CFR 112.7(c) by providing secondary containment for all major tanks and process equipment.

The Portland plant is in conformance with the applicable guidelines of 40 CFR 112.7(e). Rainwater is collected, stored and then inspected prior to discharge, all in accordance with our NPDES permit requirements. Tank installations are equipped with secondary containment and are regularly inspected by operators. Spill prevention details for equipment and processes are discussed more fully below.

3.3 Inspections and Security

The operational areas in the plant are checked hourly by the operator on duty throughout each shift. The tank area is routinely checked by the operator on duty. Any problems or unusual circumstances which can not be immediately resolved are reported to the Supervisor.

3.4 General Plant Spill Prevention

A hazardous material spill can occur any place, any time. All employees are prepared to respond immediately to control The situation and to notify management. Containing a spill to the smallest area possible is the first step.

Containments can quickly be constructed using available equipment and supplies; usually by placing dirt, sand, or available absorbent pads or absorbent containment booms around the lower side of a spill. If possible, a spill should be prevented from reaching the surface water drainage, where it will spread more rapidly and have greater environmental and health impact.

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Loading operations are supervised by employees familiar with the equipment involved. Buckets or pans are placed under hose connections to collect drips. Be prepared for hoses and pipes to be full and for liquid to be behind valves. Properly, and promptly cleanup any drips or spills. Supervisors must be notified of any spills which are outside of containments. Oil, creosote, and other hazardous material deliveries are made by vehicles complying with DOT spill control regulations. Unloading is supervised by plant operators. Collection pans should first be readily available. Collected material must be returned to the processes or be properly containerized for disposal.

3.5 Surface Drainage

The plant property is at 37' above sea level and our outfall for pumping off the collected storm runoff is located on the very south eastern tip of the property, at approximately a 10 ft. elevation above a creek that flows to the Willamette River.

In the Portland terminal there are two run-off patterns for site drainage. The first is directly in front of the office and away from any creosote or pitch handling areas. This area would not be threatened by a spill. All other run-off areas from the plant feed into the tank farm and then into a concrete collection sump. Dual sump pumps (one operating and one standby) lift the run-off into the storm water storage tanks #1, #2, #3, #4, #5 and #6. When these tanks fill, they are sampled and the samples are taken to an Oregon Department of Environmental Quality approved laboratory for analysis in accordance with our N.P.D.E.S. permit. When the laboratory reports that the test results are within the parameters allowed in the N.P.D.E.S. permit, the water is pumped to the out-fall referenced above.

Equipment, including secondary spill containment, has been installed and procedures implemented to prevent oil or hazardous materials from leaving the plant. A spill is most likely to occur in the process area, where it can be contained.

Koppers has installed extensive paving at the creosote tank car heat exchanger unloading location, including paving between the rail tracks and the loading area for trucks. In addition, a below grade sealed concrete sump was installed as a catch basin. This catch basin has approximately 1500 gallon capacity. Also two sump pumps have been installed. The first pump is automatically activated and pumps collected storm water into the tank farm storm water runoff collection system for further handling.

The second pump is energized only when we are unloading creosote rail cars. This pump is on a float activated switch and is piped to #39 tank, which is now designated as the emergency response tank at this location. Tank #39 is of sufficient capacity to hold the gallonage of a full tank car or 20,000 gallons. It is the duty of the loading/unloading employee to clear the catch basin of water, then open the valve to 39 tank and energize the automatic pump. In this way, should a creosote spill occur, all precautions are in place to contain the release.

In the case of a spill in which hazardous materials or oils reach any of the drainage ditches, immediate action must be taken to contain the spill. Temporary earth dams should be constructed using plant equipment along the ditches, creating a series of impoundments to contain the flow. Sorbent booms may be used to remove containments from the water held behind the dams, if needed.

These dams can only hold back a limited amount of water, so emergency help should be contacted at the first sign that such a spill has occurred or may occur.

3.6 Tank Car and Truck Unloading

Tank cars are unloaded at the Unloading Station, where the process transfer pipelines are all above ground. The potential spill sources in this area include leaks from the process tanks, valves, pumps, and pipe systems. These leaks can best be prevented by proper valve and pump maintenance and equipment inspection during material transfers. Any leaks or drips must be cleaned up immediately.

As part of the operating procedures, drains and outlets on tank trucks and tank cars are checked for leakage before and after each loading and unloading operation. Operations personnel performing loading and unloading activities are instructed to inspect piping and pumps associated with these activities and to report spills or leakage.

The driver performs a visual inspection of the truck and trailer after each loading and if repairs are needed the truck is shopped for repairs.

The operating procedures included in this plan form the basis for the training of operations personnel in the prevention of creosote or coal tar discharge. Job positions within the Portland plant require that new personnel, working in unfamiliar process areas will have a senior experienced employee to guide them. Personnel are also instructed in the operation and maintenance of equipment to prevent discharges.

3.7 Tank Farm

All of the oil and hazardous material tanks are in the concrete-wall-lined and earth-diked tank farm. Containment capacity of this area is approximately 2,900,000 gallons is provided.

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Table 3.7
TANK LISTING TABLE
Koppers Industries, Portland Plant

Tank No.	Contents	Size	Capacity (000)
1.	Empty		660 M
2.	Empty		1065 M
3.	Methyl Solvent		99 M
4.	Lite Uncorrected Creosote		99 M
11.	Empty		254 M
12.	Empty		57 M
13.	Empty		20 M
17.	Empty		20 M
18.	Empty		20 M
19.	Empty		20 M
20.	Empty		317 M
23.	Empty		20 M
27.	Empty		20 M
33.	Heavy Oil		45 M
34.	N.S.R.		45 M
39.	Empty		20 M
53.	Empty		10 M
65.	Melter Pitch		761 M
66.	Empty		191 M
67.	Creosote		102 M
68.	Pitch Truck Storage Tank		245 M
74.	Empty		20 M
99.	Empty		209 M
101.	Empty		758 M
102.	Fume Recovery Tank (Creosote)		10 M
SW #1	Storm Water		45 M
SW #2	Storm Water		45 M
SW #3	Storm Water		45 M
SW #4	Storm Water		45 M
SW #5	Storm Water		20 M
SW #6	Storm Water		20 M
V 207	Empty		15 M

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3.8 Fuel and Lubricating Oil

Lubricating Oil is stored in 55-gallon drums, most of which are stored in the oil house building. Drums are stored upright and kept sealed. Dispensing areas are kept clean. Oil drippage is contained. Any minor spills are contained and cleaned up immediately.

3.9 Hazardous Waste Storage Facilities

Hazardous waste is placed in drums when generated. Full drums are stored in drums in the rear storage area of the maintenance building. The drum or drums are disposed of through RCRA approved facilities, within less than 90 days.

4.0 EMERGENCY RESPONSE PROCEDURES

4.1 General

This section of the Plan describes the actions that are to be taken by Koppers personnel in response to any injury, accident, fire, explosion, or unplanned release of any hazardous material to the air, soil, or water.

4.2 Emergency Coordination

As soon as an emergency situation is discovered by an employee, that person shall quickly estimate the extent the problem, take safe and appropriate control action, and then notify the plant management immediately. Per the list in Section 2.3, page 3, the operator, who is present will assume the responsibilities of Emergency Coordinator (EC). Other personnel will respond as directed by the EC, as needed.

The EC has Koppers Industries' authority to commit plant employees and contract labor and equipment, or to purchase supplies as needed.

Effective communication is vital in any emergency response. All plant employees have portable two-way radios which will be used for communication and coordination between the plant offices and yard areas. Phones may also be used between offices.

4.3 Immediate Response

As soon as an employee discovers an emergency situation, he shall quickly determine the extent of the problem. If a simple action can be taken to control a release, or other emergency, such as shutting a valve to stop the flow from a ruptured pipe and can be done safely, then the control action should be completed first. If there is no simple safe control action, or after taking such action, the operator shall immediately notify the plant management and any other personnel who may be endangered by the incident by phone or radio.

4.4 Response Procedures

4.4.1 Upon discovery or notification that an emergency exists, the EC shall:

- Determine the extent of the emergency,
- Implement plant evacuation, if needed, to prevent injury,
- Call for outside assistance as needed,
- Start immediate control actions,
- Implement cleanup or other responses,
- Notify local, state, and federal agencies as required,
- Notify Koppers Pittsburgh Office,
- Assure completion of cleanup,
- Provide for storage of cleanup material, inc. hazardous waste
- Evaluate possible hazards to human health or environment,
- Make a final written incident report.
- Make other notifications as stated in Section 3.5, Emergency Notifications.

Many of these actions may occur concurrently.

4.4.2 Whenever there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source, the amount, and area affected by the incident. This may be done by observation, or review of facility records, or manifests and, if necessary, by chemical analysis. Form 4.5.5, pages 17 through 20, should be used to document the information needed for notifications.

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4.4.3 Concurrently, the Emergency Coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

4.4.4 If the Emergency Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside of the facility, or if the released amount of hazardous or extremely hazardous material exceeds the Reportable Quantity (RQ), the findings shall be immediately reported to the National Response Center as in Section 4.5, Emergency Notifications.

Note: that the reportable quantities for materials are listed in Section 4.5.

If his assessment indicates that evacuation of local areas may be advisable, appropriate local authorities shall be notified immediately. The Emergency Coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

4.4.5 During an emergency, the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous wastes or materials at the plant. These measures could include turning water sprays onto tanks, stopping and isolating processes, shutting off power to areas, collecting and containing released materials, or moving and isolating other containers.

4.4.6 If some or all operations are stopped in response to an emergency, the emergency coordinator shall monitor tanks, pipes, valves, and other process equipment for leaks, pressure build-up or ruptures wherever appropriate.

4.4.7 Immediately after an emergency, the Emergency Coordinator shall provide for treating, storing, or disposing of recovered materials or wastes, contaminated soil, surface water, or any other material that results from a release, fire, or explosion.

4.4.8 Before resuming operations, the Emergency Coordinator shall:

a. Insure that clean-up is complete to the point that operations will not interfere or create further potential for hazardous waste release.

b. Insure that all emergency equipment is cleaned and fit for use, and

c. If hazardous wastes or a hazardous waste unit has been involved, then advise the Dept. of Environmental Quality and EPA Region X that Steps a. and b above are complete.

4.4.9 If hazardous wastes, or the hazardous waste unit has been involved, the Emergency Coordinator shall submit a written report as requested by the Dept. of Environmental Quality. A copy of the completed report shall be maintained in the Operating Record.

4.5 Emergency Notifications

4.5.1 The emergency coordinator shall ensure that the necessary notifications are made. Form 4.5.5 entitled, "Emergency and/or Hazardous Materials Incident Report" is to be used. Page one is organized to provide all of the information needed for the initial verbal notification of the National Response Center or other agencies. As soon as a spill or other incident is discovered, the supervisor/manager who will do the reporting should begin filling in the information.

Pages 2 should be used as a log of notification made. Get the position and name of the person who accepts the phone notifications. Also, if an incident number is assigned, as by the National Response Center, that number should be recorded. As more is learned about the incident, the report should be updated. Updates can be recorded on page 2 as well.

Pages 1, 2, and 3, completed either by hand or typed, can be used for the required written notification of agencies. These should be sent with cover letters showing everyone who will get copies. Copies must be kept in the plant's Operating Record.

Finally, page 4 should be used for Koppers Industries internal reporting of additional related information. KII has an obligation to report all spills which could possibly impact over-all cleanup work. The complete report, Pages 1, 2, 3, and 4 should be sent to the Environmental Program Manager including original photographs. He will provide the required notification to Beazer East, Inc.

4.5.2 WHAT SPILLS OR INCIDENTS MUST BE REPORTED AND TO WHOM?

Following is a summary. Note that more than one category may apply.

If outside help is needed, IMMEDIATELY:
Call fire and/or other appropriate emergency agencies, describe incident and needed assistance, such as fire suppression, medical aid, evacuation, and/or crowd control.

If a release or threatened release of hazardous material, IMMEDIATELY OR:

If health threat or release outside of facility: OR

If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water:

Call 911 for immediate help. If the release involved a Reportable Quantity (RQ), then call both the Oregon Emergency Management Office at 1-800-424-8802.

Such releases that cannot be recovered must also be included in the SARA Title III annual reports.

If the release results in or has the potential to reach the City Storm or Sanitary Sewer drains, IMMEDIATELY:
Call the Duty Officer at 823-7180

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented; IMMEDIATELY AND NOT LATER THAN 24 HOURS:
Call the Oregon Emergency Management Office at #1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:
595 Cottage Street, N.E.
Salem, Oregon 97310

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**

Call the U.S. Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS!**

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following primary contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone
Traci Self, Mgr. Environmental Compliance	412/227-2883	[redacted]
Mike Juba, Mgr. Health & Safety	412/227-2882	
Randy Collins, Mgr. Loss Control	412/227-2456	

4.5.3 WHAT SPILLS ARE REPORTABLE?

For hazardous materials, Reportable Quantities (RQ) are specified by the EPA. Additional requirements may be set by some states. The Federal Quantities are:

Creosote	1 pound
Benzo (A) Pyrene	163 lbs. of solid pitch or 15 gal. of liquid pitch
Dibenzo (A,H)Anthracene	163 lbs. of solid pitch or 15 gal. of liquid pitch.

The Clean Water Act also has reporting requirements. Generally if "oil" is released to or presents the potential to be released to navigable waters in amounts that result in a sheen on or discoloration of the water or adjoining shorelines, cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines, or violates an applicable water quality standard, then it is reportable and the National Response Center must be notified.

Gasoline, lubricating oils, and transmission fluid are all regulated as "oil. Unless released as above, reporting is not mandatory.

4.5.4 IF IN DOUBT, REPORT!

If a spill is large enough to require cleanup action but is not reportable, it generally is a good practice to make a courtesy report to the local agency contact. It shows that we are on top of the problem and provide valuable documentation of our response in case of a report by a third party. The attached written report form should also be completed and submitted internally.

Form 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Portland Plant
Street Addr: 7540 N.W. Saint Helens Road.
City,St,ZIP: Portland, Or. 97210-3663
Phone: 503-286-3681
EPA ID #: ORD 027734359

FACILITY: Same as above

DATE OF INCIDENT:_____ TIME OF INCIDENT:_____

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle One) Hazardous Waste Spill, Injury Accident

Other: _____

MATERIALS INVOLVED:

Name	Quantity
_____	_____
_____	_____
_____	_____

EXTENT OF INJURIES, IF ANY:

_____

_____

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored
_____		
_____		

Form 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911		
Oregon Emergency Management	1-800-452-0311		
National Response Center	1-800-424-8802		
Oregon OSHA	229-5910		
City Duty Officer (For Storm, Sewer, Drain Contamination, only)	823-7180		
Northwest Natural Gas	224-3532		
Wacker Siltronics	243-2020		
Security for FAB #1	Ext. 7420		
Security for FAB #2	Ext. 4300		
Pacific Northern Fuels	286-9621		

Form 4..5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Manager of Environmental Compliance, Traci Self,

Office 412-227-2883
Home: 412-231-0246

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

_____

_____

_____

_____

REPORT BY (Name): _____ DATE_____
REPORT REVISED: _____ DATE_____
REPORT REVISED: _____ DATE_____

Table 4.5.5
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

_____

_____

_____

_____

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

_____

_____

_____

_____

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

_____

_____

_____

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE OF PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND RESPONSE ACTIONS.

4.6 Available Equipment

The following equipment is available at the plant:

EQUIPMENT	STORAGE LOCATION
Front-end Hydraulic payloaders	Shop area
1 Pickup Truck	Office parking lot
Sorbent Pads and Booms	Various Emergency Response Cabinets
Lift Trucks	Shop Area
Portable Pump	Shop Area

The above equipment can be effectively used to control and clean a spill of oil, hazardous material, or hazardous waste. Trucks and tractors can be used to transport and place soil for containment dams, sorbent to soak up spilled liquid, and contaminated soil from cleanup actions. Pumps can be used to pump spilled liquid back into containments. After response action is complete, equipment should be placed on the drip pad or vehicle wash pad and be decontaminated with the steam cleaner prior to being released from the response.

4.7 Emergency Response Contract Service

Koppers has entered into a Corporate Agreement with O.H. Materials Corporation to provide various environmental services in the event of an emergency. O.H. Materials has subcontracted this service in the Portland area to Foss Environmental Services, they can be reached at their local number 283-1150, all 24 hours a day.

4.8 Fire and Disaster Response Plans

4.8.1 This section of the Plan provides additional information on specific response actions to be taken in the event of a major disaster, emergency, or other disruption. Such an event could include:

- Fire or explosion
- Earthquake
- Strike or civil strife.

4.8.2 Fire or Explosion

Fire disasters can occur anywhere in the plant environment, so all employees should be knowledgeable as to the proper method for handling all types of fires, and where the largest potential risk areas are located. Communications with and between plant employees is vital to a safe and effective response.

4.8.3 Designated Response Stations

In the case of a disaster or other major incident, employees shall secure their work areas and processes and then report to the General Foreman and/or Plant Manager, at the main office, if they are not directly involved in Emergency Response.

Plant Office Employees stay at office. Coordinate outside calls, inquires, and media contacts.

4.8.4 Evacuation

The need for evacuation shall be signalled by a message over the radio to all employees. Employees shall follow the safest path to meet and check in at the closest location outside the property fence, that is considered to be a safe area.

Supervisors shall account for all of their employees, notify the EC when they are "all clear" and relay further instructions. An alternate location will be designated and announced at the time of the incident if the Main office is not a safe check-in location.

4.8.5 Fire Suppression Systems

Fire Hose and Hose Reels are located at strategic points around the plant. Employees must be familiar with ones within their work areas.

Fire Extinguishers are located throughout the plant and on rolling stock. CO-2 and ABC Dry Chemical types are used exclusively.

4.8.6 Civil Strife, Strike

Emergencies resulting from, or shutdowns as a result of, civil strife or strike situations require the control of people entering the plant, both authorized and unauthorized. Local law enforcement agencies can be helpful in achieving this goal, but in-plant security is management's immediate concern. When a total shutdown is planned, and security measures are to be implemented, the following should be observed.

Boiler

- Secure door locks.
- Follow established shutdown procedure.
- Assure that all steam line drains are open.

Hazardous Waste Storage Facility

- Properly store all hazardous waste drums in facility.
- Lock doors.

Major Operations

- Secure electrical panels.
- Turn off air compressors, shut valves.
- Store and secure portable tools, cords, hoses, etc.
- Clean up area for safety and fire protection.

Rolling Stock

- Park centrally in area in front of shop.

Gates

- Keep locked at all times.
- Put on new locks to prevent unauthorized entry.

Security Patrols

- Security patrols will be made 24 hours per day.
- Communication will be maintained at all times between the patrols and the main office by radio.

Lighting

The plant has general yard lighting system consisting of flood lights, street lights and incandescent lighting. Outdoor lighting in front of the main office is controlled by photo cells.

4.9 Medical Emergency Plans

Emergency and first aid supplies are maintained at the following work locations:

Main Office (Main supply center)
Control Room (Intermediate supply location)
Maintenance Shop (Intermediate supply location)

First aid supplies are intended for use on minor cuts, abrasions, and burns requiring simple care such as band-aids, disinfectant, or ointment. Supplies are also available for the immediate treatment of severe injuries while awaiting professional medical care, such as gauze pads, bandages, and splints.

Koppers020667

First aid applied at the plant by plant employees is in no way intended to replace any needed medical attention, but only to help prior to receiving professional treatment.

If a serious injury occurs, assure that an ambulance is called immediately.

5.0 STORM WATER POLLUTION PREVENTION PLAN

5.1 General

This section of the Plan describes the pollution prevention procedures and facilities for this plant to minimize the impact of storm water runoff to the surrounding environment. This section specifically addresses the requirements of our Storm Water Industrial NPDES Permit.

5.2 Pollution Prevention Objectives and Process

All boiler blowdown water and stormwater runoff is collected in our tank farm and is handled under the terms and conditions of our NPDES permit. No discharges are made unless they meet these terms and conditions.

6.0 TRAINING

All plant employees shall receive training on the content of this plan. Supervisors will each receive a copy and become thoroughly familiar with it through training, discussion, and self study. Supervisors will train their employees in the overall plan and in the specific needs of their work areas.

Training will, at a minimum, include programs to ensure that facility personnel understand basic procedures for pollution prevention and good housekeeping and are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, as applicable to each employee's job function:

* Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

* Communications and alarm systems;

* Response to fires or explosions;

* Response to ground-water or surface water contamination incidents;
* Shutdown of operations;

* Methods for the safe handling of hazardous materials;

* Procedures for coordination with local emergency response organizations;

* Use and location of medical supplies;

* Use of emergency response equipment and supplies appropriate to work areas;

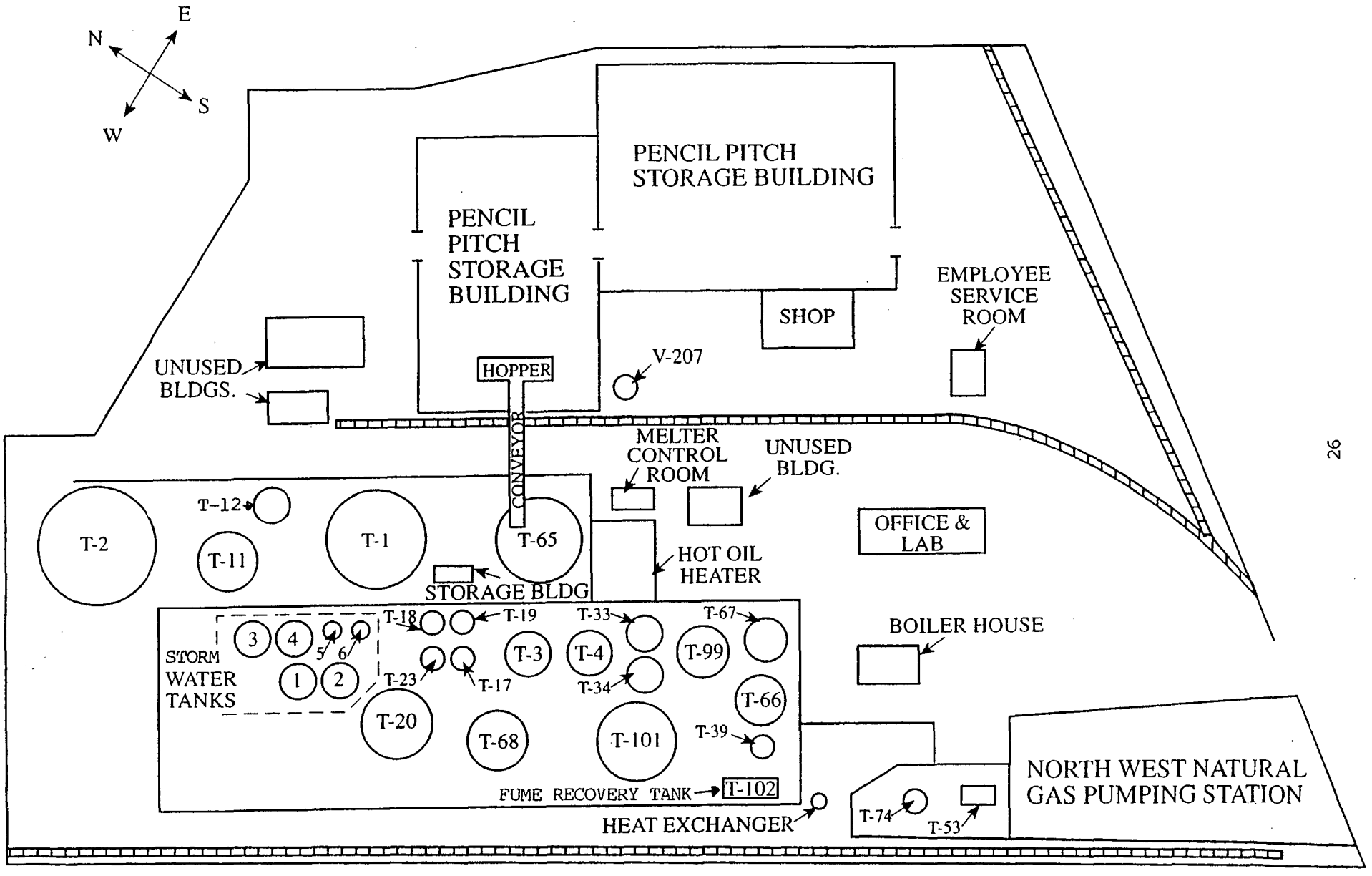
* Emergency response procedures and plans contained within this SPCC and Contingency Plan.

Refresher training will be provided at least annually. New employees will not work in unsupervised positions until they have completed all training required for those positions. Supervisors will provide training to their employees and management will assure that supervisors are properly trained.

Employees with specific additional job related training needs will also be given that training, such as hazardous waste handling training as required by RCRA and State regulations, hazardous waste operating procedures for fuel additive to the boiler, storm water pollution prevention, and waste water operations.

This training may be coordinated and take place concurrent with Hazard Communication and RCRA training, safety meetings, and annual updates.

Koppers020670



PROPERTY SITE PLAN

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

INVOICE

REMIT TO: **RMCAT ENVIRONMENTAL**
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 22, 1999**
INVOICE NUMBER **90133-1**
CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 22, 1999
JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 1,365.29 tons @ $35.00 per ton	$ 47,785.15
Amount Due:	**$ 47,785.15**

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

KI 37W REV 2 6M 6/90

GIL	DET.	S-DET.	LOC.	DEPT.	TAX	EMP #	MOVE # PO #	AMOUNT
4210			9270	46	0362			47785 —

OK TO PAY

IMPORTANT: CIRCLE TERMS ON INVOICE

GROSS AMOUNT 47785 15
DISCOUNT $
NET $

CIRCLE TERMS ON INVOICE

INV # 90133-1 DATE 04/22/99

A/P DEPARTMENT USE ONLY

VENDOR NUMBER 3 8 2 8 9 8 0 0 0

TERMS CODE: 045 DUE DATE: / /

DIVISION	MONTH	AUDIT NUMBER
483	04	92700210

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011809

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -001 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	07:52:56am	Gross Wt:	92,040	46.02	Manual Wt
0	OUT -->	07:59:00am	Tare Wt:	34,800	17.40	Manual Wt
			NET WT:	57,240	28.62	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020672

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Doric 1	A09	03693	001

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92040	34800	57240
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.62	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Danny	X Ron Danny	4	19	99

Discrepancies:

Recycling Facility

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011810

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -002 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:02:41am	Gross Wt:	74,700	37.35	Manual Wt
0	OUT -->	08:09:08am	Tare Wt:	31,760	15.88	Manual Wt
			NET WT:	42,940	21.47	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers020674

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clone 15	A09	03693	002

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74700	31760	42940
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.47	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020675

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011811

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -003 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:10:25am	Gross Wt:	78,200	39.10	Manual Wt
0	OUT -->	08:18:38am	Tare Wt:	32,900	16.45	Manual Wt
			NET WT:	45,300	22.65	

TRANSPORTER/DRIVER: GELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020676

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorie 3	A09	03693	003

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78200	32900	45300
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				32.65	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X LONNIE NOLAN	Lonnie F. Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020677

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011812

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -004 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:42:56am	Gross Wt:	88,960	44.48	Manual Wt
0	OUT -->	08:48:22am	Tare Wt:	34,780	17.39	Manual Wt
			NET WT:	54,180	27.09	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020678

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Eloise 1	A09	03693	004

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-736-9525	Facility Permit Numbers
TRST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88960	34780	54180
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27-09	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011813

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -005 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:02:30am	Gross Wt:	77,940	38.97	Manual Wt
0	OUT -->	09:09:22am	Tare Wt:	31,740	15.87	Manual Wt
			NET WT:	46,200	23.10	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers020680

Manifest — TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celore 15	A09	03693	005

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐			77940	31740	46200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐				23.10	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020681

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011814

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -006 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:28:33am	Gross Wt:	83,880	41.94	Manual Wt
0	OUT -->	09:35:18am	Tare Wt:	32,860	16.43	Manual Wt
			NET WT:	51,020	25.51	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020682

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarie 3	A09	03693	006

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8800 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-736-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83880	32860	51020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.51	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Glenna Mullan	Connie Gola	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020683

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011816

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -007 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:42:21am	Gross Wt:	94,680	47.34	Manual Wt
0	OUT -->	09:51:12am	Tare Wt:	34,740	17.37	Manual Wt
			NET WT:	59,940	29.97	

TRANSPORTER/DRIVER: GELORIE/RON DENNY

Weighmaster _____

Koppers020684

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorie 1	A09	03693	007

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-736-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94680	34740	59940
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				29.97	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mulle 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011817

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -008 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:55:26am	Gross Wt:	80,540	40.27	Manual Wt
0	OUT -->	10:01:31am	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	48,840	24.42	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers020686

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Dave 15	A09	03693	008

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76540	31700	44840
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.42	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature] Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020687

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011818

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -009 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:13:39am	Gross Wt:	79,060	39.53	Manual Wt
0	OUT -->	10:18:55am	Tare Wt:	32,800	16.40	Manual Wt
			NET WT:	46,260	23.13	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020688

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clove 3	A09	03693	009

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79060	32800	46260
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.13	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011819

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -010 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:32:57am	Gross Wt:	89,540	44.77	Manual Wt
0	OUT -->	10:38:38am	Tare Wt:	34,720	17.36	Manual Wt
			NET WT:	54,820	27.41	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster: _____

Koppers020690

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #:**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Cloro 1	A09	03693	010

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 286-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L003613
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			89540	34720	54820
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.41	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011820

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -011 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:45:34am	Gross Wt:	74,220	37.11	Manual Wt
0	OUT --->	10:50:55am	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	42,520	21.26	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers020692

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarke 15	A09	03693	011

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74220	31700	42520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.26	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature]	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020693

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011821

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -012 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:10:49am	Gross Wt:	77,920	38.96	Manual Wt
0	OUT -->	11:16:17am	Tare Wt:	32,780	16.39	Manual Wt
			NET WT:	45,140	22.57	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster

Koppers020694

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Gloria 3	A09	03693	012

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			77920	32780	45140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.57	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Louie Nolan	Louie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011822

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -013 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:34:20am	Gross Wt:	87,720	43.86	Manual Wt
0	OUT -->	11:39:56am	Tare Wt:	34,680	17.34	Manual Wt
			NET WT:	53,040	26.52	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020696

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #** [illegible]

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Polaris 1	A09	03693	913

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87720	34680	53040
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.52	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020697

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011823

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -014 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:38:06am	Gross Wt:	81,340	40.67	Manual Wt
0	OUT -->	11:48:13am	Tare Wt:	32,100	16.05	Manual Wt
			NET WT:	49,240	24.62	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster _____

Koppers020698

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Herkman	A09	03693	9 1 4

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035 13
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			81340	32100	49240
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.60	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Marcie Jean Herkman	X Marcie Herkman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011824

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -015 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:44:43am	Gross Wt:	53,160	26.58	Manual Wt
0	OUT -->	11:50:05am	Tare Wt:	22,440	11.22	Manual Wt
			NET WT:	30,720	15.36	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster

Koppers020700

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #:**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	A09	03693	015

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			53160	22440	30720
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.36	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Mel James	Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011825

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -016 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:45:42am	Gross Wt:	73,340	36.67	Manual Wt
0	OUT -->	12:00:05pm	Tare Wt:	31,640	15.82	Manual Wt
			NET WT:	41,700	20.85	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers020702

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Dave 15	A09	03693	016

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			73340	31640	41700
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				20.85	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature]	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type

GENERATOR/consultant's COPY

Koppers020703

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011826

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -017 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:01:07pm	Gross Wt:	76,600	38.30	Manual Wt
0	OUT -->	12:06:35pm	Tare Wt:	32,740	16.37	Manual Wt
			NET WT:	43,860	21.93	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020704

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorio 3	A09	03693	017

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76600	32140	43560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Leonie Nolan	X Leonie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020705

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011827

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -018 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:21:11pm	Gross Wt:	87,880	43.94	Manual Wt
0	OUT -->	12:26:12pm	Tare Wt:	34,100	17.05	Manual Wt
			NET WT:	53,780	26.89	

TRANSPORTER/DRIVER: TIM GOODNER

Weighmaster _____

Koppers020706

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #:**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Goodner	A09	03693	018

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87880	34100	53780
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.89	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Tim Goodner	Timothy J Goodner			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011828

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -019 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:21:57pm	Gross Wt:	96,020	48.01	Manual Wt
0	OUT -->	12:28:22pm	Tare Wt:	34,660	17.33	Manual Wt
			NET WT:	61,360	30.68	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster: _____

Koppers020708

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Chevrolet 1	A09	03693	019

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-736-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			96020	34440	61580
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.68	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011829

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -020 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:23:33pm	Gross Wt:	54,020	27.01	Manual Wt
0	OUT -->	12:29:48pm	Tare Wt:	22,600	11.30	Manual Wt
			NET WT:	31,420	15.71	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster _____

Koppers020710

Manifest — TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #: 0

Date of Shipment:	Responsible for Payment:	Transporter/Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	A09	03693	020

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS- TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9625 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			54020	22600	31420
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.71	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Mel James	Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020711

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011830

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -021 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:30:22pm	Gross Wt:	90,800	45.40	Manual Wt
0	OUT -->	12:41:23pm	Tare Wt:	32,260	16.13	Manual Wt
			NET WT:	58,540	29.27	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster _____

Koppers020712

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor		A09	03693	021

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			90800	32260	58540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				29.27	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Marcie Jean Heckman	X Marcie J Heckman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020713

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011831

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -022 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:45:58pm	Gross Wt:	88,440	44.22	Manual Wt
0	OUT -->	12:52:28pm	Tare Wt:	31,620	15.81	Manual Wt
			NET WT:	56,820	28.41	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers020714

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Chevrolet 15	A09	03693	022

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88440	31620	56820
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.41	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE					

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020715

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011832

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -023 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:54:42pm	Gross Wt:	83,960	41.98	Manual Wt
0	OUT -->	01:00:23pm	Tare Wt:	32,740	16.37	Manual Wt
			NET WT:	51,220	25.61	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020716

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 3	A09	03693	023

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9EOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83960	32760	51200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.61	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020717

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011833

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -024 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:15:16pm	Gross Wt:	86,420	43.21	Manual Wt
0	OUT -->	01:24:16pm	Tare Wt:	34,380	17.19	Manual Wt
			NET WT:	52,040	26.02	

TRANSPORTER/DRIVER: TIM GOODNER

Weighmaster _____

Koppers020718

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Goodwer	A09	03693	024

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: ROB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7640 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			86420	34350	52070
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.02	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Tim Goodwer	X	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020719

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011834

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -025 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:20:29pm	Gross Wt:	94,740	47.37	Manual Wt
0	OUT -->	01:27:50pm	Tare Wt:	34,400	17.20	Manual Wt
			NET WT:	60,340	30.17	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020720

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #:**

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 1	A09	03693	026

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1000515
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94740	34400	60340
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.17	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011835

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -026 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:36:08pm	Gross Wt:	80,760	40.38	Manual Wt
0	OUT -->	01:43:24pm	Tare Wt:	32,200	16.10	Manual Wt
			NET WT:	48,560	24.28	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster

Koppers020722

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	026

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8860	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80760	32300	48460
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.28	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Marcie Jean Heckman	Marcie J Heckman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type

GENERATOR/consultant's COPY

Koppers020723

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011836

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -027 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:38:05pm	Gross Wt:	89,060	44.53	Manual Wt
0	OUT -->	01:48:03pm	Tare Wt:	31,660	15.83	Manual Wt
			NET WT:	57,400	28.70	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers020724

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #:**

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Eldorie 5	A09	03693	027

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-736-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			89000	31600	57400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
James Mayo	James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011837

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -028 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:42:42pm	Gross Wt:	40,600	20.30	Manual Wt
0	OUT -->	01:50:20pm	Tare Wt:	22,620	11.31	Manual Wt
			NET WT:	17,980	08.99	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster _____

Koppers020726

Manifest — TPS Technologies Soil Recycling — Manifest

Non-Hazardous Soils

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	A09	03693	0,28

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L000513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			40600	22620	17980
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				8.99	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Mel James	X Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020727

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011838

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -029 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:46:50pm	Gross Wt:	80,160	40.08	Manual Wt
0	OUT -->	01:53:48pm	Tare Wt:	32,720	16.36	Manual Wt
			NET WT:	47,440	23.72	

TRANSPORTER/DRIVER: GELORIE/LONNIE NOLAN

Weighmaster

Koppers020728

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clove 3	A09	03693	029

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1005513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80160	33720	47440
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2372	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020729

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011839

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -030 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:02:05pm	Gross Wt:	91,700	45.85	Manual Wt
0	OUT -->	02:07:43pm	Tare Wt:	34,400	17.20	Manual Wt
			NET WT:	57,300	28.65	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020730

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest #:

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Deluse 1	A09	03693	030

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L00351
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			91700	34400	57300
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.65	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X	4	19	99

Discrepancies:

Recycling Facility

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020731

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011840

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -031 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:31:35pm	Gross Wt:	90,140	45.07	Manual Wt
0	OUT -->	02:36:49pm	Tare Wt:	31,620	15.81	Manual Wt
			NET WT:	58,520	29.26	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers020732

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Valerie 15	A09	03693	001

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	Generator's Phone #: (503) 286-3881 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			90140	31620	58520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				29.26	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature] Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011842

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -032 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:39:01pm	Gross Wt:	83,040	41.52	Manual Wt
0	OUT -->	02:44:15pm	Tare Wt:	32,720	16.36	Manual Wt
			NET WT:	50,320	25.16	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020734

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

US Manifest #:

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Melorie B	A09	03693	037

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBURGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9625 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83040	33750	49290
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				35.16	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	X Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mulla 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011843

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -033 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:48:13pm	Gross Wt:	92,240	46.12	Manual Wt
0	OUT -->	02:54:35pm	Tare Wt:	34,640	17.32	Manual Wt
			NET WT:	57,600	28.80	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020736

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Carrie 1	A09	03693	033

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100361.3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92240	34640	57600
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.80	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020737

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011844

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -034 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD
PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET
PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:21:37pm	Gross Wt:	78,440	39.22	Manual Wt
0	OUT -->	03:25:51pm	Tare Wt:	31,380	15.69	Manual Wt
			NET WT:	47,060	23.53	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers020738

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clore 15	A09	03693	034

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78440	31370	47060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.53	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
James Mayo	James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011845

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -035 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:31:12pm	Gross Wt:	82,040	41.02	Manual Wt
0	OUT -->	03:36:07pm	Tare Wt:	32,680	16.34	Manual Wt
			NET WT:	49,360	24.68	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020740

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #:

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mobile 3	A09	03693	035

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82040	32680	49360
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.68	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Connie Nolan	X Connie Nolan	4	19	95

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/95

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011846

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -036 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:42:02pm	Gross Wt:	95,660	47.83	Manual Wt
0	OUT -->	03:47:32pm	Tare Wt:	34,600	17.30	Manual Wt
			NET WT:	61,060	30.53	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020742

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #:

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Delore 1	A09	03693	036

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-736-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			95660	34600	61060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.53	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011847

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -037 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:12:12pm	Gross Wt:	83,360	41.68	Manual Wt
0	OUT -->	04:17:14pm	Tare Wt:	31,360	15.68	Manual Wt
			NET WT:	52,000	26.00	

TRANSPORTER/DRIVER: CELORIE JAMES MAYO

Weighmaster _____

Koppers020744

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #:

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Doree 15	A09	03693	037

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-736-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83360	31320	52000
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.00	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011848

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -038 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:16:02pm	Gross Wt:	84,120	42.06	Manual Wt
0	OUT -->	04:22:22pm	Tare Wt:	32,660	16.33	Manual Wt
			NET WT:	51,460	25.73	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster:

Koppers020746

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 3	A09	03693	038

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84130	32660	51470
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.73	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011849

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -039 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:27:14pm	Gross Wt:	88,700	44.35	Manual Wt
0	OUT -->	04:34:16pm	Tare Wt:	34,540	17.27	Manual Wt
			NET WT:	54,160	27.08	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster: _____

Koppers020748

TPS Technologies Soil Recycling

Non-Hazardous Soils

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clove	A09	03693	039

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L0035L3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88700	34540	54160
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.08	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011850

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -040 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:10:24am	Gross Wt:	94,800	47.40	Manual Wt
0	OUT -->	08:16:04am	Tare Wt:	34,520	17.26	Manual Wt
			NET WT:	60,280	30.14	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020750

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Gloria 1	A09	03693	040

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	-- Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94800	34520	60280
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.14	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011851

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -041 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:26:16am	Gross Wt:	85,360	42.68	Manual Wt
0	OUT -->	08:31:37am	Tare Wt:	32,840	16.42	Manual Wt
			NET WT:	52,520	26.26	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020752

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 3	A09	03693	941

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			85360	33840	51520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2626	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ — SIGNATURE ON FILE — Signature and date: — Month — Day — Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lonnie Nolan — Signature and date: Lonnie Nolan — Month 4 — Day 20 — Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN — Signature and date: Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011852

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -042 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:13:04am	Gross Wt:	89,440	44.72	Manual Wt
0	OUT -->	09:18:21am	Tare Wt:	34,460	17.23	Manual Wt
			NET WT:	54,980	27.49	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020754

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clone 1	A09	03693	042

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			59440	34460	54980
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.49	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011853

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -043 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:30:53am	Gross Wt:	82,340	41.17	Manual Wt
0	OUT -->	09:37:22am	Tare Wt:	32,800	16.40	Manual Wt
			NET WT:	49,540	24.77	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers020756

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	blue 2	A09	03693	043

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82340	32800	49540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.77	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	X Lonnie Nolan	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/20/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020757

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011854

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -044 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:06:53am	Gross Wt:	96,240	48.12	Manual Wt
0	OUT -->	10:11:51am	Tare Wt:	34,480	17.24	Manual Wt
			NET WT:	61,760	30.88	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020758

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clore 1	A09	03693	944

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS FAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10036513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐			96240	34480	61760
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐				30.88	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011856

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -045 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:19:49am	Gross Wt:	84,800	42.40	Manual Wt
0	OUT -->	10:26:17am	Tare Wt:	32,820	16.41	Manual Wt
			NET WT:	51,980	25.99	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster

Koppers020760

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clare 3	A09	03693	045

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: ROB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84800	32820	51980
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.99	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Louie Nolan	Louie Nolan	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011857

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -046 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:14:58am	Gross Wt:	95,760	47.88	Manual Wt
0	OUT -->	11:20:45am	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	61,320	30.66	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020762

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clone 1	A09	03693	946

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			95760	34440	61320
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.66	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011858

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -047 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:39:05am	Gross Wt:	86,220	43.11	Manual Wt
0	OUT -->	11:43:52am	Tare Wt:	32,820	16.41	Manual Wt
			NET WT:	53,400	26.70	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster

Koppers020764

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarie 3	A09	03693	047

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			86220	32820	53400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lonnie Nolan

Signature and date: X Lonnie Nolan Month 4 Day 20 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan 4/20/99

Please print or type:

GENERATOR/consultant's COPY

Koppers020765

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011859

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -048 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:05:56pm	Gross Wt:	88,100	44.05	Manual Wt
0	OUT -->	12:10:26pm	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	53,660	26.83	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020766

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Colore 1	A09	03693	948

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-7681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8380 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100351C
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88100	34440	53660
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.83	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020767

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011860

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -049 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:53:35pm	Gross Wt:	98,000	49.00	Manual Wt
0	OUT -->	01:00:07pm	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	63,560	31.78	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020768

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Veloce 1	A09	03693	449

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			98000	34440	63560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				31.78	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011864

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -050 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:44:42pm	Gross Wt:	94,160	47.08	Manual Wt
0	OUT -->	01:50:22pm	Tare Wt:	34,140	17.07	Manual Wt
			NET WT:	60,020	30.01	

TRANSPORTER/DRIVER: GILLORIE/RON DENNY

Weighmaster

Koppers020770

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorie 1	A09	03693	950

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMEER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351.3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94160	74140	20020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.01	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011866

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -051 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:33:59pm	Gross Wt:	92,060	46.03	Manual Wt
0	OUT -->	02:39:36pm	Tare Wt:	34,360	17.18	Manual Wt
			NET WT:	57,700	28.85	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers020772

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Colvin	A09	03693	051

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL — CONTRACTOR — 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9625	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92060	34360	57700
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.85	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011867

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -052 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:32:16pm	Gross Wt:	96,380	48.19	Manual Wt
0	OUT -->	03:41:11pm	Tare Wt:	34,300	17.15	Manual Wt
			NET WT:	62,080	31.04	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers020774

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 1	A09	03693	052

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			96380	34300	62080
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				31.04	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011872

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -053 04/21/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:31:08am	Gross Wt:	44,480	22.24	Manual Wt
0	OUT -->	08:35:50am	Tare Wt:	23,300	11.65	Manual Wt
			NET WT:	21,180	10.59	

TRANSPORTER/DRIVER: MCDOWELL/LEO AGUILERA

Weighmaster _____

Koppers020776

Manifest — TPS Technologies Soil Recycling — Non-Hazardous Soils — Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	M Dowell	A09	03693	053

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐			41480	23300	21180
Sand ☐ Organic ☐ Clay ☐ Other ☐	0-10% ☐ 10-20% ☐ 20%-over ☐	Gas ☐ Diesel ☐ Other ☐				10.59	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Leo Aguilera	X Leo Aguilera			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/21/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011882

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -054 04/21/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:40:51am	Gross Wt:	41,300	20.65	Manual Wt
0	OUT -->	10:44:06am	Tare Wt:	23,400	11.70	Manual Wt
			NET WT:	17,900	08.95	

TRANSPORTER/DRIVER: MCDOWELL/LEO AGUILERA

Weighmaster _____

Koppers020778

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

U.S. Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	McDowell	A09	03693	054

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351 3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			41300	33400	7900
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				895	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Leo Aguilar	Leo Aguilar			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 4/21/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020779

4.22.99 pages ▶ 1

To Bill	From April
Co./Dept. KII	Co. KII
Phone #	Phone #
Fax #	Fax #

RMCAT ENVIRONMENTAL SERVICES, INC.

CCB # 126132

INVOICE

REMIT TO: **RMCAT ENVIRONMENTAL**
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 22, 1999**

INVOICE NUMBER **90133-1**
CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 22, 1999

JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 1,365.29 tons @ $35.00 per ton $ 47,785.15

Amount Due: **$ 47,785.15**

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

Post-it® Fax Note 7671	Date	# of pages ▶ 1
To AMOS KAMERER	From BILL METSINGER	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

OK. 4.23.99

Providing the Finest in Environmental Service

12823 NE AIRPORT WAY PORTLAND, OR 97230 ◆ 503.408.7404 FAX 503.408.8716

CUSTOMER/VENDOR NUMBER REQUESTS

TO: TERRY SCHILLING FROM: April

LOCATION: K-1750, FAX 2159 LOCATION: PORTLAND

SUBJECT: CVN REQUEST DATE: 4-22-99

****

Please circle one of the following:

TYPE OF REQUEST: (Vendor) Customer Employee

CATEGORY: (General) Government Railroad Utility

NAME FOR REQUEST: RM Cat Environmental

SOLD TO ADDRESS: _____

REMIT TO ADDRESS: 5762 Lamar Street

Arvada, CO 80002

LOCATION #: 9270 DIVISION #: 453

ASSIGNED #: 382898000 DATE IN SYSTEM: _____

Koppers020781

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

INVOICE

REMIT TO: **RMCAT ENVIRONMENTAL**
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 28, 1999**
INVOICE NUMBER **90133-2**
CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 28, 1999
JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 932.34 tons @ $35.00 per ton	$ 32,631.90
Amount Due:	**$ 32,631.90**

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

KI 37W REV 2 6M 6/90

CIRCLE TERMS ON INVOICE

GIL	DET.	S-DET.	LOC.	DEPT.	TAX	EMP #	MOVE # PO #	AMOUNT
4210			9270	46	0362			32632 -

INV # 90133-2 DATE 04/28/99

A/P DEPARTMENT USE ONLY

VENDOR NUMBER 3 8 2 8 9 8 0 0 0

TERMS. CODE: 045 DUE DATE: / /

DIVISION	MONTH	AUDIT NUMBER
483	05	92700231

OK TO PAY

GROSS AMOUNT	32631 90
DISCOUNT $	
NET $	

IMPORTANT: CIRCLE TERMS ON INVOICE

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011935

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -055 04/22/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:27:59pm	Gross Wt:	78,960	39.48	Manual Wt
0	OUT -->	03:33:21pm	Tare Wt:	31,860	15.93	Manual Wt
			NET WT:	47,100	23.55	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers020783

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams 19	A09	03693	055

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8710	Customer Account Number with TPS: L00361 3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78960	31860	47100
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.55	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams		4	22	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/22/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020784

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011936

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -056 04/22/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:14:04pm	Gross Wt:	79,540	39.77	Manual Wt
0	OUT -->	04:18:08pm	Tare Wt:	31,800	15.90	Manual Wt
			NET WT:	47,740	23.87	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020785

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03693	066

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: ROB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79540	31800	47740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23580	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	4	22	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/22/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020786

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011937

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -057 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	07:29:20am	Gross Wt:	85,000	42.50	Manual Wt
0	OUT -->	07:33:40am	Tare Wt:	32,140	16.07	Manual Wt
			NET WT:	52,860	26.43	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020787

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	057

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			85000	32140	52860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.43	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011938

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -058 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:06:37am	Gross Wt:	75,800	37.90	Manual Wt
0	OUT -->	08:10:38am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	43,720	21.86	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster:

Koppers020789

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	058

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			75800	32080	43720
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.86	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams		4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011939

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -059 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:44:45am	Gross Wt:	86,040	43.02	Manual Wt
0	OUT -->	08:52:44am	Tare Wt:	37,080	18.54	Manual Wt
			NET WT:	48,960	24.48	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers020791

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest # 4459

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	4459

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1112	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			81040	33080	47960
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.48	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011940

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -060 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:46:37am	Gross Wt:	78,020	39.01	Manual Wt
0	OUT -->	08:55:18am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	45,960	22.98	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020793

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	069

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78020	32060	45960
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.98	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020794

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011942

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -061 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:54:04am	Gross Wt:	80,140	40.07	Manual Wt
0	OUT -->	09:57:21am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	48,080	24.04	

TRANSPORTER/DRIVER LAUREN ADAMS

Weighmaster

Koppers020795

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03603	961

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80140	32060	48080
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.04	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020796

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011943

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -062 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:54:48am	Gross Wt:	107,720	53.86	Manual Wt
0	OUT -->	10:00:55am	Tare Wt:	41,580	20.79	Manual Wt
			NET WT:	66,140	33.07	

TRANSPORTER/DRIVER: HECKMAN/CHARLES HECKMAN

Weighmaster

Koppers020797

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	062

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB SANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			107720	41580	66140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Charles Heckman	X			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/23/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020798

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011944

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -063 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:33:57am	Gross Wt:	88,840	44.42	Manual Wt
0	OUT -->	10:42:52am	Tare Wt:	37,040	18.52	Manual Wt
			NET WT:	51,800	25.90	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster: _____

Koppers020799

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #:

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Wolfe 62	A09	03693	063

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: ROB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-246-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88840	37040	51800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020800

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011945

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -064 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:39:26am	Gross Wt:	79,300	39.65	Manual Wt
0	OUT -->	10:45:12am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	47,220	23.61	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020801

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	064

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79300	32580	47020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.61	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011946

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -065 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:49:55am	Gross Wt:	108,880	54.44	Manual Wt
0	OUT -->	10:53:59am	Tare Wt:	39,080	19.54	Manual Wt
			NET WT:	69,800	34.90	

TRANSPORTER/DRIVER: HECKMAN, CHARLES

Weighmaster _____

Koppers020803

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	065

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351.3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			108880	39080	69800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Charles Heckman	Charles Heckman			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020804

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011947

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -066 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:22:40am	Gross Wt:	80,900	40.45	Manual Wt
0	OUT -->	11:30:20am	Tare Wt:	37,040	18.52	Manual Wt
			NET WT:	43,860	21.93	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers020805

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Waldman	A09	03693	066

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100151S
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			40900	37040	43860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/23/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020806

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011948

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -067 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:26:36am	Gross Wt:	79,620	39.81	Manual Wt
0	OUT -->	11:32:26am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	47,540	23.77	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020807

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	067

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL — CONTRACTOR — 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JARAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79620	32080	47540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				32777	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/23/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020808

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011949

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -068 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:37:47am	Gross Wt:	106,840	53.42	Manual Wt
0	OUT -->	11:42:02am	Tare Wt:	39,040	19.52	Manual Wt
			NET WT:	67,800	33.90	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020809

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	968

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681	Generator's US EPA ID No.
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #:	BTEX Levels
	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525	Facility Permit Numbers
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			106840	39040	67800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Charles Heckman | Signature and date: X [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/23/09

Please print or type.

Koppers020810

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011951

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -069 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:07:14pm	Gross Wt:	87,400	43.70	Manual Wt
0	OUT -->	12:14:21pm	Tare Wt:	36,960	18.48	Manual Wt
			NET WT:	50,440	25.22	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers02081

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hillman 07	009	03693	969

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	(503) 285-2081 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB LAMAR FAX #: (503) 408-8816	Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact: FAX #:	Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87400	36960	50440
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.22	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

Koppers020812

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011952

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -070 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:14:58pm	Gross Wt:	80,160	40.08	Manual Wt
0	OUT -->	12:18:46pm	Tare Wt:	32,020	16.01	Manual Wt
			NET WT:	48,140	24.07	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020813

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	9/9

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-2681	Generator's US EPA ID No.
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #:	BTEX Levels
	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525	Facility Permit Numbers
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80160	32020	48140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Lavien Adams

Signature and date: [signature] Month 9 Day 23 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/23/99

Please print or type.

Koppers020814

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011954

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -071 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:48:35pm	Gross Wt:	108,160	54.08	Manual Wt
0	OUT -->	12:52:35pm	Tare Wt:	38,960	19.48	Manual Wt
			NET WT:	69,200	34.60	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020815

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	9/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			108160	38960	69200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.60	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Charles Heckman | Signature and date: X [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 7/23/99

Please print or type.

Koppers020816

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011955

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -072 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:54:28pm	Gross Wt:	76,760	38.38	Manual Wt
0	OUT -->	01:01:23pm	Tare Wt:	36,900	18.45	Manual Wt
			NET WT:	39,860	19.93	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster

Koppers020817

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	9/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3881	Generator's US EPA ID No.
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #:	BTEX Levels
	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525	Facility Permit Numbers
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76760	36900	39860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				19.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X James Wolfe

Signature and date: X James Wolfe Month Day Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan 4/23/99

Please print or type.

GENERATOR'S COPY

Koppers020818

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011956

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -073 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:02:14pm	Gross Wt:	78,240	39.12	Manual Wt
0	OUT -->	01:04:56pm	Tare Wt:	32,000	16.00	Manual Wt
			NET WT:	46,240	23.12	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers020819

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	073

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78240	32000	46240
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.12	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lauren Adams | Signature and date: X Lauren Adams | Month 4 | Day 23 | Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/23/99

Please print or type.

Koppers020820

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011957

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -074 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:43:56pm	Gross Wt:	105,120	52.56	Manual Wt
0	OUT -->	01:47:34pm	Tare Wt:	38,740	19.37	Manual Wt
			NET WT:	66,380	33.19	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020821

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	0/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			105120	38740	66380
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.19	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Charles Heckman | Signature and date: [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/23/99

Please print or type.

Koppers020822

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011958

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -075 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:45:32pm	Gross Wt:	82,620	41.31	Manual Wt
0	OUT -->	01:51:36pm	Tare Wt:	36,940	18.47	Manual Wt
			NET WT:	45,680	22.84	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster

Koppers020823

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Holman	009	036933	975

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3001 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-1080 Person to Contact: BOB JANAF FAX #: (503) 408-8116	 Customer Account Number with TPS: [illegible]
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82620	37940	44680
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22540	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolde	X James Wolde			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/09

Please print or type.

GENERATOR'S PAGE COPY

Koppers020824

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011959

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -076 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:46:43pm	Gross Wt:	78,800	39.40	Manual Wt
0	OUT -->	01:53:49pm	Tare Wt:	31,960	15.98	Manual Wt
			NET WT:	46,840	23.42	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020825

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	9/9

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-2831 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78800	31960	46840
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2342	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Lauren Adams | Signature and date: [signature] | Month 9 | Day 23 | Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/23/99

Please print or type.

GENERATOR CONSULTANTS COPY

Koppers020826

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011961

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -077 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:37:47pm	Gross Wt:	97,640	48.82	Manual Wt
0	OUT -->	02:41:09pm	Tare Wt:	38,900	19.45	Manual Wt
			NET WT:	58,740	29.37	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020827

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[illegible]	A09	03693	077

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMFRER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8715	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			97640	38960	58740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				29.37	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X [illegible]	X [illegible]			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[illegible] 4/23/99

Please print or type.

GENERATOR in accounts COPY

Koppers020828

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011962

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -078 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:07:39pm	Gross Wt:	82,540	41.27	Manual Wt
0	OUT -->	03:11:27pm	Tare Wt:	31,940	15.97	Manual Wt
			NET WT:	50,600	25.30	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020829

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	078

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS FAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9353 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			72540	31940	50600
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.30	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X [signature]

Signature and date: X [signature] Month Day Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/23/99

Please print or type.

GENERATOR CONSULTANT'S COPY

Koppers020830

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011963

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -079 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:35:20pm	Gross Wt:	107,340	53.67	Manual Wt
0	OUT -->	03:38:41pm	Tare Wt:	38,840	19.42	Manual Wt
			NET WT:	68,500	34.25	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020831

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hookman	009	03603	979

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMPER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 100351

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9625	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			107340	38840	68500
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.25	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Charles Heckman	X			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/2/99

Please print or type.

GENERATOR'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011964

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -080 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:50:00pm	Gross Wt:	75,300	37.65	Manual Wt
0	OUT -->	03:53:20pm	Tare Wt:	31,900	15.95	Manual Wt
			NET WT:	43,400	21.70	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020833

TPS Technologies Soil Recycling

Non-Hazardous Soils

← Manifest

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03693	080

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-2681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8888 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1997513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76300	31900	42400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	9	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 9/23/99

Please print or type.

Koppers020834

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011965

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -081 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:22:05pm	Gross Wt:	106,020	53.01	Manual Wt
0	OUT -->	04:25:55pm	Tare Wt:	38,860	19.43	Manual Wt
			NET WT:	67,160	33.58	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers020835

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[signature]	A09	03693	081

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			100020	58860	67160
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.58	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: [signature]

Signature and date: [signature] Month Day Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/23/99

Please print or type.

GENERATOR'S CONTRACTOR COPY

Koppers020836

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011967

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -082 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:37:00pm	Gross Wt:	74,000	37.00	Manual Wt
0	OUT -->	04:40:18pm	Tare Wt:	31,900	15.95	Manual Wt
			NET WT:	42,100	21.05	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020837

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hans	AM	03693	MH2

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3501 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8800 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74000	31900	42100
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.05	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Hans	Lauren Hans	9	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 9/24/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011970

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -083 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:41:19am	Gross Wt:	83,120	41.56	Manual Wt
0	OUT -->	08:44:43am	Tare Wt:	32,100	16.05	Manual Wt
			NET WT:	51,020	25.51	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020839

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	003

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-5581 Person to Contact: AMOS KANERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL — CONTRACTOR — 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100151
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83130	32140	51020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.51	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	9	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 9/26/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011971

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -084 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:23:20am	Gross Wt:	84,200	42.10	Manual Wt
0	OUT -->	09:27:12am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	52,140	26.07	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020841

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03693	484

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286 3681 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2821	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL - CONTRACTOR - 1238 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 493-8866 Person to Contact: BOB JANAK FAX #: (503) 408-8415	Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84200	32060	52140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X	9	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/26/99

Please print or type.

GENERATOR'S/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011973

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -085 04/26/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:20:15am	Gross Wt:	79,620	39.81	Manual Wt
0	OUT -->	10:23:21am	Tare Wt:	32,020	16.01	Manual Wt
			NET WT:	47,600	23.80	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020843

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor		A09	01693	005

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) [illegible] Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAE FAX #: (503) 408-8716	Customer Account Number with TPS: 10035.13
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPS TECHNOLOGIES, INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79620	32020	47600
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.50	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Laura Adams	Laura Adams	4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 4/26/99

Please print or type.

GENERATOR COPY

Koppers020844

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011984

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -086 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:04:05am	Gross Wt:	80,060	40.03	Manual Wt
0	OUT -->	11:19:33am	Tare Wt:	32,000	16.00	Manual Wt
			NET WT:	48,060	24.03	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020845

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03693	486

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2811	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM PAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-88880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100151
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels ✓
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80060	32000	48060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.03	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/26/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011987

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -087 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:13:33pm	Gross Wt:	79,720	39.86	Manual Wt
0	OUT -->	12:16:51pm	Tare Wt:	31,980	15.99	Manual Wt
			NET WT:	47,740	23.87	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers020847

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03515	487

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-4581 Person to Contact: ANDY KAMENER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8816	Customer Account Number with TPS: 100353
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels ✓
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	**Facility Permit Numbers**
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79720	31980	47740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.87	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	7	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 7/27/99

Please print or type.

Koppers020848

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011989

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -088 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:56:50pm	Gross Wt:	77,540	38.77	Manual Wt
0	OUT -->	01:00:27pm	Tare Wt:	31,980	15.99	Manual Wt
			NET WT:	45,560	22.78	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers020849

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	988

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8-16	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			77540	31980	45560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.78	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Lauren Adams | Signature and date: [signature] | Month 4 | Day 26 | Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/26/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers020850

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011993

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -089 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:40:59pm	Gross Wt:	80,020	40.01	Manual Wt
0	OUT -->	01:44:54pm	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	48,320	24.16	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers020851

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	089

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80020	31700	48320
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.16	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Lauren Adams | Signature and date: Lauren Adams | Month 4 | Day 26 | Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: Glenna Mullan 4/26/99

Please print or type.

GENERATOR/consultant's COPY

Koppers020852

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011995

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -090 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:31:50pm	Gross Wt:	84,300	42.15	Manual Wt
0	OUT -->	02:34:58pm	Tare Wt:	31,920	15.96	Manual Wt
			NET WT:	52,380	26.19	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers020853

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Adams	499	03604	999

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2031	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAL FAX #: (503) 408-8816	 Customer Account Number with TPS: 1993513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84300	31920	52380
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.19	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lavien Adams		4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/26/99

Please print or type.

GENERATOR'S/CONSULTANT'S COPY

Koppers020854

RMCAT ENVIRONMENTAL SERVICES, INC.

CCB # 126132

INVOICE

REMIT TO: RMCAT ENVIRONMENTAL
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 28, 1999**

INVOICE NUMBER **90133-2**

CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 28, 1999

JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 932.34 tons @ $35.00 per ton	$ 32,631.90
Amount Due:	$ 32,631.90

OK Swan 5-3-99

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

Post-it® Fax Note 7671	Date 4-29-99	# of pages ▶ 1
To Bill	From April	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

9-24-90

KOPPERS

7540 N.W. St. Helens Rd.
Portland, Oregon 97210
(503) 286-3681

Bill, The Refined Tar spill was completly removed to Arlington on 9-24-90. 1st Truck on 9-21-90. 2nd Truck loaded and out 9-24-90
Copies of Manifest are attached for your records

J.A. Oxford

JOHN A. OXFORD

CHEM-SECURITY SYSTEMS, INC.

NATIONAL RESPONSE CENTER 1-800-424-8802
OREGON ACCIDENT RESPONSE CENTER 1-800-452-0311

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. / Manifest Document No.: ORD 027 734 359 92 4 90

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
KOPPERS INDUSTRIES INC
7540 NW ST HELENS RD PORTLAND OR 97210

4. Generator's Phone (503) 286-3681

5. Transporter 1 Company Name: CHEM-SECURITY SYSTEMS

6. US EPA ID Number: ORD089452353

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address: CHEMICAL WASTE MANAGEMENT OF THE NORTHWEST INC.
Chem-Security Systems, Inc.
Star Route
Arlington, Oregon 97812

10. US EPA ID Number: ORD089452353

A. State Manifest Document Number

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone 503-454-2643

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone 503-454-2643

GENERATOR

	11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	EPA/ I. Waste No.
a.	NOT REGULATED BY 49 CFR	001	DT	20	Y	X004
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above

a.
b.
c.
d.

K. WPS / Handling Code / Cu. Yd. / Area / S / D / Q / PR / Lbs. / Gal.

15. Special Handling Instructions and Additional Information **Waste Profile Sheet Number(s)**

a.
b. K46457
c.
d.

16. **GENERATOR'S CERTIFICATION**: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JOHN A OXFORD — Signature — Month Day Year: 0 9 2 4 9 0

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: [illegible] — Signature — Month Day Year: 0 9 2 4 9 0

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete.

GENERATORS COPY

Koppers020857

Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form.

Send comments regarding the burden estimate, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, US Environmental Protection Agency, 401 M St. S.W., Washington D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington D.C. 20503.

EM-SECURITY SYSTEMS, INC.

NATIONAL RESPONSE CENTER 1-800-424-8802
OREGON ACCIDENT RESPONSE CENTER 1-800-452-0311

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
ORD 0 9 8 1 3 3 5 9 9 3			

GENERATOR

3. Generator's Name and Mailing Address
KOPPERS INDUSTRIES INC
7540 N.W. ST HELENS RD PORTLAND OR

A. State Manifest Document Number

B. State Generator's ID

4. Generator's Phone

5. Transporter 1 Company Name — 6. US EPA ID Number — C. State Transporter's ID

GRESHAM TRANSFER — ORD 0 9 8 1 3 3 5 9 9 3 — D. Transporter's Phone 665-7502

7. Transporter 2 Company Name — 8. US EPA ID Number — E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address — 10. US EPA ID Number — G. State Facility's ID

Chem-Security Systems, Inc.
Star Route
Arlington, Oregon 97812 — ORD 0 8 9 4 5 2 3 5 3 — H. Facility's Phone 503-454-2643

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	EPA/1 Waste No.
a. NOT REGULATED BY DOT					X6454
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above	K. WPS					Handling Code
a.						Cu. Yd.
b.	Area	S	D	Q	PR	Lbs.
c.						Gal.
d.						

15. Special Handling Instructions and Additional Information **Waste Profile Sheet Number(s)**
a. K6457
b.
c.
d.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classifjed, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
JOHN A EXFORD	John a O'Ford	09	21	90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Roy Jack Rooney	Roy Jack Rooney	09	21	90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete.

GENERATOR'S COPY

Koppers020859

Public reporting burden for this collection of information is estimated to average 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the forms.

Send comments regarding the burden estimate, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, US Environmental Protection Agency, 401 M St. S.W., Washington D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington D.C. 20503.

Koppers020860

CO BINED NIFORM STRAIG T BILL LADIN AND F EIGHT B LL ORIGINAL · N T NEG IABLE

GRESHAM TRANSFER INC.
P.O. BOX 30689
PORTLAND, OR 97230

Portland Bulk Dispatch 503-255-7902 Fax: 503-255-9245
Portland Heavy Haul Dispatch 503-255-7904 Fax: 503-257-9028
Portland Nationwide WATS 800-727-7900

Seattle 206-878-7980
Seattle Fax: 206-878-0229
Seattle Nationwide WATS 800-727-7980

RECEIVE, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

	DATE	TRUCK #	TRAILER #	P.O. #
10-081775	09/21/90	18-284	09-190 17-283	

SHIPPER	CHEMICAL WASTE MANAGEMENT, NW.	CITY & STATE: ARLINGTON OR	SHIPPER B.L. #: 92190
CONSIGNEE	KOPPERS INC	CITY & STATE: PORTLAND OR	ROUTE CODE:
BILL TO CODE: CHEARL	BILL TO NAME: CHEMICAL WASTE MANAGEMENT, NW.	CITY & STATE: ARLINGTON OR	C.O.D. $

COMMODITY CODE	NO. SHIPPING UNITS	KIND OF PACKAGING, DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	NET WEIGHT (Subject to Correction)	RATE	CHARGES
138	1.00	CONTAMINATED SOIL			
		Gross Tare Net 41600			

SHIPPER SIGNATURE: J. A. O'Hard	LOADING DRIVER: Roy Jack Rooney		PILOT CARS: ONE ◯ TWO ◯	
	DATE: 9/21/90	TIME ARRIVED: 0800	STARTED LOADING: 0900	TIME LEFT: 1030
CONSIGNEE SIGNATURE: RECEIVED ABOVE FREIGHT IN GOOD ORDER.	UNLOADING DRIVER: Roy Jack Rooney		PILOT CARS: ONE ◯ TWO ◯	
	DATE: 9/21/90	TIME ARRIVED	STARTED UNLOADING	TIME LEFT

SHIPPER

Koppers020861

"SOFT-HAMMER" WASTES *

LAND DISPOSAL RESTRICTION NOTIFICATION AND CERTIFICATION FORM

Generator Name: _____ Manifest Number: _____

EPA Hazardous Waste Number: _____ CWM Profile Number: _____

This form is submitted to _____ in accordance with 40 CFR Part 268, which restricts the land disposal of certain hazardous wastes. I have marked the appropriate box below to indicate whether alternative treatment has been found for my waste. (See reverse side for the list of "soft-hammer" wastes and instructions on using this form.)

☐ **I. SOFT-HAMMER WASTE FOR WHICH ALTERNATIVE TREATMENT OR RECOVERY HAS BEEN LOCATED**

The soft-hammer waste I generate is (are) _____.
I have identified a practically available treatment technology that yields the greatest environmental benefit. Together with the initial shipment of waste represented by this form, I submitted a demonstration to the Regional Administrator in accordance with 40 CFR 268.8(a)(1), including a list of facilities and facility officials contacted, complete with addresses, telephone numbers, and contact dates, and a justification that I have chosen the best treatment that is practically available.

"I certify under penalty of law that the requirements of 40 CFR 268.8(a) have been met and I have contracted to treat my waste (or will otherwise provide treatment) by the practically available technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

☐ **II. SOFT-HAMMER WASTE FOR WHICH DISPOSAL IN LANDFILL OR SURFACE IMPOUNDMENT IS THE ONLY PRACTICAL ALTERNATIVE TO TREATMENT CURRENTLY AVAILABLE**

The soft-hammer waste(s) I generate or have treated is (are) _____.
I have made a good-faith effort to locate and contract with treatment and recovery facilities practically available which can meaningfully reduce the toxicity or mobility of hazardous constituents in the waste, as an alternative to land disposal. I have found no such alternative facility. Together with the initial shipment of waste represented by this form, I submitted a demonstration in accordance with 40 CFR 268.8(a), including a list of facilities and facility officials contacted, addresses, telephone numbers, contact dates, and an explanation of why no treatment is practically available. This soft-hammer waste must be disposed of in a landfill or surface impoundment meeting the minimum technological standards until treatment standards are set for the waste or May 8, 1990, whichever occurs first.

"I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that disposal in a landfill or surface impoundment is the only practical alternative to treatment currently available. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false informations, including the possibility of fine or imprisonment."

☐ **III. TREATMENT OR RECOVERY FACILITY HAS TREATED THE WASTE**

The following soft-hammer waste(s) was treated in accordance with the generator's demonstration: _____.

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with treatment as specified in the generator's demonstration. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

☐ **IV. SOFT-HAMMER WASTE DESTINED FOR LAND DISPOSAL OTHER THAN IN LANDFILL OR SURFACE IMPOUNDMENT (e.g. DEEP INJECTION WELL)**

The soft-hammer waste(s) I generate is (are) _____. This waste is being disposed of in a land disposal unit other than a landfill or surface impoundment and therefore is not subject to the certification and demonstration requirements described above.

Signature _____ Title _____ Date _____

Printed on recycled paper

COPYRIGHT: NOVEMBER 1988

Koppers020862

Instructions For Completing the "Soft Hammer" Notification and Certification Form

What is a "Soft-Hammer" Waste?

"Soft-Hammer" wastes are those listed hazardous wastes in the First- and Second-Third of the Scheduled Wastes for which EPA has not set treatment standards. **See** section 3004(g) of the Resource Conservation and Recovery Act (RCRA).

List of "Soft-Hammer" Wastes Under First-Third (8/8/88)

F006 - (Wastewater)
F007
F008
F009
F019

K004 - (Wastewater)
K008 - (Wastewater)
K011
K013
K014
K017
K021 - (Wastewater)
K022 - (Wastewater)
K031
K035
K036 - (Wastewater)
K046 - (Explosive non-wastewaters)
K046 - (Wastewater)
K060 - (Wastewater)
K061 - (Wastewater)
K069 - (Calcium sulfate subcategory)
K069 - (Wastewater)
K073
K083 - (Except no ash subcategory)
K084
K085
K086 - (Solvent sludge, caustic water wash and sludge subcategory)
K101 - (High arsenic subcategory: greater than 1%)
K102 - (High arsenic subcategory: greater than 1%)
K106

P001
P004
P005
P010
P011
P012
P015
P016
P018
P020
P030
P036
P037
P039
P041
P048
P050
P058
P059
P063
P068
P069
P070
P071
P081
P082
P084
P087
P089
P092
P094
P097
P102
P105
P108
P110
P115
P120
P122 - When present at concentrations greater than 10%
P123

U007
U009
U010
U012
U016
U018
U019
U022
U029
U031
U036
U037
U041
U043
U044
U046
U050
U051
U053
U061
U063
U064
U066
U067
U074
U077
U078
U086
U089
U103
U105
U108
U115
U122
U124
U129
U130
U133
U134
U137
U151
U154
U155
U157
U158
U159
U171
U177
U180
U185
U188
U192
U200
U209
U210
U211
U219
U220
U221
U223
U226
U227
U228
U237
U238
U248 - When present at concentrations 0.3% or less
U249 - When present at concentrations 10% or less

How Must "Soft-Hammer" Wastes Be Managed?

Until May 8, 1990 these wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the minimum technological requirements and prior to such disposal, the generator has made a good-faith effort to locate and contract with treatment and recovery facilities practically available which provide the greatest environmental benefit.

What is "Practical Treatment?"

First, if a generator's "soft-hammer" wastes were treated in the past, EPA says it would consider at least this type of treatment to be "practical" for that generator. Second, EPA presents a cost ratio that measures the cost of treatment relative to the baseline cost of shipment and disposal in a minimum technological landfill or surface impoundment. If treating the waste costs at least twice as much as not treating the waste, EPA would ordinarily consider that form of treatment to be impractical. Third, EPA has provided in the rule's preamble a generic hierachy of preferred treatment methods for certain First-Third wastes, see 53 Fed. Reg. 31175-76. Last, in general, the Agency says it favors recovery/recycling facilities as the best method, followed by destruction technologies such as incineration (especially for organics), and then stabilization where recycling or destruction is unavailable or inappropriate (especially for inorganics).

Which Box Should I Mark?

Mark Box I on the front of this form if you generate (or have treated) one of the hazardous wastes listed above, and you **have located** a treatment or recovery process which yields the greatest environmental benefit.

Mark Box II if you generate one of the hazardous wastes listed above **but have been unable to locate** an alternative treatment. Note that if this waste is disposed in a landfill or surface impoundment, the unit must comply with the minimum technological requirements.

Mark Box III if you have treated soft-hammer waste in accordance with the generator's demonstration.

Mark Box IV if your soft-hammer waste is being land disposed in a unit other than a landfill or surface impoundment (e.g., deep well injection). The certification and demonstration requirements of Boxes I, II, and III do not apply. Please note that all first-third wastes (except K049, K050, K051, K052, K062, K071, and K104 which are subject to a two year variance) destined for deep well injection are subject to soft-hammer provisions until treatment standards are established for deep injection wells or until 5/8/90, whichever comes sooner.

Where Should The Forms Be Sent?

The generator must submit the certification and demonstration to the Regional Administrator (RA). Certifications and demonstrations for subsequent shipments need not be sent to the RA provided the conditions of the original certification do not change (i.e., the same demonstration applies). The generator must also send the demonstration and certification to the receiving facility with the initial waste shipment. Provided the conditions of the certification do not change, only the certification need be sent with each subsequent waste shipment. The treatment facility must send a copy of the generator's demonstration and certification to the facility receiving the waste or treatment residues, along with a certification that it has treated the waste in accordance with the generator's demonstration.

Chemical Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

RECEIVED
AUG - 7 1990

K 46457
Waste Profile Sheet Code

KOPPERS INDS., INC.
PORTLAND, OR
CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: 042

A. GENERAL INFORMATION

1. Generator Name: KOPPERS INDUSTRIES, INC
2. Generator USEPA ID: O R D02 7 7 3 43 5 9 8/1/90 BR
3. Facility Address: 7540 N.W. ST. HELENS RD. PORTLAND, OR 97210
4. Generator State ID: _____
5. Zip Code: 97210
6. Technical Contact: JOHN A. OXFORD
7. Title: PLANT MGR.
8. Phone: (503) 286-3681

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO

1. ☒ Generating Facility (A, above), or
2. Company Name: _____
3. Phone: ( ) _____ - _____
4. Address: _____
5. Zip Code: _____

C. 1. NAME OF WASTE REFINED TAR CONTAMINATED SOIL

2. PROCESS GENERATING WASTE TANK CAR UNLOADING
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☒ No If yes, **DO NOT COMPLETE** this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
BLACK	☒ No ☐ Yes If known, describe:	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other:	☒ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.200- MIN	☐ Yes ☒ No Volume: %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥ 12.5 ☐ Range _____ - _____ ☒ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☒ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
~~SEE M.S.D.S.~~	-	%
~~SEE ATTACHED~~	-	%
	-	%
Soil	- 80	%
Coal Tar Pitch	- 80	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: 160 %

2. Indicate if this waste contains any of the following:

	NONE	or	LESS THAN	or	ACTUAL
PCB's	☒	☐	< 50 ppm		ppm
Cyanides	☒	☐	< 50 ppm		ppm
Phenolics	☒	☐	< 50 ppm		ppm
Sulfides	☒	☐	< 50 ppm		ppm

8/3/90 BP

RECEIVED
JUL 26 990

F. METALS Indicate if this waste contains any of the following: SEE M.S.D.S.-NONE KNOWN

1. ☐ EP TOX/TCLP or 2. ☒ Total

METAL	LESS THAN or ACTUAL (Parts Per Million)		
Arsenic	☒ < 5	☐ < 500	
Barium	☒ < 100		
Cadmium	☒ < 1	☐ < 100	
Chromium	☒ < 5		
Lead	☒ < 5	☐ < 500	
Mercury	☒ < 0.2	☐ < 20	
Selenium	☒ < 1	☐ < 100	
Silver	☒ < 5		
Chromium-Hex	☒ < 5	☐ < 500	
Copper	☒ < 5		
Nickel	☒ < 5	☐ < 134	
Thallium	☒ < 5	☐ < 130	
Zinc	☒ < 5		
	☐ <		
	☐ <		
	☐ <		

8/3/90 BR

TURN PAGE AND COMPLETE SIDE 2
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Koppers020864

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

[ ] K 46457
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☒ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☒ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☒ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available.

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☐ Yes ☒ No 2. Anticipated Annual Volume/Units: -0- 100 cuyds
3. Proper Shipping Name: ~~REFINED TAR CONTAMINATED SOIL~~ Non-Regulated
4. Hazard Class: NONE 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☒ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): 0 9. RQ Units (lb/kg): 0
10. USEPA Hazardous Waste? ☐ Yes ☒ No 11. USEPA Hazardous Waste Number(s): ---
12. State Hazardous Waste? ☒ Yes ~~☒ No~~ 13. State Hazardous Waste Number(s): X004 ---

8/3/90 BR

K. SPECIAL HANDLING INFORMATION NONE

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. John A Oxford — Signature
2. PLANT MGR. — Title
3. JOHN A. OXFORD — Name (Type or Print)
4. 7-20-90 — Date

Side 2 of 2

Form CWM-6000 © 1987 Chemical Waste Management, Inc.

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☒ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

SPILL HOLDING AREA

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:	K 46457	1. Waste Profile Sheet Code
2. [redacted] Generator's Name:	KOPPERS INDUSTRIES, INC.	2 Generator's Name
3. [redacted] Name of Waste:	REFINED TAR CONTAMINATED SOIL	3. Name of Waste:
4. [redacted] Sample Hour/Date:	2:00 pm 7-19-90	4 Sample Hour/Date
5. [redacted] Sampler's Signature:		5. Sampler's Signature

SEE M.S.D.S.-NONE

6. Print Sampler's Name: HAROLD BEEHLER
7. Sampler's Title: CHEMIST
8. Sampler's Employer (if CWM, see D. below): KOPPERS INDUSTRIES, INC.

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

RECEIVED JUL 26 1990

1. Witness' Signature: John a Oxford
2. Witness' Name: JOHN OXFORD 3. Witness' Title: PLANT MGR.
4. Witness' Employer: KOPPERS INDUSTRIES, INC 5. Date: 7-19-90

Koppers020866

Chemical Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: 042

A. GENERAL INFORMATION

1. Generator Name: KOPPERS INDUSTRIES, INC
2. Generator USEPA ID: O R D02 7 7 3 43 5 9 9
3. Facility Address: 7540 N.W. ST. HELENS RD. PORTLAND, OR 97210
4. Generator State ID:
5. Zip Code: 97210
6. Technical Contact: JOHN A. OXFORD
7. Title: PLANT MGR.
8. Phone: (503) 286-3681

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO

1. ☒ Generating Facility (A, above), or
2. Company Name:
3. Phone: ( ) -
4. Address:
5. Zip Code:

C.

1. NAME OF WASTE: REFINED TAR CONTAMINATED SOIL
2. PROCESS GENERATING WASTE: TANK CAR UNLOADING
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
   ☐ Yes ☒ No If yes, **DO NOT COMPLETE** this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
BLACK	☒ No ☐ Yes If known, describe:	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other:	☒ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.200- MIN	☐ Yes ☒ No Volume: %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range - ☒ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☒ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
SEE M.S.D.S.	-	%
SEE ATTACHED	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: %

2. Indicate if this waste contains any of the following:

	NONE or	LESS THAN or	ACTUAL
PCB's	☒	☐ < 50 ppm	ppm
Cyanides	☒	☐ < 50 ppm	ppm
Phenolics	☐	☐ < 50 ppm	ppm
Sulfides	☒	☐ < 50 ppm	ppm

F. METALS

Indicate if this waste contains any of the following: SEE M.S.D.S.-NONE KNOWN

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN or (Parts Per Million)		ACTUAL
Arsenic	☐ < 5	☐ < 500	
Barium	☐ < 100		
Cadmium	☐ < 1	☐ < 100	
Chromium	☐ < 5		
Lead	☐ < 5	☐ < 500	
Mercury	☐ < 0.2	☐ < 20	
Selenium	☐ < 1	☐ < 100	
Silver	☐ < 5		
Chromium-Hex	☐ < 5	☐ < 500	
Copper	☐ < 5		
Nickel	☐ < 5	☐ < 134	
Thallium	☐ < 5	☐ < 130	
Zinc	☐ < 5		
	☐ <		
	☐ <		
	☐ <		

TURN PAGE AND COMPLETE SIDE 2

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Koppers020867

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

☐ K 46457
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☒ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☒ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive ☐ Radioactive
☐ Water Reactive ☐ Etiological
☐ Explosive ☐ Pesticide Manufacturing Waste
☐ Shock Sensitive ☐ Other _____
☐ Pyrophoric ☒ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

	LESS THAN or	ACTUAL
Beryllium	☐ < 5000 ppm	_____ ppm
Potassium	☐ < 5000 ppm	_____ ppm
Sodium	☐ < 5000 ppm	_____ ppm
Total Bromine	☐ < 2 %	_____ %
Total Chlorine	☐ < 35 %	_____ %
Total Fluorine	☐ < 1 %	_____ %
Total Sulfur		_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available.

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☐ Yes ☒ No 2. Anticipated Annual Volume/Units: -0- /
3. Proper Shipping Name: REFINED TAR CONTAMINATED SOIL
4. Hazard Class: NONE 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☒ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): 0 9. RQ Units (lb/kg): 0
10. USEPA Hazardous Waste? ☐ Yes ☒ No 11. USEPA Hazardous Waste Number(s): ---
12. State Hazardous Waste? ☐ Yes ☒ No 13. State Hazardous Waste Number(s): ---

K. SPECIAL HANDLING INFORMATION NONE

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Signature John a Oxford 2. PLANT MGR. Title

3. JOHN A. OXFORD Name (Type or Print) 4. 7-20-90 Date

Side 2 of 2

Form CWM-6000 © 1987 Chemical Waste Management, Inc.

Koppers020868

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

SPILL HOLDING AREA

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:	K 46457	1. Waste Profile Sheet Code
2. [redacted] Generator's Name:	KOPPERS INDUSTRIES, INC.	2. Generator's Name
3. [redacted] Name of Waste:	REFINED TAR CONTAMINATED SOIL	3. Name of Waste:
4. [redacted] Sample Hour/Date:	2:00 pm 7-19-90	4. Sample Hour/Date
5. [redacted] Sampler's Signature:	[signature]	5. Sampler's Signature

SEE M.S.D.S.-NONE

6. Print Sampler's Name: HAROLD BEEHLER
7. Sampler's Title: CHEMIST
8. Sampler's Employer (if CWM, see D. below): KOPPERS INDUSTRIES, INC.

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

1. Witness' Signature: [signature]
2. Witness' Name: JOHN OXFORD
3. Witness' Title: PLANT MGR.
4. Witness' Employer: KOPPERS INDUSTRIES, INC
5. Date: 7-19-90

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PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) **CWM Sales Rep. #:** _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☒ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

SPILL HOLDING AREA.

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:	K 4 6 4 5 7	1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	KOPPERS IND. INC.	2. Generator's Name:
3. [redacted] Name of Waste:	REFINED TAR CONTAMINATED SOIL	3. Name of Waste:
4. [redacted] Sample Hour/Date:	2:00 PM 7-19-90	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:	[redacted]	5. Sampler's Signature:

6. Print Sampler's Name: HAROLD BEEHLER
7. Sampler's Title: CHEMIST
8. Sampler's Employer (if CWM, see D. below): KOPPERS IND INC

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

1. Witness' Signature: _____
2. Witness' Name: JOHN OXFORD
3. Witness' Title: Plant Mgr.
4. Witness' Employer: KOPPERS IND INC
5. Date: 7-19-90

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Chemical Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: 042

A. GENERAL INFORMATION

1. Generator Name: Koppers Ind Inc. 2. Generator USEPA ID: _____
3. Facility Address: 7540 N.W. St Helens Rd. 4. Generator State ID: _____
Portland 97210
5. Zip Code: 97210
6. Technical Contact: John A O'Hara 7. Title: Plant Mgr. 8. Phone: (503) 286 - 3681

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☒ Generating Facility (A, above), or
2. Company Name: _____ 3. Phone: ( ) _____ - _____
4. Address: _____
5. Zip Code: _____

C. 1. **NAME OF WASTE** REFINED TAR CONTAMINATED SOIL
2. **PROCESS GENERATING WASTE** TANK CAR UNLOADING
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☒ No If yes, **DO NOT COMPLETE** this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
BLACK	☒ No ☐ Yes If known, describe: _____	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other: _____	☒ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.200 MIN	☐ Yes ☒ No Volume: _____ %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range _____ - _____ ☒ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☒ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
SEE M.S.D.S	-	%
SEE ATTACHED)	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. **TOTAL:** _____ %

2. Indicate if this waste contains any of the following:

	NONE	or LESS THAN	or ACTUAL
PCB's	☑	☐ < 50 ppm	_____ ppm
Cyanides	☑	☐ < 50 ppm	_____ ppm
Phenolics	☐	☐ < 50 ppm	_____ ppm
Sulfides	☑	☐ < 50 ppm	_____ ppm

F. METALS Indicate if this waste contains any of the following: SEE M.S.D.S — NONE KNOWN
1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	_____
Barium	☐ < 100		_____
Cadmium	☐ < 1	☐ < 100	_____
Chromium	☐ < 5		_____
Lead	☐ < 5	☐ < 500	_____
Mercury	☐ < 0.2	☐ < 20	_____
Selenium	☐ < 1	☐ < 100	_____
Silver	☐ < 5		_____
Chromium-Hex	☐ < 5	☐ < 500	_____
Copper	☐ < 5		_____
Nickel	☐ < 5	☐ < 134	_____
Thallium	☐ < 5	☐ < 130	_____
Zinc	☐ < 5		_____
_____	☐ <		_____
_____	☐ <		_____
_____	☐ <		_____

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Koppers020871

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

☐ K 46457
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☑ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☑ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive ☐ Radioactive
☐ Water Reactive ☐ Etiological
☐ Explosive ☐ Pesticide Manufacturing Waste
☐ Shock Sensitive ☐ Other _____
☐ Pyrophoric ☑ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available.

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☐ Yes ☑ No 2. Anticipated Annual Volume/Units: 0 /
3. Proper Shipping Name: REFINED TAR CONTAMINATED SOIL
4. Hazard Class: NONE 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☒ Bulk Solid ☐ Drum (Type/Size): / Other: _____
8. CERCLA Reportable Quantity (RQ): 0 9. RQ Units (lb/kg): 0
10. USEPA Hazardous Waste? ☐ Yes ☑ No 11. USEPA Hazardous Waste Number(s): —
12. State Hazardous Waste? ☐ Yes ☑ No 13. State Hazardous Waste Number(s): —

K. SPECIAL HANDLING INFORMATION NONE

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. _____ Signature 2. PLANT MGR Title
3. JOHN A OXFORD KOPPERS IND INC Name (Type or Print) 4. 7-20-90 Date

Form CWM-6000 © 1987 Chemical Waste Management, Inc.

Koppers020872

CHEM-SECURITY SYSTEMS, INC.

NATIONAL RESPONSE CENTER 1-800-424-8802
OREGON ACCIDENT RESPONSE CENTER 1-800-452-0311

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)* 109770 *Form Approved. OMB No. 2050-0039. Expires 9-30-91*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ORD027734359 — Manifest Document No. 02144
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
Koppers Co., Inc.
7450 NW St.Helens Road, Portland, OR 97210
4. Generator's Phone (503) 286-3681

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name: Chem-Security Systems, Inc.
6. US EPA ID Number: ORD089452353
C. State Transporter's ID
D. Transporter's Phone 503/454-2643

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Security Systems, Inc.
Star Route
Arlington, Oregon 97812
10. US EPA ID Number: ORD089452353
G. State Facility's ID
H. Facility's Phone **503-454-2643**

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	EPA/ I. Waste No.
a. RQ, Hazardous Waste, Solid, n.o.s. ORM-E NA9189 (U051)	020	DM	01100	G	U051
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above — K. Handling Codes
a. Creosote Spill Cleanup
b.
c.
d.

WPS J09414 — Handling Code D81
Cu. Yd. 5.40
Lbs. 8800
Gal.

Area	S	D	Q	PR
L13	33	A	2F	4

15. Special Handling Instructions and Additional Information **Waste Profile Sheet Number(s)**
a. J09414-PDX
b.
c.
d.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JOHN A. OXFORD — Signature: John A Oxford — Month Day Year: 04 12 4 90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: JOHN E CHILDERS — Signature: John E Childers — Month Day Year: 04 12 4 90

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19 Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed Typed Name: Betty L Reed — Signature: Betty L Reed — Month Day Year: 04 13 90

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete

ORIGINAL-RETURN TO GENERATOR

Koppers020873

Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form.

Send comments regarding the burden estimate, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, US Environmental Protection Agency, 401 M St. S.W., Washington D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington D.C. 20503.

M-SECURITY SYSTEMS, INC.

NATIONAL RESPONSE CENTER 1-800-424-8802
OREGON ACCIDENT RESPONSE CENTER 1-800-452-0311

rint or type. *(Form designed for use on elite (12-pitch) typewriter.)* *Form Approved. OMB No. 2050-0039. Expires 9-30-91*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

ORD027735359 | 00244

Generator's Name and Mailing Address
Koppers Co., Inc.
7450 NW St.Helens Road, Portland, OR 97210
Generator's Phone (503) 286-3681

A. State Manifest Document Number
B. State Generator's ID

Transporter 1 Company Name | 6. US EPA ID Number
Chem-Security Systems, Inc. | ORD089452353

C. State Transporter's ID
D. Transporter's Phone 503/454-2643

Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID
F. Transporter's Phone

Designated Facility Name and Site Address | 10. US EPA ID Number
Chem-Security Systems, Inc.
Star Route
Arlington, Oregon 97812 | ORD089452353

G. State Facility's ID
H. Facility's Phone
503-454-2643

US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vo	EPA/L Waste No.
RQ, Hazardous Waste, Solid, n.o.s. ORM-E NA9189 (U051)	020	DM	01100	G	U051

Additional Descriptions for Materials Listed Above	WPS	Handling Codes for Wastes Listed Above
Creosote Spill Cleanup		Cu. Yd.
	Area	T S D O PR Lbs Gal

Special Handling Instructions and Additional Information **Waste Profile Sheet Number(s)**
J09414-PDX

GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
JOHN A. OXFORD	John A Oxford	04 12 4 90

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
JOHN E CHILDERS	John E. Childers	04 12 4 90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year

rm 8700-22 (Rev. 9/88) Previous editions are obsolete.

ORIGINAL-RETURN TO GENERATOR

Koppers020875

CHEM-SECURITY SYSTEMS, INC.

NATIONAL RESPONSE CENTER 1-800-424-8802
OREGON ACCIDENT RESPONSE CENTER 1-800-452-0311

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ORD027734359 — Manifest Document No. 02446
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
Koppers Co., Inc.
7450 NW St.Helens Road, Portland, OR 97210
4. Generator's Phone (503) 286-3681

A. State Manifest Document Number
B. State Generator's ID

5. Transporter 1 Company Name: Chem-Security Systems, Inc.
6. US EPA ID Number: ORD089452353
C. State Transporter's ID
D. Transporter's Phone 503/454-2643

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Security Systems, Inc.
Star Route
Arlington, Oregon 97812
10. US EPA ID Number: ORD089452353
G. State Facility's ID
H. Facility's Phone 503-454-2643

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	EPA/ I. Waste No.
a. RQ, Hazardous Waste, Solid, n.o.s. ORM-E NA9189 (U051)	020	DM	01100	G	U051
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. Creosote Spill Cleanup
b.
c.
d.

K. WPS | Handling Code | Cu. Yd. | Area | S | D | Q | PR | Lbs. | Gal.

15. Special Handling Instructions and Additional Information **Waste Profile Sheet Number(s)**
a. J09414-PDX
b.
c.
d.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JOHN A. OXFORD — Signature: John A Oxford — Month Day Year: 04 24 90

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete.

GENERATORS COPY

Koppers020876

Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form.

Send comments regarding the burden estimate, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, US Environmental Protection Agency, 401 M St. S.W., Washington D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington D.C. 20503.

KOPPERS INDUSTRIES

OCCUPATIONAL HEALTH
& PRODUCT SAFETY

JUL 23 1990

Koppers Industries, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97210-3663

Telephone: (503) 286-3681
FAX: (503) 285-2831

July 20, 1990

Chem-Security Systems, Inc.
Star Route, Box 9
Arlington, OR 97812

Dear Sirs,

Please note this material is not listed as a hazardous material on any list. We are disposing of this material under manifest for tracking and tracing purposes only.

Thank you.

John A. Oxford

John A. Oxford
Plant Mgr.

JAO/km

Chemical Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: 042

A. GENERAL INFORMATION

1. Generator Name: KOPPERS INDUSTRIES, INC
2. Generator USEPA ID: O R D02 7 7 3 43 5 9
3. Facility Address: 7540 N.W. ST. HELENS RD. PORTLAND, OR 97210
4. Generator State ID: _____
5. Zip Code: 97210
6. Technical Contact: JOHN A. OXFORD
7. Title: PLANT MGR.
8. Phone: (503) 286-3681

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☒ Generating Facility (A, above), or

2. Company Name: _____ 3. Phone: ( ) _____ - _____

4. Address: _____

5. Zip Code: _____

C. 1. **NAME OF WASTE** REFINED TAR CONTAMINATED SOIL

2. **PROCESS GENERATING WASTE** TANK CAR UNLOADING

3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?

☐ Yes ☒ No If yes, **DO NOT COMPLETE** this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
BLACK	☒ No ☐ Yes If known, describe:	☒ Solid ☐ Semi-Solid ☐ Liquid ☐ Powder Other:	☒ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.200- MIN	☐ Yes ☒ No Volume: %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☐ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥ 12.5 ☐ Range _____ - _____ ☒ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☒ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
SEE M.S.D.S.	-	%
SEE ATTACHED	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. **TOTAL:** _____ %

2. Indicate if this waste contains any of the following:

	NONE	or	LESS THAN	or	ACTUAL
PCB's	☒		☐ < 50 ppm		_____ ppm
Cyanides	☒		☐ < 50 ppm		_____ ppm
Phenolics	☐		☐ < 50 ppm		_____ ppm
Sulfides	☒		☐ < 50 ppm		_____ ppm

F. METALS Indicate if this waste contains any of the following: SEE M.S.D.S.-NONE KNOWN

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐< 5	☐< 500	
Barium	☐< 100		
Cadmium	☐< 1	☐< 100	
Chromium	☐< 5		
Lead	☐< 5	☐< 500	
Mercury	☐< 0.2	☐< 20	
Selenium	☐< 1	☐< 100	
Silver	☐< 5		
Chromium-Hex	☐< 5	☐< 500	
Copper	☐< 5		
Nickel	☐< 5	☐< 134	
Thallium	☐< 5	☐< 130	
Zinc	☐< 5		
_____	☐<		
_____	☐<		
_____	☐<		

TURN PAGE AND COMPLETE SIDE 2

Form CWM-6000 © 1987 Chemical Waste Management, Inc.

Koppers020879

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

☐ K 46457
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☒ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☒ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive ☐ Radioactive
☐ Water Reactive ☐ Etiological
☐ Explosive ☐ Pesticide Manufacturing Waste
☐ Shock Sensitive ☐ Other _____
☐ Pyrophoric ☒ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

	LESS THAN or	ACTUAL
Beryllium	☐ < 5000 ppm	_____ ppm
Potassium	☐ < 5000 ppm	_____ ppm
Sodium	☐ < 5000 ppm	_____ ppm
Total Bromine	☐ < 2 %	_____ %
Total Chlorine	☐ < 35 %	_____ %
Total Fluorine	☐ < 1 %	_____ %
Total Sulfur		_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available.

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☐ Yes ☒ No 2. Anticipated Annual Volume/Units: -0- /
3. Proper Shipping Name: REFINED TAR CONTAMINATED SOIL
4. Hazard Class: NONE 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☒ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): 0 9. RQ Units (lb/kg): 0
10. USEPA Hazardous Waste? ☐ Yes ☒ No 11. USEPA Hazardous Waste Number(s): ---
12. State Hazardous Waste? ☐ Yes ☒ No 13. State Hazardous Waste Number(s): ---

K. SPECIAL HANDLING INFORMATION NONE

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. John a Oxford
Signature

2. PLANT MGR.
Title

3. JOHN A. OXFORD
Name (Type or Print)

4. 7-20-90
Date

Form CWM-6000 © 1987 Chemical Waste Management, Inc.

Koppers020880

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

K 46457

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

SPILL HOLDING AREA

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:	K 46457	1. Waste Profile Sheet Code
2. [redacted] Generator's Name:	KOPPERS INDUSTRIES, INC.	2 Generator's Name
3. [redacted] Name of Waste:	REFINED TAR CONTAMINATED SOIL	3. Name of Waste:
4. [redacted] Sample Hour/Date:	2:00 pm 7-19-90	4 Sample Hour/Date
5. [redacted] Sampler's Signature:	[signature]	5. Sampler's Signature

SEE M.S.D.S.-NONE

6. Print Sampler's Name: HAROLD BEEHLER
7. Sampler's Title: CHEMIST
8. Sampler's Employer (if CWM, see D. below): KOPPERS INDUSTRIES, INC.

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

1. Witness' Signature: John a Oxford
2. Witness' Name: JOHN OXFORD 3. Witness' Title: PLANT MGR.
4. Witness' Employer: KOPPERS INDUSTRIES, INC 5. Date: 7-19-90

Form CWM-51 © 1987 Chemical Waste Management. Inc.

NW Natural
220 NW 2ND AVENUE
PORTLAND, OR 97209
TEL 503.226.4211
www.nwnatural.com

Michael J. Hayward
Senior Environmental Specialist
Telephone: (503)226-4211 ext 4327
Facsimile: (503)273-4815
Email: mjh@nwnatural.com

December 23, 1998

Mr. Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210

RE: Disposal of Excavated Soils at Gasco Site

Dear Mr. Kamerer:

This is in response to your recent inquiry with respect to our disposal practices for soils generated by excavations at NW Natural's Gasco Facility.

NW Natural has taken the position that disposal decisions are to be made in accordance with applicable law, and are to be designed to avoid long-term liability. Accordingly, it is our practice that we do not landfill any excavated soils that have measurable levels of contamination.

The first step in our disposal decision-making process is a RCRA standard hazardous/non-hazardous determination. Soils that are characterized as hazardous are then treated by a licensed treatment facility, by either thermal desorbtion or chemical oxidation. Non-hazardous soils are normally sent to a local facility for thermal treatment to reduce contaminants to below detectable levels.

I trust the foregoing answers your questions. If you need any additional information, or wish to discuss this in more detail, please feel free to call me at (503) 226-4211 ext. 4327.

Sincerely,

Michael J. Hayward

cc: Sandi Hart, NWN

RECEIVED
DEC 2 8 1998
KOPPERS INDS, INC.
PORTLAND OR

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To:	Listed Below	From:	L. F. Flaherty
Location:		Location:	K - 1750
Subject:	Spill Reports	Date:	August 16, 1990

G. E. Trent - Chicago Plant
T. A. Golubic - Follansbee Plant
K. J. Fitzgerald - Houston Plant
R. J. Morris - Woodward Tar Plant
John Oxford - Portland Plant

Perhaps our spill performance is better than I think it is, or perhaps I'm not reviewing my mail as thoroughly as I should .... but, I do not remember receiving any plant spill incident reports recently. Consider this note a reminder that spill incident reports are an internal KI requirement and that KI has an obligation to Beazer under the asset purchase agreement to report incidents to them.

Would like to see a summary of your 1990 spill incidents.

L. F. Flaherty

LFF:rs

CC: W. E. Swearingen
J. R. Batchelder

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

May 27, 1998

LCDR Ed Parsons
Marine Safety Office
U.S. Coast Guard
6767 N. Basin Ave.
Portland, OR 97217-3992

Reference: Spill Prevention, Control, and Countermeasures Plan

Dear Sir,

As per our company policy, enclosed please find a copy of our revised SPCC plan for your files. Should you have any questions or comments, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer

BCC: T.I. Self

PACIFIC TERMINAL SERVICES, INC.
910 SW Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

September 3, 2002

Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210-3663

Dear Amos:

Enclosed please find an executed copy of the escalation letter for the Dock Services Agreement, an executed copy of the Oil Spill Contingency Agreement, and a copy of the modifications to PTSI's Oil Spill Contingency Plan.

The modifications to the Oil Spill Contingency Plan were completed and mailed to the Oregon Department of Environmental Quality, United States Environmental Protection Agency-Region 10, and the United States Coast Guard-Portland Marine Safety Office.

I will let you know if I receive any comments on the modifications submitted. Please call if you have any questions.

Sincerely,

Troy M. Goodman, PE
President

Post-it® Fax Note 7671	Date 9/5/02	# of pages ▶ 32
To J. Dietz	From Amos	
Co./Dept. T. Solp	Co.	
Phone # The Attached	Phone # for your	
Fax # review &	Fax # comment	

Koppers020885

710 SW Spokane Street, Seattle, Washington
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

August 8, 2002

Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210-3663

Dear Amos:

This is with reference to your request to have Pacific Terminal Services (PTSI) include Koppers' pitch unloading facility in the PTSI Oil Spill Contingency Plan.

PTSI will submit a minor modification to our Oil Spill Contingency Plan incorporating the Koppers dock receipt line to the first shore valve. These modifications (includes update copies sent to all plan holders) will be provided for a lump sum of Twelve Hundred Dollars ($1200.00). Any additional modifications, meetings with Oregon DEQ, or other work necessary to complete the modification will be done on a time and materials basis.

In addition, Koppers will pay a response contractor fee of $0.0533 per barrel of pitch received through the dockline. This fee will be subject to annual review and escalation. This fee does not remove Koppers from any liability for spill clean up costs.

Let me know if this meets with your approval. If so, I will submit the plan changes to DEQ next week.

Sincerely,

Troy M. Goodman, PE
President

Accepted and agreed to this 20 day of August 2002.

Koppers Industries, Inc.

By: _____

Title: Plant Manager
A. S. Kamerer

Accepted and agreed to this 27 day of August 2002.

Pacific Terminal Services, Inc.

By: _____

Title: President

PACIFIC TERMINAL SERVICES, INC.
OIL SPILL RESPONSE PLAN

LOG OF AMENDMENTS TO THE PLAN

Amendment Number	Date	Page No.	Description of Amendment	ODEQ Notified? (see Note below)	Approval Initials
1	2-18-93	ALL	General Revision per NVIC 7-92	Yes	
2	7-1-94	ALL	Revised to address USCG and EPA deficiencies	Yes	
3	10-99	ALL	Revised for transfer from PNO to PTSI	Yes	
4	11-00	ALL	Revisions per DEQ	Yes	
5	01-01	ALL	Revisions per DEQ	Yes	
6	03-01	ALL	Revisions per EPA	Yes	
7	05-01	3-12 to 3-14	Revised per DEQ	Yes	
8	05-01	Tab. 8	Added per DEQ	Yes	
9	07-05-01	ii	Table of Contents	Yes	
		1-20	Section 1.5.1	Yes	
		2-8	Section 2.4	Yes	
		2-16 to 2-21	Section 2.5.2 to 2.6.4	Yes	
		3-11 to 3-21	Section 3.2.3 to 3.5	Yes	
		Fig 2-4	Oil Spill Report Form	Yes	
		Fig 2-5	Oil Spill Equipment Response	Yes	
		App A	Time	Yes	
		App B	Cooperative Information	Yes	
		App H	Cooperative Equipment	Yes	
		App L	Field Manual	Yes	
			Wildlife Search, Rescue, and Rehabilitation Guideline		
10	05-02	2-8 to 2-10	Call-out checklist and Facility Response Personnel	Yes	
11	08-02	1-5 to 1-7 and 2-8 to 2-9	Call-out checklist and inclusion of Koppers operations		

This plan addresses only the operations of PTSI and those oil storage tanks at the facility leased by PTSI from Northwest Natural Gas Company (NNG). PTSI began operations at this facility in November 1999. Pacific Northern Oil (PNO) operated the facility from August 1978 until PTSI took over operations. Prior to that time, others operated the fuel oil terminal. The facility has been in industrial service since the early 1900's. All tanks passed API 653 inspection in 1999.

Facility Owner:	Northwest Natural Gas Company
Address:	220 NW Second, Portland, OR 97209
Telephone:	(503) 226-4211

In addition, PTSI operates the pier and pipeline for receipt of liquid coal tar pitch (molten) for Koppers Industries. Liquid coal tar pitch is pumped from ships through a pipeline from the pier to storage tanks located upland new to NW St. Helens Road. Koppers Industries owns the pipeline, storage tanks, and associated process and distribution facilities. Koppers Industries leases the property from NNG.

Corporate:	Koppers Industries, Inc. 436 Seventh Avenue Pittsburgh, PA 15219 (412) 227-2001	Local: Koppers Industries, Inc. 7540 NW St. Helens Road Portland, OR 97210 (503) 286-3681

Regulatory Jurisdiction

For the purpose of dividing the federal regulatory jurisdiction between the EPA and the USCG, the oil facility at PTSI is defined as a "complex" consisting of a non-transportation related facility and a marine transportation related facility. The non-transportation related facility includes seven aboveground storage tanks (with capacities shown in Table 1of the Tables section, located in secondary containment areas (surrounded by concrete or dirt retaining walls at least 12 feet high), each with a capacity large enough to contain the volume of the largest storage tank. Refer to Figure 1-3 (in Figures section), Facility Layout. The non-transportation related part of the facility complex is regulated by the EPA.

The marine transportation related facility portion of the complex includes three steel aboveground oil transfer pipelines running between the aboveground storage tanks and the fuel oil dock. The No 6 fuel oil pipelines are insulated and steam heat traced

to heat the fuel oil in the pipeline before transfers begin. The marine transportation related part of the facility complex is regulated by the USCG.

The boundaries between the non-transportation related part of the complex and the marine transportation related portion are the valves in the transfer pipelines at the shore end of the dock walkway. PTSI operates the marine transportation related portion of the Koppers liquid coal tar pitch pipeline.

For state regulations, the jurisdiction of the ODEQ covers the entire facility.

1.1.4 Tanks and Facility Operations

The facility is designed to receive and store various grades of fuel oils by truck, rail car, barge, or tanker and to mix these various grades of oil together to make marine and industrial fuel oils. These products are then delivered by truck or barge. The SIC Code for PTSI is 5171. The aboveground storage tanks operated by Pacific Terminal Services Inc. (PTSI) are shown in the Facility Layout, Figure 1-3 and are listed in Table 1 (shown in Figure and Table sections respectively).

In addition, liquid coal tar pitch (molten) is received from ships at the pier and pumped to the Koppers upland storage tanks. At the Koppers Facility, various coal tar pitch products are processed, stored, and distributed by truck and by rail car. The SIC for Koppers Industries is 2865.

1.1.5 Dock Pipelines

Fuel oil transfers to and from the dock are made in the following three parallel, aboveground pipelines:

a) one 12"-diameter for heavy fuel oil:	Line fill capacity: 63 barrels.
b) one 10"-diameter for diesel oil:	Line fill capacity: 44 barrels.
c) one 8"-diameter for cutter oil:	Line fill capacity: 28 barrels.

These pipelines run aboveground directly from the tank yard areas to the dock "risers" at the dock service platform. All lines may be isolated with the gate valves located at the shore end of the dock walkway and at the dock service platform.

Liquid coal tar pitch transfers from the pier to the upland storage tanks are made through a single 8" product transfer pipe. This pipe increases in size to 10" just after crossing the top of the riverbank. The pipe is heat "traced" with 1" and 2" hot oil pipes attached to the product pipe. The product and heat trace pipes are completely encased with 6" thick insulation. The heat trace fluid is a petroleum based oil similar to diesel fuel oil with a higher flash point.

The liquid coal tar pitch transfer pipe has shut off valves at the ship connection on the pier (two valves – one manual and one remotely motor operated), a valve at the top of the river bank (manually operated), and manually operated valves near the storage tanks to direct the product to the proper tank.

The transfer pipe runs above ground from the pier connection to the storage tank area. The total length of the pipeline is approximately 2000'. The product line-fill capacity is approximately 200 barrels from the ship connection on the pier to the shut off valve near the tank. The heat trace line-fill capacity is approximately 5 barrels from the end of the pier to the shut off valves at the meter shed about 150' inshore of the top of the bank.

1.1.6 Volume of Oil Transfers

Oil tankers delivering oil products into the facility have been as large as 50,000 DWT while the largest barges have had capacities of up to 100,000 barrels. Actual oil volumes transferred are typically much smaller than could be delivered by these large vessels. For example, the average transfer in 2000 was156,000 barrels per month.

Ships bringing coal tar pitch will discharge about 8,400 metric tons (50,000 barrels) of product. Six to twelve ships a year will discharge at the facility. Each discharge will take 36 to 48 hours. The facility will only "receive" coal tar pitch.

1.1.7 Vessel Information

Fuel oil is shipped and received in bulk in oil tank vessels or barges brought to the facility by tug boats. Oil barges vary in length from 120' to 350' and have oil storage capacities that range between 5000 barrels and 75,000 barrels. Some typical barge sizes are listed in Table 2, in Figures section.

Liquid coal tar pitch (molten) is transferred from ships to upland storage tanks. A steel transfer hose will be directly connected between the ship and the pier transfer pipe connection. The ships are conventional dry bulk/container carriers fitted with special deep tanks for carriage and transfer of liquid coal tar pitch. The deep tanks are approximately 8,900 metric ton capacity (approximately 60,000 barrels.) The vessels are about 40,000 DWT capacity and approximately 650' long and 95' wide.

1.1.8 Simultaneous Operations

There is only one loading berth at the facility dock. In general, there is only one transfer to a vessel at a time. However, from time to time, a tug boat, which may be tending a tank barge moored at the dock, may receive diesel oil simultaneously with the transfer to or from the barge. In this case, two facility dock operators are assigned, one to act as the Person-In-Charge of each of the two transfer operations. The oil transfer hose is laid across the barge to the tug boat. The lengths of the tug boats fueled may be as much as 150 feet.

Other operations which may occur simultaneously with barge or ship loading or unloading include:

a) Inter-tank transfers,
b) Truck loading or unloading, or
c) Rail car unloading.

These operations are described in Section 6.0, Spill Risk Variables.

1.1.9 Calculation of Oil Spill Planning Volumes

Worst case planning volumes are calculated to determine the amount of oil spill response resources that are necessary to have available. The ODEQ, the EPA, and the USCG each have different requirements and definitions of worst case planning volumes.

ODEQ Worst Case Spill

The ODEQ defines the Worst Case Spill planning volume as the entire volume of product from the largest aboveground storage tank on the facility site complicated by adverse weather conditions (during which wind, reduced visibility, and sea state hinder but do not preclude normal response operations). The ODEQ Worst Case

Piping/Manifold Rupture or Leak	Shut off transfer pumps. Initiate evacuation of affected pipeline. Call 911, in case of injuries or fire. Evacuate in case of emergency. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close all valves to isolate pipeline/manifold. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.
Fire or Explosion	Shut off transfer pumps. Close all pipeline valves, if possible. Call 911, in case of injuries or fire. Evacuate, if necessary Use fire extinguisher, if safe to do so. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close riser valve at dock, if possible. Evacuate, if necessary Use fire extinguisher, if safe to do so. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.
Pump Failure	Shut off transfer pumps. Call 911, in case of injuries or fire. Evacuate in case of emergency. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close all pipeline valves. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.

In addition to the equipment shutdown and the mitigation steps outlined above, the on-duty personnel will also make efforts for containment on land including digging trenches to divert or channel spilled oil and building berms and/or plugging storm drains to contain a spill and to mitigate spill damages. Storm drains may be quickly plugged by placing plastic sheeting over the grated opening and shoveling dirt or sand on top of the plastic to hold it down.

2.4 NOTIFICATION

ALL SPILLS REQUIRE REPORTING

2.4.1 Call-Out Checklist

After a spill, the on-duty shift supervisor will immediately call:

911 IN CASE OF INJURY, FIRE OR EXPLOSION.

After shutting off all pumps, closing all valves, and assessing details of the spill listed on the Oil Spill Report Form, the on-duty shift supervisor will call the following people:

1. Facility Manager:

Title	Name	Office	Pager	Mobile	Home
Terminal Manager/QI	Troy Goodman	206-938-6500	206-810-8592	206-571-5483	425-427-5660
Alt QI	George Clark	206-628-0051	888-983-9087	206-793-4358	425-672-9080
Alt QI	Bob Robertson	206-938-6506	206-977-4528	206-255-5010	360-923-0203
Alt QI	Tina Garrett	503-240-3452	503-920-8639	503-572-9355	503-283-6841
Alt QI	Nicole Waldo	206-938-6533	206-871-9476	206-730-8053	425-828-4206

If spill involves Koppers Industries Portland Coal Tar Pitch Pipeline then notify:

Title	Name	Office	Pager	Mobile	Home
Manager	Amos Kammerer	503-286-3681		503-705-8748	503-246-8045
Alternate	T.J. Turner	503-286-3681			360-896-5139

2. Primary Response Contractor(s):

Clean Rivers Cooperative: (503) 220-2040

3. NWNG, Security (at facility gate): (503) 286-5250

Immediately, upon receiving the call and details about the spill, the QI, or the designated alternate QI, will call the following:

Koppers020893

1. USCG National Response Center (NRC) at:	**1-800-424-8802** or		(202)-267-2675.
2. Oregon Emergency Response System (OERS) at:	**1-800-452-0311** or		(503)-378-6377.
3. Local USCG Marine Safety Office at:			**(503) 240-9301.**
4. Northwest Natural Gas Company:			
Sandi Hart at Office: ext. 4322			(503) 226-4211
or distribution dispatch night supervisor:			(503) 226-4211
5. Corp. of Engineers:	Corp. of Engineers	Office:	(503) 221-4188
	Bill Switzenberg, Shipyard Chief	Office:	(503) 326-5636
	Brandon Smith, Envir. Coord	Office:	(503) 326-2477
6. Portland Fire Department			911
7. Police and State Patrol			911
8. Hospital and Evacuation Notice			911
9. EPA Region X			(206) 553-1263

If there is no answer at any of these numbers, call the next number, and after 5 minutes, try calling the unanswered number again.

Facility Response Personnel

NAME	JOB DESCRIPTION	RESPONSE ROLE	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
Bill Schaeffner	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 654-7873
Burt Nye	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(360) 573-4122
Gary Bucknum	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 283-2287
Bud Dahlen	Dockman	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 286-3873
Mark Flower	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 777-4124
Trent Hamilton	Dockman	1st Hr-Phase I	On-Duty	(503) 286-5321	(503) 521-9905
Larry Lamb	Dockman	1st Hr-Phase I	On-Duty	(503) 286-5321	(503) 492-5100
Tracy Wild	Dockman/PT Supvsr	1st Hr-Phase I	On-Duty	(303) 286-5321	(360) 993-4156

Spill Management Team

Once notified, depending in the severity of the spill and the extent of the spill response required, the Spill Response Manager (QI or alternate) will call in the following Spill Management Team, as required:

NAME	JOB DESCRIPTION	RESPONSE ROLE	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
Troy Goodman	Manager	UC	3 hours	(206) 938-6500	(425) 427-5660
George Clark	Safety	Safety Officer	4 hours	(206) 447-3055	(206) 672-9080
Rod Gullickson	Marine Operations	Operations	3 hours	(206) 447-3052	(206) 565-4018
Tina Garrett	Operations	Operations	1 hour	(503) 240-3452	(503) 283-6841
Don Meberg	Harbor Services	Logistics	3 hours	(206) 447-3063	(206) 588-7110
Todd Prophet	CFO	Finance	3 hours	(206) 477-3052	(206) 874-4728
Alan Sullivan	Planning	Planning	3 hours	(206) 938-6500	(253) 891-8793
Pat Lamb	Legal Affairs	Legal Affairs	3 hours	(206) 622-8020	(206) 525-7269

APPENDIX C

MATERIAL SAFETY DATA SHEETS

For:

1. Bunker Fuel oil
2. Shell Industrial Fuel Oil
3. Shell Marine Fuel Oil
4. IF380
5. IF180
6. PS300
7. Marine Cutter Oil
8. Marine Diesel Oil
9. Marine Gas Oil
10. Diesel No. 2. Oil
11. Exxon Caloria Ht 43
12. Carbon Pitch Liquid

Copies of MSDS are found in Boiler Room and Portland Facility.

Non-Hazardous Incident Report Form

Northwest Terminal, Portland, Oregon

Date and time of the incident: 3/01/04 - 0200 hours Dock unloading line manifold area

Root Cause: Failure by ships' personnel to vent unloading line hose on the ship-side manifold connection, so material would flow and be pumped from unloading line hose into unloading line by the unloading line evacuator pump (P-235) located at the Dock-side manifold connection of unloading line, operated by dock personnel attending.

How the material cleaned up: Once the pitch cooled and hardened, (370 deg.) at time of spill, the material was promptly cleaned up by shoveling material into drums due to inaccessible location of spill. Material was then placed in the pitch storage building for disposal. No material was spilled onto soil or into navigatable waters.

Action taken to prevent a reoccurrence: Ships' personnel will be required to ensure proper venting of unloading line hose, ship-side, at the time unloading line hose evacuation procedures have been commenced, dock-side, by dock personnel attending.

Report date: 3/02/04

Signature and Title: T.J. Turner General Foreman

Non-Hazardous Incident Report Form

Northwest Terminal, Portland, Oregon

Date and time of the incident: 2/02/2004 – 0820 hours T-102 to T-67

Root Cause: At 8:20 am after pumping most of T-102 to T-67 we decided to clear the pipeline With steam due to the viscous material being pumped. A cast-iron valve cracked while we were clearing the pipeline spewing material primarily in the containment area at T-67. A small amount approximately 4 to 6 Gallons of material did spray outside of the containment area. This material was a water/pitch emulsion.

How the material cleaned up: Material was promptly cleaned up by shoveling material into drums due to inaccessible location of spill. Material was then placed in the pitch storage building for disposal.

Action taken to prevent a reoccurrence: Cast-iron gate valve was replaced with a steel ball valve capable of handling higher temperatures and more stress.

Report date: 2/7/2004

Signature and Title: T.J. Turner General Foreman

PACIFIC TERMINAL SERVICES, INC.
A HARLEY MARINE SERVICES, INC. COMPANY
910 S.W. Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293
www.harleymarine.com

May 28, 2002

Post-it® Fax Note 7671	Date 6/3/02	# of pages ▶ 2
To J. Dietz	From Amos	
Co./Dept. T. Self	Co.	
The attached FYI. If Beazer needs a copy, please pass this on. This was not on our leased property.		

Chris Kaufman
Department of Environmental Quality
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

Re: Portland Railcar Spill, 5-18-02

Dear Chris:

On May 18, 2002, at approximately 1410 hours about 200 gallons of bunker fuel was spilled at the Portland Terminal rail spur while unloading rail car RRBX 23900 (Murphy Oil). Two operators were on duty. Both employees are trained and qualified as senior operators.

One operator removed the cap to hook up the hose to the rail car. When the cap was removed oil immediately began to flow, overflowing the spill pan onto the ground. The operator called for help and immediately tried to close the valve. The valve would not close. The other operator responded with the plug and hydraulic jack to stop the flow. The operators then blocked the flow of any oil on the ground with earth berms. The operators notified Tina Garrett at 1430 hours.

I was notified at 1435 hours. Tina Garrett, Terminal Superintendent, notified the Northwest Natural Gas Security and Koppers Industries. I notified Clean Rivers Cooperative (Steve Novak) at 1441 hours. I requested a vacuum truck and crew for immediate assistance. I notified NRC at 1446 hours (605009, Edwards). I notified OERS at 1459 hours (02-1150, Colleen). I notified George Clark and together we completed the remaining notifications: Oregon DEQ, Portland Fire, Environmental Protection Agency, Harley Marine Services, and Fuel and Marine Marketing.

Cowlitz Clean Sweep (CCS) was on site in about 30 minutes from notification. They immediately began to recover captured oil. They recovered about 75 gallons from the ground.

The operators connected a hose over the top of the rail car and the oil from the car was pumped off. The switch company was notified and came to pull the car from the location of the spill in order to expedite the clean up. CCS brought in an air mover (large vacuum truck) and sucked the oil and rock from between the ties and rail track. The oiled rock was placed in a temporary containment pending disposal. Around midnight, it began to rain. At about 0100 hours May 19, 2002, I had CCS shut down and cover the spill site

with plastic. They had recovered a substantial amount of product and oiled gravel. On May 19, I had the operators clean up rags, tools, etc., in preparation for beginning a final cleanup and repairs today.

On May 20, CCS lined up equipment for excavation. Bob Robertson, Terminal Manager, obtained services from a railroad contractor to remove the tracks to allow an excavator to remove the contaminated soil.

On May 21, CCS removed all contaminated soil. Northwest Natural Gas (property owner) observed the clean up. It was easy to determine what soil was contamination based upon visual observation. All oiled soil was excavated and stockpiled. There was a geotextile fabric under the rail ballast that contained the oil. The stockpile was sampled and sent for analysis.

On May 22, the stockpile was hauled to TPS Technologies, Inc. for disposal. The rail siding was reconstructed and the last of the equipment was decontaminated and the cleanup was concluded.

Attached is the DEQ spill/release report. Please contact me if you have any further questions, 206-938-6505.

Regards,

Troy M. Goodman, PE
General Manager

cc: Koppers Industries, w/o attachments

RECEIVED

JUN 3 2002

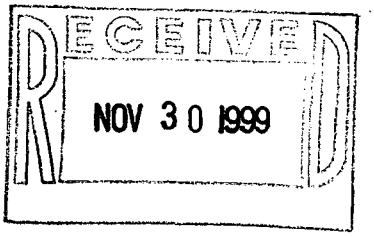
KOPPERS INDS, INC.
PORTLAND OR

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001

November 29, 1999



McDowell Welding & Pipefitting, Inc.
4000 NW St. Helens Road
Portland, OR 97210

Attention: Kurt Liebe, General Manager

RE: Pacific Northern Spill on or about August 19, 1999

As you know, Pacific Northern, Inc. has made a claim against Koppers Industries, Inc. ("Koppers") concerning a spill on the property of Pacific Northern, Inc. It is our understanding that this spill resulted from the actions of McDowell Welding & Pipefitting, Inc. ("McDowell") on or about August 19, 1999. Further, it would appear as though this incident was the result of activities your company was performing on behalf of Koppers.

Please be advised that Koppers expects McDowell to indemnify and defend Koppers from any and all liability and responsibility arising out of the incident, and we would ask that you confirm in writing you intention to do so at your earliest convenience.

In addition, attached is the first invoice from Pacific Northern, Inc. for the spill clean up. Please see that it is promptly paid and that I am notified when payment has been made.

Should you have any comments or questions concerning this matter, please do not hesitate to contact me.

Very Truly Yours,

Jack L. Stephenson
Manager of Purchasing

JLS/blh

BCC: Without attachment – Amos Kamerer – Portland
Without attachment - Jim Dietz – K 1650
Without attachment - [redacted]
Without attachment – Steve Kifer – K 1701

McDowell Welding & Pipefitting, Inc. 4000 NW St. Helens Rd., Portland, OR. 97210

FAX

Forward fax:
T. Self, fc-1800
S. Fifer
fc-1700

Date: October 19, 1999

Number of pages including cover sheet: 2

To:
Amos Kamerer
Koppers Industries

Phone: (503) 286-3681
Fax phone: (503) 285-2831
CC:

From:
Kurt Liebe
General Manager

Phone: (503) 241-2410 ext. 205
Fax phone: (503) 241-2767

REMARKS: ☐ Urgent ☒ For your review ☐ Reply ASAP ☐ Please comment

Can you please review the following request? We are interested in the same things that you are. Hopefully we can come to an expedient end to this issue.

Kurt Liebe

McDowell Welding & Pipe Fitting, Inc.

4000 NW St. Helens Rd., Portland, OR 97210
503-241-2410 • Fax 503-241-2767

October 18, 1999

Amos Kamerer
Koppers Industries, Inc.
7540 N.W. St. Helens Rd.
Portland, Oregon 97210-3683

Project: Pacific Northern Spill

Dear Mr. Kamerer,

We have reviewed all of the information that you sent us by fax last Friday. Our claims agent, ECS Claims Administrators, Inc., would like a chance to review some of the documentation that your corporate people requested. Some of the items that they would like to review, if available, are:

1) Incident or summary report for initial response activities and a copy of the work plan for phase II of remediation
2) Any related correspondence
3) Sample analytical results
4) Waste Disposal documentation including: waste characterization, manifests, and invoicing
5) Photographs
6) Contractor invoicing, including daily time and expense work sheets
7) Sub-contractor invoicing, including daily time and expense work sheets
8) Status or project schedule (i.e. - has proposed phase II work been completed?)

Ultimately, we feel that if we had a more direct line of communication with Pacific Northern that both Koppers and McDowell Welding would benefit from that arrangement. Let me know if you think that is possible.

Sincerely,

McDowell Welding and Pipe Fitting

Kurt Liebe, P.E.
General Manager

PACIFIC NORTHERN INC.
100 West Harrison · Suite 420 North Tower · Seattle, WA 98119
Telephone 206 / 282-4421 · FAX 206 / 282-6574

October 5, 1999

Amos Kamerer
Koppers Industries
7540 N.W. St. Helens Road
Portland, OR 97210

Dear Amos

Pursuant to our discussion on October 4, 1999, I am writing to document the spill incident that occurred on August 19, 1999, as a result of Koppers Industries activities on the property that we lease from Northwest Natural Gas Company.

Koppers Industries was in the process of revamping the dock on the Northwest Natural Gas property to accommodate Koppers Industries planned receipt of product. A new pipeline, walkway, heat tracing and other improvements were in the final stages of completion. In order to receive certification for use from the regulatory agencies certain testing must be completed and documented. It was during a hydro test of the tracing system that the spill occurred.

At approximately 11:15 hrs. On 8/19/99, the acting shift supervisor at our facility noticed oil and water coming from our dock oil-water separator tank. This system is designed to handle normal rainfall pumped from the containment basin on the dock-loading platform and has even a surge capacity to accept water from the dock in the event of a 100-year storm. The tank is located in our lower tank farm, inside containment but on unpaved ground.

While the contractor for Koppers Industries was in the process of hydro testing a portion of the system the contractor failed to ensure that the pipe to be tested was properly sealed. To perform a hydro test, all air must be evacuated from the vessel being tested and replaced with a liquid, which is usually water. A pump is used to increase the pressure within the vessel to the desired PSI.

When the contractor started to fill the system with water, water poured out of the open unsealed end of the pipe and began to flood the dock-loading platform. This activated the sump pump, which ran continuously until the oil-water separator tank over flowed and our personnel notified the contractor of the problem. Once the water for the hydro test was shut down and everything was secured, spill response contractors were called to assist with the clean up. By then, it was estimated that a minimum of 2000 gallons of oil and water had been released onto the ground inside containment.

At our request, Foss Environmental and Associated Earth Sciences responded to the spill and excavated, sampled, and tested soils in an effort to confirm that all of the contamination associated with the spill was removed. According to Associated Earth Sciences and based upon receipt of reports from the testing laboratory of Farr, Friedman and Brier on 10/1/99, additional contamination is still present that is attributable to the spill incident that occurred on 8/19/99.

We have directed Foss and Associated Earth Sciences to continue cleanup until all soil impacted by the 8/19/99 spill incident is removed. They indicated that this work should be completed within the next 2 days though the final reports may take a little longer.

As we have discussed, and this letter confirms, Pacific Northern Oil intends to pay all invoices received from the spill response contractors and to submit for reimbursement from Koppers Industries. To date, Pacific Northern has received invoices totaling about $ 18,000 for the initial response, soils excavation, field supervision and laboratory analysis. There will be additional costs associated with the cleanup including charges for the expanded scope of excavation, disposal of all materials, field supervision and laboratory analysis that will increase the costs significantly.

As we have discussed, and this letter confirms the spill incident that occurred on 8/19/99 was a result of an error on the part of a contractor employed by Koppers Industries. Pacific Northern Oil expects to be fully reimbursed for all costs associated with this incident within 15 days of submittal of invoices to Koppers Industries. Please acknowledge the above on behalf of Koppers Industries by signing in the space indicated below and returning a copy to me.

Thank you for your cooperation in this matter.

Very truly yours,

George Markwood

George Markwood
Vice President

Acknowledged and agreed:

_____

Amos Kamerer
Koppers Industries

SPILL/RELEASE REPORT

1 - GENERAL INFORMATION

OERS No. 98-0227

a. Company/Individual Name: Koppers Industries, Inc.

b. Address: 7540 NW St Helens Road
Portland, OR 97210

c. Company Contact Person: Amos Kamerer

d. Phone Number(s): (503) 286-3681

e. Specific on-site location of the release (and address if different from above):
Area around tank #68

Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.

2 - RELEASE INFORMATION

a. Date/Time Release started: estimated 1:05pm Date/Time stopped: 1:15pm

b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):

ODEQ

OERS 1/28/98, 5:50pm, Tami

NRC 1/28/98, 5:40pm, Miss Ebner

(1) Other (describe): Portland Fire Bureau, Station #22, Bill Henle, 1/28/98, 1:30pm

c. Person(s) reporting release: Amos Kamerer

d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:
coal tar pitch, liquid

Please attach copies of material safety data sheets (MSDS) for released material(s).

e. The release affected: ___Air ___Groundwater ___Surface Water ___Soil _X_ Sediment

f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):
Willamette River, about 2,000 feet to the north

Has the release reached the surface water identified above?: ___Yes _X_ No
Could the release potentially reach the surface water identified above? ___Yes _X_ No
Explain: Coal tar pitch solidifies as hard as coal at ambient temperatures, when contained and cooled, we picked it up and recycled it.

g. Depth to nearest aquifer/groundwater: unknown

Is nearest aquifer/groundwater potable (drinkable)? ___Yes _X_ No
Has the release reached the nearest aquifer/groundwater? ___Yes _X_ No
Explain: Material solidifies when cooled and is not water soluable.

(1) City of Portland, Environmental Services, Steve Rosenberger, John Holtrop, 1/28/98, 1:30pm

h. Release or potential release to the air occurred? ___Yes _X_No
Explain:_____

i. Was there a threat to public safety? ___Yes _x_No
j. Is there potential for future releases? ___Yes _X_No
Explain: Similar event is possible, but unlikely.

k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):
Insignificant environmental impact.

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:
While transferring molten pitch to our shipping tank, T-68, the tank over flowed due to the mechanical failure of the gauging device. All spilled material was contained on site. 100% was recovered. 99% was recycled, and 1% was disposed of as a non-hazardous material. A passer by called 911 and the Portland Fire Bureau station #22 responded at about 1:30pm, saw that we had the material contained, and then departed.

3 - SITE INFORMATION

a. Adjacent land uses include (check all that apply and depict on site maps):
___Residential ___Commercial ___Light Industrial _X_Heavy Industrial
___Agricultural ___Other (describe):_____
b. What is the population density surrounding the site: light
c. Is the site and/or release area secured by fencing or other means? _X_Yes ___No
d. Soil types (check all that apply): ___alluvial ___bedrock _X_clay _X_sandy
___silt ___silty loam _X_artificial surface (cement/asphalt/etc.)
e. Describe site topography: Flat

4 - CLEANUP INFORMATION

a. Was site cleanup performed? X Yes ___ No
If No, explain: _____

b. Who performed the site cleanup?
Company Name: Koppers Industries, Inc.
Address: 7540 NW St Helens Road
Portland, OR 97210
Cleanup Supervisor: T.J. Turner
Phone Number(s): (503) 286-3681

c. Has all contamination been removed from the site? ___ Yes X No
If No, explain: This material has been collected and is being held in a secure area, to be properly land fill disposed of, in the future.

d. Estimated volume of contaminated soil removed: less than 100 pounds

e. Estimated volume of contaminated soil left in place: 0

f. Was a hazardous waste determination made for cleanup materials? ___ Yes X No

g. Based on the determination, are the cleanup materials hazardous wastes?
___ Yes X No If Yes, list all waste codes: _____

h. Was contaminated soil or water disposed of at an off-site location? ___ Yes X No
If yes, attach copies of receipts/manifests/etc., and provide the following information:
Facility Name: _____
Address: _____
Facility Contact: _____
Phone Number(s): _____

i. Is contaminated soil or water being stored and/or treated on-site? X Yes ___ No
If yes, please describe the material(s), storage and/or treatment area, and methods utilized (attach additional sheets if necessary):
This material has been collected and is being held in a secure area, to be properly land fill disposed of, in the future.

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):
After the pitch cooled and solidified, it was picked up with shovels and front end loaders for recycling back into our process. The calculated spillage was 6.985 tons. All of this was cleaned up and recycled with in 7 working days.

5 - SAMPLING INFORMATION

Attach copies of all sample data and indicate locations of sample collection on maps.

a. Were samples of contaminated soil collected? ____Yes ____No _X_ N/A
b. Were samples of contaminated water collected? ____Yes ____No _X_ N/A
c. Were samples collected to show that all contamination had been removed?
____Yes ____No _X_ N/A
d. Describe sampling activities, results and discuss rationale for sampling methods:

6 - SPILL REPORT CHECKLIST

To ensure that you have gathered all the information requested by the Department in this Spill/Release Report, please complete the following checklist:

_X_ Map(s) of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.

_X_ Material Safety Data Sheet (MSDS) for released material(s) attached.

_N/A_ Sampling data/analytical results attached.

_N/A_ Receipts/manifests (if any) for disposal of cleanup materials attached.

_N/A_ Contractor reports (if any) attached.

Author: Walter Turner at PITT
Date: 1/29/98 7:25 AM
Priority: Normal
TO: Kevin Fitzgerald
TO: Randy Collins
TO: Bill Swearingen
TO: John Marcinowski
TO: JIM DIETZ at TECHCTR
TO: Amos Kamerer
Subject: Re: PITCH REPORTABLE SPILL
---------- Message Contents ----------

Amos, please call me as soon as you arrive the office! Walt

---------- Reply Separator ----------
Subject: PITCH REPORTABLE SPILL
Author: AMOS KAMERER at PITT
Date: 1/28/98 8:25 PM

At about 1:15PM this afternoon, we had a reportable spill of liquid pitch. While pumping liquid pitch from the melter tank to the shipping tank, apparently, the float gauge on the shipping tank became stuck and we over filled the tank. We have calculated that the loss was 1270 gallons, or 6.985 tons of material. And, that about 6.5 tons was contained, with about .5 tons escaping on to the ground, thus this was a reportable incident.

Two things accrued to bring this incident to our attention. First, an employee from our next door neighbor, Wacker Siltronics, was returning from lunch, saw the spill, and came into the office and told us. Second, someone (we think it happened to be someone from the Coast Guard, who is also a neighbor) saw the tank over flowing from the highway and called 911. The Fire Dept. responded about 3 minutes later. We shut off the pump at 1:20PM and immediately started the containment process. Based on the pumping capabilities of the pump, and the volume of material lost,we were able to establish the time of the incident.

The Hazmat coordinator for the Fire Dept. responded, as did 2 representatives from the ODEQ. They were all satisfied that we had the situation under control, and I told them that once I had all of the facts, I would be reporting the spill to the proper authorities. I ultimately called both the National and Oregon emergency response numbers at about 5:45PM. The Oregon responder said that they already had received an earlier report, from the Coast Guard, thus my assumption that it was someone from the Coast Guard who called 911.

The utility man that was performing the pumping said that he had just checked the gauge at 1:05PM and the reading was at 21' 6", in. We were planning to fill to 27' 6", in. Thus our assumption that the float gauge was stuck. However,after the incident, the reading indicator was

stuck at the 28' 0" level. Again, however, a part of the pitch spill came through the opening that the float measuring cable passes through, thus the cable, the measure board, and the reading indicator were all covered with pitch, thus making difficult to determine what actually happened. We will get a full written statement from this employee

I took a full set of pictures, that will be developed tomorrow, I will then send them to Kevin and Bill, with the incident report.

Our major concern at this time, is the fact that the pitch over flowed into, and through, the fume recovery line; in addition to the float gauge cable opening and the pressure relief manhead. We estimate that we have plugged 60' of the 6" diameter fume recovery line, and 40' of the 12" diameter fume recovery line, that the 6" line it feeds into. We have contacted our local maintenance contractor, who will be in the plant tomorrow AM, to assess the repairs and the cleaning of these lines. We have also ordered a drop box for the clean up material, and we are already permitted for the disposal of this material with our local land fill facility.

Obviously, we will be reviewing the operating procedures for this kind of function. However,two things come to mind immediately. First, when checking the gauge reading, you also test the float gauge reading board indicator, and the cable, pull on it to make sure the it is free. Second, we will develop a pumping time chart, that will show what the estimated time that it should take to pump various volumes of pitch between the two tanks. So that the employee can have this as a time reference, before he starts the pumping process.

Amos

SPEED LETTER®

TO K. Fitzgerald, F-1650
B. Swearingen, F-1800 ✓

FROM Amos Kamerer

SUBJECT 1/29/98 Pitch spill

FOLD NO. 9 or 10

MESSAGE

Enclosed please find the incident report, the final picture recap, pictures # 18 through #38 and the JSA, for your files.

Please advise if you think we should make any changes or corrections.

DATE 2/11/98 SIGNED Amos

REPLY

RECEIVED
FEB 13 1998

FOLD FOR NO. 9

FOLD FOR NO. 10

DATE SIGNED

WilsonJones® SENDER: DETACH AND RETAIN YELLOW COPY, SEND WHITE AND PINK COPIES. RECIPIENT: RETAIN WHITE COPY, RETURN PINK COPY.

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Koppers020912

1/28/98 PITCH SPILL
PORTLAND TERMINAL

PICTURE #	EXPLANATION	DIRECTION PICTURE WAS TAKEN FROM
1-	T-68 shipping tanks' gauge board	north
2-	T-68 shipping tanks' gauge board and base	north
3-	T-68 shipping tanks' gauge board and base	northwest
4-	T-68 shipping tanks south and southeast side	northeast
5-	T-68 shipping tanks south and southwest side	southwest
6-	T-68 shipping tanks south and west side	southwest
7-	T-68 shipping tanks south and west side	southwest
8-	Area between T-68 and T-20	south
9-	West side of T-68	northwest
10-	West side of T-68	north
11-	East side of T-20	south
12-	East side of T-20	east
13-	East side of T-20	southeast
14-	Area between T-20 and T-23	southeast
15-	Same as area above, this is a concrete drain That feeds into the sump (oil/water separator)	southeast
16-	Same as above, from the other end	northwest
17-	Same as above, a rock dam to stop the flow	north
18-27	Clean up in progress	various
28-37	Clean up completed	various
38	Pile of recovered pitch in the storage building	storage building

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

OWNER/OPERATOR: Koppers Industries, Inc.
Plant Name: Portland Plant
Street Addr: 7540 N.W. St. Helens
City, St, ZIP: Portland, OR 97210-3663
Phone: 503-286-3681
EPA ID #: ORD 027734359

FACILITY: Same as above

DATE OF INCIDENT: 1/28/98 TIME OF INCIDENT: 1:15PM approximately

TYPE OF INCIDENT: Fire, Explosion, Hazardous Material Spill,
(Circle One) Hazardous Waste Spill, Injury Accident

Other: Pitch Spill

MATERIALS INVOLVED:

Name	Quantity
Coal Tar Pitch	6.985 tons

EXTENT OF INJURIES, IF ANY: None

ASSESSMENT OF ACTUAL OR POTENTIAL HAZARDS TO HUMAN HEALTH OR THE ENVIRONMENT, WHERE APPLICABLE: N/A

DISPOSITION OF RECOVERED MATERIAL:

Material	Quantity	How Disposed or Stored
Coal Tar Pitch	6.985 tons	100% recovered, 99% was recycled, and 1% was disposed of as a non-hazardous material.

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

Environmental Program

Manager - KII 412-227-2883 Bill Swearingen
or Home: 304-737-0627

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

Minimal impact to environment. All spilled material was contained on site. 100% was recovered, 99% was recycled, and 1% was disposed of, as a non-hazardous material.

REPORT BY (Name): A.S. Kamerer DATE 2/11/98
REPORT REVISED: DATE
REPORT REVISED: DATE

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Fire Dept.	911	N/A	1/28/98 1:30PM
Oregon Emergency Management	1-800-452-0311	Tami	1/28/98 5:50PM
National Response Center	1-800-424-8802	Miss Ebner	1/28/98 5:40PM
Oregon OSHA	229-5910		Not notified
City Duty Officer (For Storm, Sewer, Drain Contamination, only)	823-7180		Not notified
Northwest Natural Gas	224-3532		Not notified
Wacker Siltronics	243-2020		Not notified
Security for FAB #1	Ext. 7420		
Security for FAB #2	Ext. 4300		
Pacific Northern Fuels	286-9621		Not notified

Table 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

SUPPLEMENTAL INFORMATION REPORT
(This part of report is intended for KII internal use only.)

CLEARLY DESCRIBE HOW INCIDENT OCCURRED:

While transferring molten pitch into our shipping tank, T-68, the tank over flowed due to mechanical failure of gauging device.

WHAT ACTS OR CONDITIONS MOST DIRECTLY CAUSED THE INCIDENT:

The mechanical failure of gauging device.

DESCRIBE ANY RESIDUAL CONTAMINATION OR IMPACT:

Minimal amount of pitch on soil, which solidified upon cooling. 100% was recycled or disposed of as a non-hazardous material.

ATTACH PHOTOGRAPHS WHICH SHOW INCIDENT AREA, BEFORE AND AFTER RESPONSE ACTIONS. MARK DATE OF PHOTOS. ATTACH ADDITIONAL SHEETS AS NEEDED TO DESCRIBE INCIDENT AND RESPONSE ACTIONS.

KOPPERS INDUSTRIES

ENVIRONMENTAL INCIDENT REPORT

FACILITY: Northwest Terminal, Portland, OR.

DATE OF INCIDENT: December 1, 2 and 3, 2003

TIME OF INCIDENT: Various

Fax: J. Dietz, T. Self
cc: T. J. Turner

INCIDENT

Note: IMMEDIATELY MAKE NOTIFICATIONS TO NRC, STATE, LOCAL & KI (AS APPLICABLE)

Type of Incident (check all that apply):

	Spill, leak or un-permitted release of oil or hazardous material to the air, ground, or waterway		Complaints of any kind (e.g., odor, noise, etc.)
X	Permit limit exceedance or circumstance where specified conditions in a permit were not maintained		Other (Explain) - Malfunction of a pollution control device or monitor, etc.
	Spill or leak of a liquid or solid that is contained on process pad or by other secondary containment		

Location of Incident:

Storm water collection tanks.

Description of Incident:

On 12/1 - 0830 hours, we sampled the storm water from our storm water storage tanks for Phenolics and Oil & Greases for analysis prior to discharge through our NPDES Permit. At about 1445 hours the results came back from the lab showing N. D. on the Phenolics and 25.3 mg/l on the O & G. Our permit limits on the O & G is a 15 max. and an average of no higher than 10 mg/l for the month. The lab director noted on the fax cover sheet that the oil contained in the sample was a clear amber brown, typical of motor oil; atypical of what they usually see from our facility. They returned to the terminal at 1500 hours and picked up a second sample. Those results showed an O & G of 11.1 mg/l. Amos called Traci to report this as a similar occurrence as to what we experienced in September of this year and that we would investigate for a cause.

Materials Involved:

Material/Constituent	Quantity Released	RQ	Exceeded RQ? (Y/N)	Media Affected (soil, water, air)

Notification Log:

Agency	Phone No.	Date	Time	Name of Contact	Notes
See below					

Assessment of actual or potential hazards to human health or the environment:

None. If ODEQ and/or Portland's Environmental Services would have had any problem with this discharge, I would have applied for a Batch Discharge Permit to discharge this material into the POTW, thus, avoiding an NOV.

KOPPERS INDUSTRIES

ENVIRONMENTAL INCIDENT REPORT

INVESTIGATION:

Acts or conditions causing incident (root cause):

Amos and TJ did an inspection of the facility and especially the hot oil heating stations, as the MSDS for the heat transfer oil states that the material is "clear liquid, light yellow in color". Nothing was found to be out of the ordinarry, including an inspection of the oil water seperator. We decided that there were two things that we could do to keep any leaking heat transfer oil at the two heating stations to a minimum and from getting into the storm water collection system. Frist; the containment areas for both hot oil heating stations have one rain drain each that feeds into the tank farm. These have valves on the ends and we keep them closed to about 90%, thinking that we need to let the rain water keep from building in the containment, but if we have a catastrofic failure in the system, the valves only need to be closed the remaining 10%. We plan to sit two 55-gallon drums under each of these drain valves. The drums will have holes drilled in the bottom and then be lined with absorbant pads in the bottom and say 1/3 up the side walls. Second; we will build some kind of "wire-netted-holder" to place absorbant pads into and then place 2 or 3 of these in the last chamber of the oil water seperator.

CORRECTIVE ACTION

Containment and cleanup actions:

After the above, Amos called our Permit manager with ODEQ and explained the situation and the corrective action that we planned to take. He didn't se the O & G levels as an issue and liked our correctve action ideas, however, he asked that we take a third sample. This was done on 12/2 and the results were N. D. I called ODEQ back and he said that we could go ahead with the discharge and that there would not be an NOV issued. He asked that I recap all of this in the cover letter with the DMR. As I did in September, I also called the City of Portland, Dept. of Environmental Services, who gets a copy of the DMR's, and reviewed this matter with him. He was in agreement with ODEQ and said that we could get ahead with the discharge, which was started at about 1400 hours on 12/3.

Disposition of recovered material:

Material	Quantity	Disposal or Storage Location
N/A		

Corrective action (describe what has been done or will be done to prevent recurrence):

Drums and pad holder's will be installed per the above. Inspection of these locations will be added to our regular plant inspection list.

ADDITIONAL INFORMATION/RECOMMENDATIONS:

It is very interesting to me that we have now had two similar incidents with high O & G in the last 3 months, when we have never had this situation develop in the past, since I have been the plant manager. The only thing that comes to my mind as beening different, is the fact that ODOT started a major renovation project of the Saint Johns Bridge, earlier this year. One on the main things that they have been doing the last 8 months or so, is to completley re build the on-ramp to the bridge, from our side of the river. This includes complete closure of the bridge from 8 PM to 5 AM five nights a week, and a complete closure for some 7 weeks during July and August. This on-ramp is directly across Hwy. 30 from the west end of the terminal. Perhaps this work has produced more "road oils", and/or the like, that is coming across the highway and on to our property, when it rains. We had a very dry summer and we went from mid May through mid September without a discharge, and then with the one sample in September we had high O & G. In October we only had one discharge and the O & G was N. D. In November we had two discharges and the O & G was 5.3 ml/g and N. D. Now the first sample in December

AGENCY CONTACT DUE TO THIS INCIDENT (Agency Inspector, Agency Issuing NOV):

Include date, time, name, title, agency and summary of inspection/visit:

Elliot Zais, Permit Manager, ODEQ, 12/2/03, 0830 hours, no visit.
Elliot Zais, Permit Manager, ODEQ, 12/2/03, 1500 hours, no visit
Michael Pronold, Permit Manager, City of Portland, 12/3/03, 1400 hours, no visit.

Indicate whether the plant's SPCC Plan was reviewed and updated as required with information relating to this incident.

KOPPERS INDUSTRIES

ENVIRONMENTAL INCIDENT REPORT

[ ] Yes [X] No If no, explain:

Attach photographs (if available) which show the incident area before, and after response action. Mark date and time of each photo.

 # Photos _____

Report completed by:

Name: Amos Kamerer

Title: Plant Manager Date: 12/4/2003

Attach continuation sheets as necessary

PLEASE FAX OR SEND THIS FORM TO THE KOPPERS ENVIRONMENTAL DEPARTMENT

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97210-3663

Telephone: (503) 286-3681
FAX: (503) 285-2831

PRODUCT SAFETY
APR

April 18, 1989

Mr. Richard Wixom
Department of Enviromental Quality
811 S. W. 6Th Ave
Portland, Oregon 97204

Dear Mr. Wixom:

This letter is a follow-up to your telephone conversation with Mr. Harold Beehler of Koppers Industries Inc., Portland, Oregon on April 3, 1989 at 1:40 PM Pacific Standard Time. At that time Mr. Beehler reported to you that while heating a rail car of Coal Tar Creosote here, at our facility, approximately 100 Gallons exited the car through the top manhole. Most of the material was contained on the asphalt pad that surrounds the rail track. As reported by Mr. Beehler the Creosote Oil was contained and absorbed with sand and other absorbent materials. All operations in our plant were suspended and priority was given to the immediate clean-up of this spill. The material was placed in drums that are approved for hazardous waste and will be disposed of in a timely fashion in accordance with our State and Federal laws. It is my understanding that to this incident you have assigned Report # 89-312. Also for your information Mr. Beehler further reported this spill to the National Response Center in Washington, D. C., and they assigned Report #4791 to this spill.

In conclusion, I wish to thank you for your help and concern in this matter and should you need any further information on this incident, please feel free to call.

Sincerely,

John A Oxford

John A. OXFORD
Plant Manager

CC: J.R. Batchelder K-1701
L. Flaherty K-1750
B. Nolan K-1400
B. Swearingen K-1200
Plant File

JAO:mn

Date: 7/28/99 7:47 AM
Sender: Mark Cilley
To: Amos Kamerer; Jack Stephenson; Steve Lish; Traci Self; JohnNCox@email.msn.com
Priority: Normal
Subject: Re:TCLP

Amos:

I've faxed the analysis I had for waste carbon pitch and dirt. As you will note, none of the regulatory limits have been triggered and I believe I have enough analytical results (from past sampling) to prove it is statistically significant. All previous results have shown the same, less than detection levels.

Mark

KOPPERS
INDUSTRIES

FAX COVER SHEET

Koppers Industries, Inc.
3900 S. Laramie Avenue
Cicero, IL 60650

Telephone (708) 656-5900
Fax (708) 656-6079

Date: 7-28-99

Company Name: Koppers
Contact Name: T. Self, A. Kamerer, J. Cox
Location:
Fax Number: 412-227-2423, 503-285-2831, 618-271-2732

Sender: M. Cilley
Description: TCLP analysis for carbon pitch + dirt.

Number of pages (including cover sheet): 4
If there are any problems with this transmission, please call the sender at (708) 656-5900 immediately

ENVIRONMENTAL MONITORING AND TECHNOLOGIES, INC.

8100 North Austin Avenue
Morton Grove, Illinois 60053-3203
847-967-6666
FAX: 847-967-6735

LABORATORY REPORT

197758-B
Page 1 of 1

Koppers Industries, Inc.
3900 S. Laramie Avenue
Cicero, IL 60650

Report Date: 5/20/99
Sample Received: 5/3/99
Date Sampled: 5/3/99
Date Analyzed: 5/8/99

Sample Description: Solid Grab - Carbon Pitch
Sample No.: 069612

Compounds	Concentration Found In Sample	Concentration Found In Blank	Method Detection Limit (MDL)	Regulatory Limit
1. Benzene	<0.25	<0.01	0.01	0.50
2. Carbon Tetrachloride	<0.25	<0.01	0.01	0.50
3. Chlorobenzene	<50.0	<0.01	0.01	100.00
4. Chloroform	<3.0	<0.01	0.01	6.00
5. o-Cresol	<100.0	<0.01	0.01	200.00
6. m-Cresol	<100.0	<0.01	0.01	200.00
7. p-Cresol	<100.0	<0.01	0.01	200.00
Total Cresol	<100.0	<0.01	0.01	200.00
8. 1,4-Dichlorobenzene	<3.75	<0.01	0.01	7.50
9. 1,2-Dichloroethane	<0.25	<0.01	0.01	0.50
10. 1,1-Dichloroethene	<0.35	<0.01	0.01	0.700
11. 2,4-Dinitrotoluene	<0.07	<0.01	0.01	0.13
12. Hexachlorobenzene	<0.07	<0.01	0.01	0.13
13. Hexachloro-1,3 -butadiene	<0.25	<0.01	0.01	0.50
14. Hexachloroethane	<1.50	<0.01	0.01	3.00
15. Methyl Ethyl Ketone	<100.0	<0.01	0.01	200.00
16. Nitrobenzene	<1.00	<0.01	0.01	2.00
17. Pentachlorophenol	<50.00	<0.01	0.01	100.00
18. Pyridine	<2.50	<0.01	0.01	5.00
19. Tetrachloroethylene	<0.35	<0.01	0.01	0.70
20. Trichloroethylene	<0.25	<0.01	0.01	0.50
21. 2,4,5-Trichlorophenol	<200.00	<0.01	0.01	400.00
22. 2,4,6-Trichlorophenol	<1.00	<0.01	0.01	2.00
23. Vinyl Chloride	<0.10	<0.01	0.01	0.20

All results expressed as ppm unless otherwise indicated.
Methods performed according to SW-846, "Test methods for Evaluating Solid Waste".

Analysis performed on Extract from TCLP.

The contents of this report apply only to the sample analyzed. No duplication of this report is allowed except in its entirety.

Leah E. Zehner
LABORATORY DIRECTOR

ENVIRONMENTAL MONITORING AND TECHNOLOGIES, INC.

8100 North Austin Avenue
Morton Grove, Illinois 60053-3203
847-967-6666
FAX: 847-967-6735

LABORATORY REPORT

197758-A
Page 1 of 1

Koppers Industries, Inc.
3900 S. Laramie Avenue
Cicero, IL 60650

Report Date: 5/20/99
Sample Received: 5/3/99
Date Sampled: 5/3/99

Sample Description: Solid Grab - Carbon Pitch
Sample No.: 069612

Analyte	Result	Date Completed	By	Method
Reactive Cyanide	<0.50	05/11/99	SM	7.3.3(6)
Extractable Organic Halogens	<10.0	05/03/99	RG	9020A(6)
Open Cup Flash Point	>180.°F	05/06/99	NN	D92-90(21)
Paint Filter	pass	05/04/99	NN	9095(6)
Total Phenolics	2.29	05/10/99	SM	9065(6)
Total Solids	94.0%	05/05/99	AF	2540B(2)
Sulfide	<10	05/03/99	RG	D4978-89(21)
pH (10% Solution)	8.85units	05/04/99	NN	9045(6)
Analysis Performed on TCLP Extract				
Arsenic	<0.200	05/08/99	GF	6010B(6)
Barium	<0.50	05/08/99	GF	6010B(6)
Cadmium	<0.02	05/08/99	GF	6010B(6)
Chromium	<0.10	05/08/99	GF	6010B(6)
Lead	<0.20	05/08/99	GF	6010B(6)
Mercury	<0.0100	05/05/99	AG	7470A(6)
Selenium	<0.200	05/08/99	GF	6010B(6)
Silver	<0.20	05/08/99	GF	6010B(6)

All results expressed as ppm unless otherwise indicated

(6) Methods performed according to SW-846 "Test Methods for Evaluating Solid Waste"
(21) Analysis performed using ASTM Method
(2) Analysis performed using "Standard Methods for the Examination of Wastewater",19th Edition

The contents of this report apply to the sample analyzed. No duplication of this report is allowed except in its entirety

Danny W. Wright

LABORATORY DIRECTOR

ENVIRONMENTAL MONITORING AND TECHNOLOGIES, INC.

8100 North Austin Avenue
Morton Grove, Illinois 60053-3203
847-967-6666
FAX: 847-967-6735

LABORATORY REPORT

197758
Page 1 of 1

Koppers Industries, Inc.
3900 S. Laramie Avenue
Cicero, IL 60650

Report Date: 5/20/99
Sample Received: 5/3/99
Date Sampled: 5/3/99
Date Analyzed: 5/11/99

Sample Description: Solid Grab - Carbon Pitch
Sample No.: 069612

	Concentration Found In Sample (ppb)	Concentration Found In Blank (ppb)	Method Detection Limit (MDL) ug/kg (ppb)	Quantitation Limit ug/kg (ppb)
PCB 1221	<300	<10	300	600
PCB 1232	<300	<10	300	600
PCB 1016 (1242)	<400	<15	400	800
PCB 1248	<400	<15	400	800
PCB 1254	<200	<10	200	400
PCB 1260	<200	<10	200	400

All results expressed as ppb unless otherwise indicated.

Methods performed according to SW-846, "Test Methods for Evaluating Solid Waste".

The contents of this report apply only to the sample analyzed. No duplication of this report is allowed except in its entirety.

Leah E. Zehr

LABORATORY DIRECTOR

Date: 7/27/99 3:42 PM
Sender: Amos Kamerer
To: Jack Stephenson; Steve Lish; Mark Cilley
cc: Traci Self; JohnNCox@email.msn.com
Priority: Normal
Subject: TCLP

Guys,

Have any of you had a TCLP run on carbon pitch, if so could you please send the result's to Traci, John and myself, ASAP. John is at the Alorton plant tomorrow, Traci and I will be in our offices.

Thanks,

Amos

FAX TRANSMITTAL

KOPPERS INDUSTRIES, INC.
7540 NW SAINT HELENS RD.
PORTLAND, OR 97210-3663

TELEPHONE: 503-286-3681
FAX: 503-285-2831

TO: Rebecca Paul, Environmental Specialist
Oregon DEQ – Northwest Region
Portland, Oregon
FROM: Amos Kamerer

DATE:
08/05/99

TOTAL # OF
PAGES: 2

SUBJECT: HW – Multnomah
Koppers Industries, Inc.
ORD 02773459
HWR-HW-99-042

Dear Ms. Paul,

Per my letter of July 29, 1999 on this subject; attached please find the Certificate of Analysis from Columbia Inspection, Inc. on the used oil sample that was taken on July 28, 1999 on the material that is in the former Chemcoa drum. According to Columbia, these results confirm that this material is indeed used oil, thus, we hope that this is sufficient to resolve this matter. However, should you need conformation of these results, you are more than welcome to come and take your own sample of this material, for analysis.

Please let me know if there is any thing else that I can do for you, in this regard.

Sincerely,

Amos S. Kamerer

CC: T Self, KII

IF THIS TRANSMITTAL IS RECEIVED IN ERROR, PLEASE ADVISE.

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 07/29/99

PROJECT NAME: USED OIL ANALYSIS

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
991508-001		07/28/99		USED OIL SAMPLE

REPORT DATE: 08/03/99 REPORT NUMBER: 991508 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
USED OIL SAMPLE						
991508-001	API GRAVITY ASTM D-1298	API CORRECTED TO 60 F	26.6	DEG. API		Gordon L.
	ASH CONTENT ASTM D-482	ASH FROM PETROLEUM PRODUCTS	0.48	WT %	0.01	Gordon L.
	BTU ASTM D-240	HEAT OF COMBUSTION	18,000	BTU/LB	200	Steve W.
	DENSITY ASTM D-1298	DENSITY @ 15 C	0.8945	G/ML		Gordon L.
	FLASH POINT - PMCC ASTM D-93	FLASH POINT	175	DEG F		Abigail K.
	POUR POINT, F ASTM D-97	POUR POINT	-36	DEG. F		Gordon L.
	SED BY EXTRACTION ASTM D-473	SEDIMENT BY EXTRACTION	0.81	WT%	0.002	Gordon L.

REVIEWED BY: Martin Little
Martin Little - Quality Manager

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: T. Self, J. Cox DATE: 8/3/99

FROM: Amos TOTAL # OF PAGES: 2

Attached is the "Used Oil" lab results, how do you want this passed on to Rebecca?

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

Koppers020930

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 07/29/99

PROJECT NAME: USED OIL ANALYSIS

"A" - Prior "used oil" data from Columbia that was faxed to Traci & John on 7/20/99

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
991508-001		07/28/99		USED OIL SAMPLE

REPORT DATE: 08/03/99 REPORT NUMBER: 991508 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST	"A"
USED OIL SAMPLE							
991508-001	API GRAVITY ASTM D-1298	API CORRECTED TO 60 F	26.6	DEG. API		Gordon L.	28.6
	ASH CONTENT ASTM D-482	ASH FROM PETROLEUM PRODUCTS	0.48	WT %	0.01	Gordon L.	.74
	BTU ASTM D-240	HEAT OF COMBUSTION	18,000	BTU/LB	200	Steve W.	19,300
	DENSITY ASTM D-1298	DENSITY @ 15 C	0.8945	G/ML		Gordon L.	N/A
	FLASH POINT - PMCC ASTM D-93	FLASH POINT	175	DEG F		Abigail K.	196
	POUR POINT, F ASTM D-97	POUR POINT	-36	DEG. F		Gordon L.	-40
	SED BY EXTRACTION ASTM D-473	SEDIMENT BY EXTRACTION	0.81	WT%	0.002	Gordon L.	.87

REVIEWED BY: Martin Little
Martin Little - Quality Manager

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 07/29/99

PROJECT NAME: USED OIL ANALYSIS

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
991508-001		07/28/99		USED OIL SAMPLE

REPORT DATE: 08/03/99 REPORT NUMBER: 991508 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
USED OIL SAMPLE						
991508-001	API GRAVITY ASTM D-1298	API CORRECTED TO 60 F	26.6	DEG. API		Gordon L.
	ASH CONTENT ASTM D-482	ASH FROM PETROLEUM PRODUCTS	0.48	WT %	0.01	Gordon L.
	BTU ASTM D-240	HEAT OF COMBUSTION	18,000	BTU/LB	200	Steve W.
	DENSITY ASTM D-1298	DENSITY @ 15 C	0.8945	G/ML		Gordon L.
	FLASH POINT - PMCC ASTM D-93	FLASH POINT	175	DEG F		Abigail K.
	POUR POINT, F ASTM D-97	POUR POINT	-36	DEG. F		Gordon L.
	SED BY EXTRACTION ASTM D-473	SEDIMENT BY EXTRACTION	0.81	WT%	0.002	Gordon L.

REVIEWED BY: _____
Martin Little - Quality Manager

fax COLUMBIA INSPECTION, INC.

TRANSMISSION

Date: Aug 3, 1999

To: Koppers Industries

Attn: Amos Kamerer

Subject: Analytical Results

Page 1 of 2 pages.

From: Martin Little (Quality Manager) - P.O. Box 83469 - 7133 N. Lombard - Portland, OR - 97283

Phone (503) 286-9464 Fax (503) 286-5355 - Please call if you have any problems with this transmission.

Thank you for using Columbia Inspection as your full service analytical laboratory

COLUMBIA INSPECTION, INC.

CHAIN OF CUSTODY RECORD

Laboratory • Inspection • Tank Calibration

Environmental • Petroleum • OR Certified Water Analysis

☐ 7133 N. Lombard, Portland, OR 97203 Ph: (503) 286-9464 Fax: (503) 285-7831

☐ 4901 E. 20th Street, Fife, WA 98424 Ph: (253) 922-8781 Fax: (253) 922-8957

☐ 613 Escobar Street, Martinez, CA 94553 Ph: (510) 229-0360 Fax: (510) 229-2821

☐ 790 Basin Street, Unit #2, San Pedro, CA 90731 Ph: (310) 833-1557 Fax: (310) 833-1585

Customer Name: Koppers Ind., Inc.

Attention: Amos Kamenir

Address: 7540 NW Saint Helens Rd.
Portland, OR. 97210

Phone: (503) 286-2681

FAX: (503) 285-2831

Sampler: T.J. Turner ☐ Submitted

Project Name: _____

Project Number: _____

P.O. Number: _____

Testing Priority: ☐ Standard ☐ Rush

Notification Method(s): ☐ Telephone ☐ FAX ☐ Mail

Due Date _____

Sample id#	Sample Description	Sample Matrix	Sample Date	Sample Time	density	Ash	heating value	flash point	pour point	sediment extraction									
	Used Oil	Oil	7/28/99																

Analyses To Be Performed

Relinquished By:	Received By:	Date/Time
Signature:	*Signature:*	7/29/99 0940
Printed Name: A.S. Kamenir	Printed Name:	
Relinquished By:	Received By:	Date/Time
Signature:	*Signature:*	
Printed Name:	Printed Name:	

FOR LABORATORY USE ONLY

Inspection Job Number: _____ ☐ Visa _____

Laboratory Project Number: _____ ☐ Cash/Check # _____

Overtime authorized ☐ Yes ☐ No Amount Paid: $_____

White Copy - Laboratory Yellow Copy - Client Copy

CI Form 100 (COC) Rev B

Koppers020934

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

June 4, 1999

T J TURNER
KOPPERS INDUSTRIES
7540 NW ST HELENS ROAD
PORTLAND OREGON 97210

RE: HW-Multnomah County
Koppers Industries
ORD 027734359
NWR-HW-99-042
NOTICE OF NONCOMPLIANCE

Dear Mr. Turner:

On May 25, 1999, Mr. Duane Altig and I performed an inspection of the Koppers Industries (Koppers) facility located at 7540 NW St. Helens Road in Portland, Oregon. This inspection was done in response to a complaint that the Department received regarding the handling of some waste in drums located at the facility. There were issues found in addition to the management of drum waste at the facility that will also be address in this Notice of Noncompliance. As a result of that inspection the following violations were found:

VIOLATION 1: OAR-340-112-012 Koppers failed to perform a hazardous waste determination on seven drums located at the facility.

There are seven drums of material and some lead-acid batteries being stored outside. These materials were not being managed in a way that would indicate that these materials were products. Some of the containers had cracks in the top of them and had released the materials onto the soil below. A pH was taken of the liquid from a plastic drum and the pH was 14, which would make it a hazardous waste. There were also two containers with markings that would indicate that they contained solvents. It was not known during the site visit what was in these drums. Not have

VIOLATION 2: OAR 340-108-030 Koppers failed to immediately clean up a spill of a hazardous material.

A plastic drum, which contained a corrosive material, had released some of the material onto the ground. This spilled material had dried up and a residue was present, showing that a spill had not been immediately cleaned up when it was released.

VIOLATION 3: ORS 468B.025(1)(a) Koppers had placed wastes in a location where the wastes are likely to enter the waters of the state.

RECEIVED
JUN - 7 1999
KOPPERS INDS, INC.
PORTLAND OR
Koppers020935

During the site inspection we observed that a cleaning truck had discharged a load of water mixed with coal tar pitch onto the ground. This area was not bermed and did not drain into the facility's wastewater treatment plant. The wastewater was discharged into a field. This property is located near the Willamette River and the distance to ground water is 10 to 15 feet. Samples were taken of the waste discharged and these samples are being tested in the DEQ lab. Should the test results indicate that the waste discharged is a hazardous waste then an additional Notice of Noncompliance will be issued.

Violations 1 and 3 are considered to be a Class I violations and are serious violations of Oregon environmental law. This file will be referred to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action. Formal enforcement actions may include a civil penalty assessment. Civil penalties can be accessed for each day of violation.

To correct these violations the following must be done by the dates requested below:

Supply a waste determination for the seven drums of material that are located at the facility. All drums need to be accounted for. Supply a list of the drums and what they contain. If the contents are unknown materials supply analytical results for the materials and the proper EPA waste codes. There was some dispute regarding the usefulness of some of these materials. Should the facility decide to use the chemicals you must supply the following: Photodocumentation to demonstrate that the materials are being stored in a drum which is in good condition, MSDS sheet for the products, and document the use. Supply this information within 30 days from the date of this Notice.

Supply a hazardous waste manifest to document the disposal of the waste referanced above. Provide this documetation to the Department within 60 days from the date of this Notice.

The facility stated that they were going to excavate the material and allow the water to drain into the wastewater treatment system. Please supply documentation to demonstrate what was done at the facility to clean up the release. Submit this information to the Department within 15 days from the date of this Notice.

This Notice does not require you to implement Pollution Prevention. However, the Department strongly recommends that you consider Pollution Prevention options, where applicable, to prevent the violations outlined in this Notice from recurring. Pollution Prevention may also enable you to reduce environmentally driven costs, reduce operating costs, and reduce the regulatory requirements and fees applied to your firm. Please call our technical assistance staff for more information at (503) 229-5564.

Please send all of the above requested information to my attention. Should you have any questions or concerns regarding this Notice please feel free to contact me at 229-5543.

Sincerely,

Rebecca Paul
Environmental Specialist
Northwest Region

Cc: Ms. Anne Price: WMC
Enforcement Section: DEQ

Enclosures: Inspection Report, and SQG Handbook

State of Oregon
Department of Environmental Quality Memorandum

Date: May 27, 1999

To: File

From: Rebecca Paul: Northwest Region

Subject: Inspection Report on Koppers Industries

On May 25, 1999, Duane Altig and I performed an inspection of the Koppers Industries facility located at 7540 NW St. Helens Road in Portland, Oregon. This inspection was done as a result of a complaint that the Department received regarding leaking drums of material on a waste pile. When we arrived at the site we meet with Mr. T.J. Turner, the facility's General Foreman.

I explained the nature of the complaint, and he said that he believed he knew what the complaint was about and took us to an area where some drums had been stored. As we were going out to the area, I asked Mr. Turner questions regarding the process at the facility so that I could better understand what the hazards might be. Mr. Turner said that the raw material is called coal tar or pencil pitch. The raw material is pulverized and added to a very large heated tank. The tank is heated to 500 F. At that temperature the material becomes liquefied and has a consistency of tar. The liquid is used in the aluminum industry to make anodes in the manufacturing of aluminum ingots.

Mr. Turner took us to an area on the north side of the property. He said that there were some drums stored in a bermed area, which contained pencil pitch. He said that the waste went to the Hillsboro Landfill under a special waste permit. The liquid in the waste was drained off into the facility's wastewater treatment plant. The facility has an industrial discharge permit for process water and condensate water. Mr. Elliott Zais monitors the permit. There was an area on the soil next to the bermed area that was discolored. I explained that I might want to return to this area and take a sample later. I explained to Mr. Turner that I had observed some drums in a different area and that I wanted to show them to him. While we were walking to the other location we observed a Cowlitz Clean Sweep truck. It was cleaning the paved areas around the facility. He said that they come into the facility daily during the construction to clean up the dust on the paved area around the facility.

I showed him seven drums located on the south side of the facility. He said that he believed that these containers had oil and citric solvent in them. There was one plastic drum, which had a crack in the top and some of the waste had been released on to the ground. I took the pH of the liquid on the top of the drum. The pH was 14, which would make the material a hazardous waste. One of the other full drums indicated that the fire hazard was 3 on an NFPA label. This would indicate that the waste was flammable and possibly ignitable hazardous waste. I told him that he would need to do a waste determination on all of the containers that were stored in this location. I told him that the waste on the ground would need to be cleaned up and the waste stored in the drums would need to be in shippable containers. The plastic drum was in poor condition and

leaking. There were also about fifteen lead-acid batteries stored there. These should sent be to be reclaimed.

We then returned to the car to get the sampling jars and went back to the original location. I first took a soil sample from the northwest corner. There were several Koppers personnel there in the location dealing with the Cowlitz truck. It was being hooked up to the lines. I then went over to the other sample location it was obvious that the truck had dumped a partial load of water and coal tar on the soil. I requested that Duane photograph the truck and the dump location. I brought this to the attention of Mr. Turner. He said that he was aware that it was a violation and that they were not to dump the wastewater there. I told him that I would be contacting Mr. Zais regarding the violation and that I was going to sample the waste to determine if the material was hazardous waste.

When I returned to the office I spoke with Mr. Zais. He said the violation would be dumping an industrial waste without a permit. I asked if there was anything that I should test for and he suggested phenols. The samples were taken to the lab; they are to be tested for TCLP pyridine, cresol, and benzene. This is being done to determine if the waste dumped was a hazardous waste. Should the test results show regulatory levels of this material then the violation would be illegal disposal of a hazardous waste.

I did some additional research on the product when I returned to the office in order to get a better understanding of the chemicals and process. The coal tar is used as a pot liner in the aluminum industry. Spent potliner is disposed of as a hazardous waste because of the cyanide that is picked up in the processing of the aluminum. The pencil pitch and the coal tar are considered to be a carcinogen. There are numerous chemicals in this product. Some of these chemicals include pyridine, cresols, phenols, benzene, and toluene. Some of the chemicals can be hazardous waste at certain levels specifically, the pyridine, benzene, and cresols.

I called Mr. Turner back two days following the inspection. I requested that he send me any lab data, shipping papers and the special waste permit for the waste that was disposed of at the Hillsboro Landfill.

May 26, 1999

Attention: Jim Dietz

On May 25, 1999 at approximately 3:00 PM, Northwest Terminal had an inspection by the Department of Environmental Quality due to an alleged complaint they received at their office. Rebecca E. Paul, Environmental Specialist for Hazardous Waste Compliance performed the plant inspection.

During the inspection there were 2 issues of alleged non-compliance brought to my attention.

First Issue:

A vacuum street sweeper company we have come in and clean our plant asphalted areas on an as needed basis, deposited the water and sweepings from the plant roadways they collected. Due to a misunderstanding of the instructions, given by our plant personnel, the sweeper driver, who was new and unfamiliar with our plant, deposited the water and sweepings off the edge of the asphalt on to the adjoining soil. This area is located at the northwest end of the plant, behind the pitch warehouse, "next to the vehicle and trailer wash areas". This wash area recessed and asphalted, is where this water and sweepings are normally deposited so water can evaporate and the solids can be recycled or disposed of in a proper manner. Once this error was realized, our plant personnel removed the sweepings to the asphalt area and tarped it. Ms. Paul took 2 samples, one of the sweepings, the other of the soil on the other side of the roadway.

Second Issue:

Located at the south side of the pitch storage warehouse were 4 drums (1 acidic cleaner for aluminum, 1 caustic neutralizer for the cleaner, 1citrus cleaner, 1 used oil for recycle) and several batteries on pallets contained on a steel bay. These were recently moved from the plate steel bay onto a gravel area next to it, I assume, due to the on going dismantling and construction in that area. The reason why has not been ascertained and/or confirmed. One of the 4 drums was a caustic liquid used as a neutralizer to an acid cleaner for aluminum. The plastic drum appeared to have leaked from a crack in the top of the drum as a result of being moved, leaving a white residue down the side of the drum with a small amount of residue on the gravel. Ms. Paul field-tested the residue for a pH of 12. She agreed for us to place the previously mentioned items in a contained area and to wait for her letter to proceed any further. The small amount of residue and soil was removed and placed in a hazardous waste drum.

Sincerely,

T.J. Turner
General Forman

CC:
Amos Kamerer
Traci Self
Kevin Fitzgerald

SANIFILL of OREGON

Permit No.:

Approval Expiration:

Northern Wasco County Landfill, Hillsboro Landfill, Riverbend Landfill

Generator's Special Waste Profile Sheet

IMPORTANT: This form must be completed by a Representative of the Waste Generator. The information on this form must be typed or legibly printed in ink and signed by an Authorized Agent of the Generator. Completed form bearing original signature must be provided **PRIOR TO DISPOSAL.**

1.0 Generator Information

1.1 Generator Name: KOPPERS INDUSTRIES INC

1.2 Site of Waste Generation: PORTLAND TERMINAL
Facility Address: 7540 NW ST HELENS RD
City: PORTLAND State: OR Zip: 97210

1.3 Technical Contact: AMOS KAMERER
Title:

1.4 General Site Activity: STORAGE, LOADING & UNLOADING

1.5 State Registration No.: N/A

1.6 Generator's EPA ID No.: ORD027734359

1.7 Facility Phone: (503) 286-3681

1.8 Technical Contact Phone: (503) 286-3681

2.0 Waste Description

2.1 General Waste Description: COAL TAR PITCH DUST AND DEBRIS

2.2 Process Generating Waste: TRUCK LOADING AND MATERIAL HANDLING (SPILLS)

2.3 Is this Waste "Hazardous Waste" as defined by Federal, State or Local Regulations: ___ Yes X No

2.4 Has this waste ever been "Handled or "Disposed" of as a hazardous ___ Yes X No
___ material X waste X disposed of via a "uniform hazardous waste manifest".
If yes, explain

2.5 Waste Generation Rate: ___ Tons 100 Cubic Yards ___ Other:
Per: ___ Day ___ Week X Year ___ Other ___ One Time Disposal? ___ Yes X No

2.6 Waste will be transproted in : X Roll Off Boxes ___ Drums (Type/Size):
X Dump Trucks ___ Other:

3.0 Waste Properties at Room Temperature

3.1 Physical State
X Solid ___ Semi-Solid
___ Powder ___ Liquid
___ Combination: ___ Other: ___

3.2 Odor: X None ___ Mild ___ Strong

3.3 pH Range: NA to:

3.4 Color(s): BLACK

3.5 Percent Solid: 100 %

3.6 Flash Point F°: ___ None ___ <140° F
___ 140° - 199° F X ≥ 200° F

RETURN APPLICATION TO:
Hillsboro Landfill, Inc.
3205 SE Minter Bridge Rd.
Hillsboro, Oregon 97123
PH: 503-640-9427
FAX: 503-648-2490

4.0 Reactivity

___ Reactive with Water ___ Alkaline Reactive ___ Autopolymerizable ___ Acid Reactive
___ Explosive ___ Thermally Sensitive ___ Shock Sensitive X None of the Above

5.0 Waste Contents

This Waste Contains: ☆ "WASTE" [OTHER REGULATED SUBSTANCES, SOLID, NOS., 9, NA3077 PG III, RQ, (CONTAINS BENZO(a) PYRENE + DIBENZO(a,h) ANTHRACENE)]

___ Free Liquids ___ Dioxins ___ Pathogens ___ PCBs
___ Free Cyanide ___ Organic Solvents ___ OSHA Substances
___ Free Sulfide ___ Used or Waste Oils ___ Biological Materials
___ Free Ammonia ___ Etiological Agents ___ Radioactive Materials
X None of the Above

Note Amos Check this.

6.0 Transportation

6.1 Proper U.S. DOT Shipping Name: SEE ABOVE ☆

6.4 Transporter Name: METROPOLITAN DISPOSAL
Address:

6.2 U.S. DOT Hazard Class: 9

6.3 CERCLA Reportable Quantity: 163 LBS

___ This Waste is NOT a DOT Hazardous Material

6.5 Technical Contact: AMOS KAMERER
Phone: 503-286-3681

Fill this in if you send an MSDS with application

7.0 Attached Information

7.1 ANALYTICAL (Check all that apply)
___ TPH Gas/Diesel/Oil ___ BTEX ___ TPH-HCID ___ TCLP Metals
___ Semivolatile Organics ___ Volatile Organics ___ Herbicides/Pesticides ___ TCLP Volatiles

7.2 X MSDS X Generator Certification ___ Other: ___

8.0 Billing Information

8.1 Bill To: KOPPERS INDUSTRIES INC
~~[illegible]~~
7540 NW ST HELENS RD
PORTLAND OR 97210-3663

Attention: AMOS KAMERER
Phone No.: 503-286-3681
P.O. #: ___
Job #: ___

Sign + Date

9.0 Generator Certification

I hereby certify that all information supplied is truly representative of the above mentioned waste. I agree to notify Sanifill of Oregon if there is a change in the waste stream information submitted for acceptance. I also authorize Sanifill of Oregon to periodically reanalyze the waste, at my expense. I also certify that all samples were collected according to EPA Method SW-846 and that samples were analyzed by a Certified Laboratory ar that the appropriate chain of custody was attached. **I further certify that the wastes submitted for disposal are not designated as Hazardous Waste by the USEPA or state regulations.**

Printed Name AMOS KAMERER Company Name KOPPERS INDUSTRIES INC.

Signature X Title X Date X

Waste Management 7227 NE 55th Ave. Portland, OR 97218
(503) 249-8078 (503) 331-2219 FAX

Service Period Description: APRIL 1999

1574-0006735 5/01/99

[redacted]

Service Location
574-7105 KOPPERS COMPANY HILL
7540 ST HELENS RD NW
PORTLAND OR 97210

4/13/99	ROLL OFF-DISPOSAL RATE TON	38253	13.39	x $64/TON	856.96
4/13/99	ROLL OFF-20YD TRASH BOX	38253	1.00		80.00

PAYMENTS MAILED AFTER THE 25TH MAY NOT BE REFLECTED ON THIS INVOICE.

Total This Invoice	936.96
Balance From Previous Billing	150.00
Payment - Thank You	$150.00
Total Account Balance	$936.96

T.J. Turner
General Foreman

KOPPERS INDUSTRIES
Koppers Industries, Inc.
7540 NW St. Helens Road, Portland, OR 97210-3663
503-286-3681 • FAX 503-285-2831

Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rebecca E. Paul
Environmental Specialist
HW Compliance
(503) 229-5543

Northwest Region
2020 SW Fourth Ave., Suite 400
Portland, Oregon 97201-4987
1-800-452-4011
Fax: (503) 229-6945
TTY: (503) 229-5471

Account Number
574-7105

PAYMENT DUE UPON RECEIPT

Invoice Number
1574-0006735

Current	30 Days	60 Days	90 days	120 Days	Total Due
936.96					$936.96

TO RECEIVE PROPER CREDIT, RETURN THIS PORTION WITH YOUR PAYMENT IN THE ENCLOSED ENVELOPE

Waste Management of Oregon, Inc.
Portland Division
7227 NE 55TH AVE.
PORTLAND, OR 97218

ACCOUNT #	INVOICE DATE	INVOICE NUMBER
574-7105	5/01/99	1574-0006735
CURRENT	TOTAL DUE	AMOUNT PAID
936.96	$936.96	

1574574000710500006735000000936960000000936961

*******AUTO**3-DIGIT 972
KOPPERS COMPANY
7540 NW SAINT HELENS RD
PORTLAND OR 97210-3663

Waste Management of Oregon, Inc.
Portland Division
PO BOX 78345
PHOENIX AZ 85062-8345

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: T. Self DATE: 6/7/99

FROM: Amos TOTAL # OF PAGES: 6

The attached per our conversation

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

June 4, 1999

T J TURNER
KOPPERS INDUSTRIES
7540 NW ST HELENS ROAD
PORTLAND OREGON 97210

RE: HW-Multnomah County
Koppers Industries
ORD 027734359
NWR-HW-99-042
NOTICE OF NONCOMPLIANCE

Dear Mr. Turner:

On May 25, 1999, Mr. Duane Altig and I performed an inspection of the Koppers Industries (Koppers) facility located at 7540 NW St. Helens Road in Portland, Oregon. This inspection was done in response to a complaint that the Department received regarding the handling of some waste in drums located at the facility. There were issues found in addition to the management of drum waste at the facility that will also be address in this Notice of Noncompliance. As a result of that inspection the following violations were found:

VIOLATION 1: OAR-340-112-012 Koppers failed to perform a hazardous waste determination on seven drums located at the facility.

There are seven drums of material and some lead-acid batteries being stored outside. These materials were not being managed in a way that would indicate that these materials were products. Some of the containers had cracks in the top of them and had released the materials onto the soil below. A pH was taken of the liquid from a plastic drum and the pH was 14, which would make it a hazardous waste. There were also two containers with markings that would indicate that they contained solvents. It was not known during the site visit what was in these drums.

VIOLATION 2: OAR 340-108-030 Koppers failed to immediately clean up a spill of a hazardous material.

A plastic drum, which contained a corrosive material, had released some of the material onto the ground. This spilled material had dried up and a residue was present, showing that a spill had not been immediately cleaned up when it was released.

VIOLATION 3: ORS 468B.025(1)(a) Koppers had placed wastes in a location where the wastes are likely to enter the waters of the state.

RECEIVED
JUN - 7 1999
KOPPERS IND., INC.
PORTLAND OR

During the site inspection we observed that a cleaning truck had discharged a load of water mixed with coal tar pitch onto the ground. This area was not bermed and did not drain into the facility's wastewater treatment plant. The wastewater was discharged into a field. This property is located near the Willamette River and the distance to ground water is 10 to 15 feet. Samples were taken of the waste discharged and these samples are being tested in the DEQ lab. Should the test results indicate that the waste discharged is a hazardous waste then an additional Notice of Noncompliance will be issued.

Violations 1 and 3 are considered to be a Class I violations and are serious violations of Oregon environmental law. This file will be referred to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action. Formal enforcement actions may include a civil penalty assessment. Civil penalties can be accessed for each day of violation.

To correct these violations the following must be done by the dates requested below:

Supply a waste determination for the seven drums of material that are located at the facility. All drums need to be accounted for. Supply a list of the drums and what they contain. If the contents are unknown materials supply analytical results for the materials and the proper EPA waste codes. There was some dispute regarding the usefulness of some of these materials. Should the facility decide to use the chemicals you must supply the following: Photodocumentation to demonstrate that the materials are being stored in a drum which is in good condition, MSDS sheet for the products, and document the use. Supply this information within 30 days from the date of this Notice.

Supply a hazardous waste manifest to document the disposal of the waste referenced above. Provide this documetation to the Department within 60 days from the date of this Notice.

The facility stated that they were going to excavate the material and allow the water to drain into the wastewater treatment system. Please supply documentation to demonstrate what was done at the facility to clean up the release. Submit this information to the Department within 15 days from the date of this Notice.

This Notice does not require you to implement Pollution Prevention. However, the Department strongly recommends that you consider Pollution Prevention options, where applicable, to prevent the violations outlined in this Notice from recurring. Pollution Prevention may also enable you to reduce environmentally driven costs, reduce operating costs, and reduce the regulatory requirements and fees applied to your firm. Please call our technical assistance staff for more information at (503) 229-5564.

Please send all of the above requested information to my attention. Should you have any questions or concerns regarding this Notice please feel free to contact me at 229-5543.

Sincerely,

Rebecca Paul
Environmental Specialist
Northwest Region

Cc: Ms. Anne Price: WMC
Enforcement Section: DEQ

Enclosures: Inspection Report, and SQG Handbook

State of Oregon
Department of Environmental Quality Memorandum

Date: May 27, 1999

To: File

From: Rebecca Paul: Northwest Region

Subject: Inspection Report on Koppers Industries

On May 25, 1999, Duane Altig and I performed an inspection of the Koppers Industries facility located at 7540 NW St. Helens Road in Portland, Oregon. This inspection was done as a result of a complaint that the Department received regarding leaking drums of material on a waste pile. When we arrived at the site we meet with Mr. T.J. Turner, the facility's General Foreman.

I explained the nature of the complaint, and he said that he believed he knew what the complaint was about and took us to an area where some drums had been stored. As we were going out to the area, I asked Mr. Turner questions regarding the process at the facility so that I could better understand what the hazards might be. Mr. Turner said that the raw material is called coal tar or pencil pitch. The raw material is pulverized and added to a very large heated tank. The tank is heated to 500 F. At that temperature the material becomes liquefied and has a consistency of tar. The liquid is used in the aluminum industry to make anodes in the manufacturing of aluminum ingots.

Mr. Turner took us to an area on the north side of the property. He said that there were some drums stored in a bermed area, which contained pencil pitch. He said that the waste went to the Hillsboro Landfill under a special waste permit. The liquid in the waste was drained off into the facility's wastewater treatment plant. The facility has an industrial discharge permit for process water and condensate water. Mr. Elliott Zais monitors the permit. There was an area on the soil next to the bermed area that was discolored. I explained that I might want to return to this area and take a sample later. I explained to Mr. Turner that I had observed some drums in a different area and that I wanted to show them to him. While we were walking to the other location we observed a Cowlitz Clean Sweep truck. It was cleaning the paved areas around the facility. He said that they come into the facility daily during the construction to clean up the dust on the paved area around the facility.

I showed him seven drums located on the south side of the facility. He said that he believed that these containers had oil and citric solvent in them. There was one plastic drum, which had a crack in the top and some of the waste had been released on to the ground. I took the pH of the liquid on the top of the drum. The pH was 14, which would make the material a hazardous waste. One of the other full drums indicated that the fire hazard was 3 on an NFPA label. This would indicate that the waste was flammable and possibly ignitable hazardous waste. I told him that he would need to do a waste determination on all of the containers that were stored in this location. I told him that the waste on the ground would need to be cleaned up and the waste stored in the drums would need to be in shippable containers. The plastic drum was in poor condition and

leaking. There were also about fifteen lead-acid batteries stored there. These should sent be to be reclaimed.

We then returned to the car to get the sampling jars and went back to the original location. I first took a soil sample from the northwest corner. There were several Koppers personnel there in the location dealing with the Cowlitz truck. It was being hooked up to the lines. I then went over to the other sample location it was obvious that the truck had dumped a partial load of water and coal tar on the soil. I requested that Duane photograph the truck and the dump location. I brought this to the attention of Mr. Turner. He said that he was aware that it was a violation and that they were not to dump the wastewater there. I told him that I would be contacting Mr. Zais regarding the violation and that I was going to sample the waste to determine if the material was hazardous waste.

When I returned to the office I spoke with Mr. Zais. He said the violation would be dumping an industrial waste without a permit. I asked if there was anything that I should test for and he suggested phenols. The samples were taken to the lab; they are to be tested for TCLP pyridine, cresol, and benzene. This is being done to determine if the waste dumped was a hazardous waste. Should the test results show regulatory levels of this material then the violation would be illegal disposal of a hazardous waste.

I did some additional research on the product when I returned to the office in order to get a better understanding of the chemicals and process. The coal tar is used as a pot liner in the aluminum industry. Spent potliner is disposed of as a hazardous waste because of the cyanide that is picked up in the processing of the aluminum. The pencil pitch and the coal tar are considered to be a carcinogen. There are numerous chemicals in this product. Some of these chemicals include pyridine, cresols, phenols, benzene, and toluene. Some of the chemicals can be hazardous waste at certain levels specifically, the pyridine, benzene, and cresols.

I called Mr. Turner back two days following the inspection. I requested that he send me any lab data, shipping papers and the special waste permit for the waste that was disposed of at the Hillsboro Landfill.

Copies filed IN Plant personnel file & my DEQ file

Note to file: 3:30PM to 3:40PM 2/8/94

I called the crew together IN the LAB —
T.P., Ted, Randy, Luke, Robert, Chris & Eldon

- I told them that I had talked to the DEQ today about the calls or complaints that have been made to them
- That the DEQ, At this time, had not heard ANYthing IN the form of A complaint that they felt WARRANTED INVESTIGATION
- That he, PAUL CHRISTIANSEN, had directed the DEQ's "telephone complaint operators" to pass on to him directly, ANY complaints dealing with Koppers.
- Also, that these complaints REPLECT A tremendous COST to both the STATE (the tax payers) AND the companies involved, due to the INVESTIGATIONS
- He said, we don't want to discourage complaints, but they should be VALID AND not fictitious or some kind of HARASSMENT towards the company.
- I reminded them, once AGAIN, I we think that it is their responsibility to come to us (T.P. time) first. If you're NOT SATISFIED with our response, you have the RIGHT to call someone IN pittsburgh - Lee Allison, Bill Smeaton, Larry Flaherty OR you can call ANY governmental agency you choose — we simply ask that you contact us first.
- I then discussed the TABLE-TOP EXERCISE scheduled for next week with Mancinowski & BATCH

Koppers020950

KOPPERS INDUSTRIES

FAX TRANSMITTAL

Koppers Industries, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97210-3663

Telephone: (503) 286-3681
FAX: (412) 227-2022

TO: L. Flaherty, K-1750 DATE: 2/8/94 9:30

FROM: Amos TOTAL # OF PAGES: 1

RE: DEQ Complaints

I decided to call Paul Christianson of the DEQ this morning, After my talk with Harry Chandler & you, yesterday. Paul was the DEQ Representative that came in on the Anonymous Creosote spill last month.

I Explained the recent incident with Ted and that I wanted to assure him that we were not doing anything wrong and that he, or any one they wanted to send, was welcome to come & visit again.

He said that they have now had several complaints, About things that he termed as "Nonsensical", like the fact that we were burning Creosote Residues off of the sides of Rail cars, at night, with open flame torches. He has directed the people that man their telephone complaints to pass on to him personally those that involve Koppers. He indicated that they were not planning to investigate any of the complaints that they have receive to this point. He thanked me for calling and promised to keep me posted on anything new that he felt was warranted.

IF INCOMPLETE OR POOR QUALITY TRANSMITTAL, PLEASE CALL 503-286-3681.

Amos

CC: WE Sweamingen, K-1800

nca
www.ncalabs.com

Seattle [illegible] 9700 fax 425.420.9210
Spokane [illegible] 115 Montgomery, Suite B, Spokane, WA 99206-4776 509 924 9200 fax 509 924 9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008 7132 503 906-9200 fax 503.906.9210
Bend 20394 Empire Avenue, Suite F-9, Bend, OR 97701 1283 541.383.9310 fax 541.382.7588

FAX

To: Tim Archer

From: Howard Holmes

E-mail: hholmes@ncalabs.com

Company: Foss

Phone: (503) 906-9231 FAX (503) 906-9210

Fax: 289-6568

Date: 9-13-99

Phone:

Pages: 9 including the cover page

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

● **Comments:**

P908475

All data except Total Halides on Stack-1

Thanks,

Howard

Confidentiality Notice:

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this message in error, please notify us immediately by telephone and return the original message to us at one of the above addresses via postal service.

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
PNO-SS-1			P908475-01				Soil	
Diesel Range Organics	0890838	8/31/99	8/31/99		25.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		50.0	ND	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*109*	%	
PNO-SS-2			P908475-02				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		500	1090	mg/kg dry	1,2
Heavy Oil Range Hydrocarbons	"	"	"		1000	2480	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0 150*		*NR*	%	*4*
PNO-SS-3			P908475-03				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		250	485	mg/kg dry	1,5
Heavy Oil Range Hydrocarbons	"	"	"		500	1410	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*112*	%	
PNO-SS-4			P908475-04				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		250	480	mg/kg dry	1,2
Heavy Oil Range Hydrocarbons	"	"	"		500	1140	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*82.1*	%	
PNO-SS-5			P908475-05				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		500	1020	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		1000	1900	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*4*
PNO-SS-6			P908475-06				Soil	
Diesel Range Organics	0890838	8/31/99	8/31/99		250	577	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		500	853	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*87.0*	%	
Stock-1			P908475-07				Soil	
Diesel Range Organics	0890838	8/31/99	8/31/99		500	2330	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		1000	2070	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	*4*
PNO-SS-7			P908475-08				Soil	
Diesel Range Organics	0890838	8/31/99	8/31/99		25.0	64.2	mg/kg dry	2
Heavy Oil Range Hydrocarbons	"	"	"		50.0	97.3	"	3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*97.9*	%	

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
PNO-SS-8			P908475-09				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		500	1530	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		1000	3840	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*107*	%	
PNO-SS-9			P908475-10				Soil	
Diesel Range Organics	0890838	8/31/99	8/31/99		25.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		50.0	ND	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*107*	%	
PNO-SS-10			P908475-11				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		25.0	115	mg/kg dry	2
Heavy Oil Range Hydrocarbons	"	"	"		50.0	320	"	3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*127*	%	
PNO-SS-11			P908475-12				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		125	ND	mg/kg dry	1,5
Heavy Oil Range Hydrocarbons	"	"	"		250	343	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*109*	%	
PNO-SS-12			P908475-13				Soil	
Diesel Range Organics	0890838	8/31/99	9/1/99		1250	2430	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		2500	2750	"	1,3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*NR*	%	4

Koppers020954

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

TCLP Metals per EPA 1311/6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
Stock-1			P908475-07				Soil	
Arsenic	0990024	8/31/99	9/1/99	EPA 6010A	0.500	ND	mg/l	
Barium	"	"	"	EPA 6010A	0.500	1.03	"	
Cadmium	"	"	"	EPA 6010A	0.0100	ND	"	
Chromium	"	"	9/2/99	EPA 6010A	0.0100	ND	"	
Lead	"	"	9/1/99	EPA 6010A	0.200	ND	"	
Selenium	"	"	9/2/99	EPA 6010A	0.250	ND	"	
Silver	"	"	9/1/99	EPA 6010A	0.0100	ND	"	
Mercury	0990153	"	9/7/99	EPA 7470A	0.000200	ND	"	

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
PNO-SS-1	P908475-01	Soil	91.0	%
PNO-SS-2	P908475-02	Soil	93.3	%
PNO-SS-3	P908475-03	Soil	89.7	%
PNO-SS-4	P908475-04	Soil	94.3	%
PNO-SS-5	P908475-05	Soil	90.1	%
PNO-SS-6	P908475-06	Soil	93.1	%
Stock-1	P908475-07	Soil	85.9	%
PNO-SS-7	P908475-08	Soil	86.1	%
PNO-SS-8	P908475-09	Soil	88.8	%
PNO-SS-9	P908475-10	Soil	84.4	%
PNO-SS-10	P908475-11	Soil	84.3	%
PNO-SS-11	P908475-12	Soil	87.7	%
PNO-SS-12	P908475-13	Soil	93.0	%

Associated Earth Sciences, Inc. - B.I.	Project:	PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number:	BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager:	John McNulty	Reported: 9/10/99 11:38

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0890838	**Date Prepared: 8/31/99**					**Extraction Method: TPH-D Extraction**				
Blank	**0890838-BLK1**									
Diesel Range Organics	8/31/99			ND	mg/kg dry	25.0				
Heavy Oil Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.75*	"	*50.0-150*	*95.0*			
LCS	**0890838-BS1**									
Diesel Range Organics	8/31/99	126		119	mg/kg dry	50.0-150	94.4			
Heavy Oil Range Hydrocarbons	"	51.4		53.5	"	50.0-150	104			
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.60*	"	*50.0-150*	*92.0*			
Duplicate	**0890838-DUP1**	**P908475-01**								
Diesel Range Organics	8/31/99		ND	ND	mg/kg dry			50.0		
Heavy Oil Range Hydrocarbons	"		ND	ND	"			50.0		
Surrogate: 1-Chlorooctadecane	"	*5.50*		*6.24*	"	*50.0-150*	*113*			
Duplicate	**0890838-DUP2**	**P908475-09**								
Diesel Range Organics	9/1/99		1530	1650	mg/kg dry			50.0	7.55	
Heavy Oil Range Hydrocarbons	"		3840	4380	"			50.0	13.1	
Surrogate: 1-Chlorooctadecane	"	*5.63*		*6.81*	"	*50.0-150*	*121*			

Koppers020957

Associated Earth Sciences, Inc. - B.I.	Project: PNO	Sampled:	8/24/99 to 8/25/99
179 Madrone Lane North	Project Number: BV99125A	Received:	8/25/99
Bainbridge Island, WA 98110	Project Manager: John McNulty	Reported:	9/10/99 11:38

TCLP Metals per EPA 1311/6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990024	**Date Prepared: 8/31/99**					**Extraction Method: EPA 1311/3010**				
Blank	**0990024-BLK1**									
Arsenic	9/1/99			ND	mg/l	0.500				
Barium	"			ND	"	0.500				
Cadmium	"			ND	"	0.0100				
Chromium	9/2/99			ND	"	0.0100				
Lead	9/1/99			ND	"	0.200				
Selenium	9/2/99			ND	"	0.250				
Silver	9/1/99			ND	"	0.0100				
LCS	**0990024-BS1**									
Arsenic	9/1/99	5.00		5.15	mg/l	75.0-125	103			
Barium	"	10.0		9.66	"	75.0-125	96.6			
Cadmium	"	1.00		1.02	"	75.0-125	102			
Chromium	9/2/99	5.00		4.86	"	75.0-125	97.2			
Lead	9/1/99	5.00		5.19	"	75.0-125	104			
Selenium	9/2/99	2.00		2.25	"	75.0-125	113			
Silver	9/1/99	1.00		0.931	"	75.0-125	93.1			
Matrix Spike	**0990024-MS1**		**P908550-01**							
Arsenic	9/1/99	5.00	ND	5.26	mg/l	50.0-150	105			
Barium	"	10.0	ND	9.78	"	50.0-150	97.8			
Cadmium	"	1.00	ND	0.959	"	50.0-150	95.9			
Chromium	9/2/99	5.00	0.118	4.96	"	50.0-150	96.8			
Lead	9/1/99	5.00	ND	5.14	"	50.0-150	103			
Selenium	9/2/99	2.00	ND	2.35	"	50.0-150	117			
Silver	9/1/99	1.00	0.0190	0.955	"	50.0-150	93.6			
Batch: 0990153	**Date Prepared: 8/31/99**					**Extraction Method: EPA 1311/3005**				
Blank	**0990153-BLK1**									
Mercury	9/7/99			ND	mg/l	0.000200				
LCS	**0990153-BS1**									
Mercury	9/7/99	0.00500		0.00491	mg/l	75.0-125	98.2			
Matrix Spike	**0990153-MS1**		**P908475-07**							
Mercury	9/7/99	0.00500	ND	0.00472	mg/l	50.0-150	94.4			

Associated Earth Sciences, Inc. - K.I.	Project: PNO	Sampled: 8/24/99 to 8/25/99
179 Madrone Lane North	Project Number: BV99125A	Received: 8/25/99
Bainbridge Island, WA 98110	Project Manager: John McNulty	Reported: 9/10/99 11:38

Notes and Definitions

#	Note
1	Reporting limits raised due to dilution necessary for analysis.
2	The detected hydrocarbons appear to be due to the overlap of the heavy/oil range as well as weathered diesel
3	The detected hydrocarbons appear to be due to heavy oil as well as some biogenic interference
4	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
5	Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical - Portland

Howard Holmes, Project Manager

Koppers020959

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge FROM O/W SEPARATOR

EPA Category: Conventional Parameters

Parameter	Method	Detection Limit	Analytical Result	Units
Flash Point	EPA 1020	---	>200	°F
Total Oil & Grease	SM 5520BF	2772.	62,000.	mg/Kg
Total Petroleum Hydrocarbons	SM 5520BF	2772.	47,000.	mg/Kg
Polar Oil & Grease	SM 5520BF	2772.	15,000.	mg/Kg
pH	EPA 9045	---	6.33	S.U.
Reactive Cyanide	SW 846-7.3.3.2	0.025	ND	mg/Kg
Reactive Sulfide	SW 846-7.3.4.2	0.1	1.	mg/Kg

ND means none detected at or above the detection limit listed.

COPY

Coffey Laboratories, Inc.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Metals

Parameter	Method	Detection Limit	Analytical Result	Units
Arsenic	*	12.5	ND	mg/Kg
Barium	*	0.5	25.	mg/Kg
Cadmium	*	1.25	ND	mg/Kg
Chromium	*	1.25	6.	mg/Kg
Lead	*	12.5	30.	mg/Kg
Selenium	*	25.	ND	mg/Kg
Silver	*	2.5	ND	mg/Kg

ND means none detected at or above the detection limit listed.
* Sample preparation by EPA SW-846 Method 3050. Sample analysis by EPA SW-846 Method 6010, ICP.

COPY

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Extractable Organics
Analysis Performed: EPA 8270; Semivolatile Organics by GC/MS.
Analysis Date: 04/28/99
Analyst: DCK

Parameter	Detection Limit	Laboratory Blank	Analytical Result
2-Methyl-4,6-dinitrophenol	63	ND	ND
Methoxychlor	63	ND	ND
N-Nitrosodi-n-propylamine	63	ND	ND
N-Nitrosodimethylamine	63	ND	ND
N-Nitrosodiphenylamine	63	ND	ND
Naphthalene	63	ND	ND
Nitrobenzene	63	ND	ND
4-Nitrophenol	63	ND	ND
2-Nitrophenol	63	ND	ND
Pentachlorophenol	250	ND	ND
Phenanthrene	63	ND	ND
Phenol	63	ND	ND
Pyrene	63	ND	ND
1,2,4-Trichlorobenzene	63	ND	ND
2,4,6-Trichlorophenol	63	ND	ND
2,4,5-Trichlorophenol	63	ND	ND
2-fluorophenol (Surr.)	---	ND	Diluted out of range
Phenol-d6 (Surr.)	---	ND	Diluted out of range
Nitrobenzene-d5 (Surr.)	---	ND	Diluted out of range
2-Flurobiphenyl (Surr.)	---	ND	Diluted out of range
2,4,6-Tribromophenol (Surr.)	---	ND	Diluted out of range
p-Terphenyl-d14 (Surr.)	---	ND	Diluted out of range

Results expressed as mg/Kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

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Coffey Laboratories, Inc.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Extractable Organics
Analysis Performed: EPA 8270; Semivolatile Organics by GC/MS.
Analysis Date: 04/28/99
Analyst: DCK

Parameter	Detection Limit	Laboratory Blank	Analytical Result
Acenaphthene	63	ND	ND
Acenaphthylene	63	ND	ND
Aldrin	63	ND	ND
Anthracene	63	ND	ND
Azobenzene	63	ND	ND
Benzidine	63	ND	ND
Benzo(a)anthracene	63	ND	ND
Benzo(a)pyrene	63	ND	ND
Benzo(b)fluoranthene	63	ND	ND
Benzo(g,h,i)perylene	63	ND	ND
Benzo(k)fluoranthene	63	ND	ND
alpha-BHC	63	ND	ND
beta-BHC	63	ND	ND
delta-BHC	63	ND	ND
gamma-BHC	63	ND	ND
bis(2-chloroethoxy)methane	63	ND	ND
bis(2-chloroethyl)ether	63	ND	ND
bis(2-chloroisopropyl)ether	63	ND	ND
bis(2-ethylhexyl)phthalate	63	ND	ND
4-Bromophenyl phenyl ether	63	ND	ND
Butyl benzyl phthalate	63	ND	ND
4-Chloro-3-methylphenol	63	ND	ND
2-Chloronaphthalene	63	ND	ND
2-Chlorophenol	63	ND	ND
4-Chlorophenyl phenyl ether	63	ND	ND
Chrysene	63	ND	ND
4,4-DDD	63	ND	ND
4,4-DDE	63	ND	ND
4,4-DDT	63	ND	ND

Results expressed as mg/Kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

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Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Extractable Organics
Analysis Performed: EPA 8310; Polynuclear Aromatic Hydrocarbons by HPLC.
Analysis Date: 04/30/99
Analyst: DCK

Parameter	Detection Limit	Laboratory Blank	Analytical Result
Acenaphthene	5.	ND	ND
Acenaphthylene	5.	ND	11.
Anthracene	4.	ND	ND
Benzo(a)anthracene	0.5	ND	ND
Benzo(a)pyrene	0.02	ND	ND
Benzo(b)fluoranthene	0.3	ND	ND
Benzo(g,h,i)perylene	0.5	ND	ND
Benzo(k)fluoranthene	0.2	ND	ND
Chrysene	0.5	ND	ND
Dibenzo(a,h)anthracene	0.5	ND	ND
Fluoranthene	5.	ND	12.
Fluorene	5.	ND	ND
Indeno(1,2,3-cd)pyrene	0.2	ND	ND
Naphthalene	4.	ND	ND
Phenanthrene	3.	ND	9.
Pyrene	3.	ND	ND

Results expressed as mg/kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

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Lab Sample ID: 9904230-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Volatile Organics
Analysis Performed: EPA 8260; Volatile Organics by GC/MS.
Analysis Date: 04/26/99
Analyst: SBP

Parameter	Detection Limit	Laboratory Blank	Analytical Result
4-Bromofluorobenzene (Surr.)	—	—	115%
Dibromofluoromethane (Surr.)	—	—	85%
Toluene-d8 (Surr.)	—	—	95%

Results expressed as mg/kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

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Coffey Laboratories, Inc.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Volatile Organics
Analysis Performed: EPA 8260; Volatile Organics by GC/MS.
Analysis Date: 04/26/99
Analyst: SBP

Parameter	Detection Limit	Laboratory Blank	Analytical Result
1,3-Dichloropropane	0.5	ND	ND
2,2-Dichloropropane	0.5	ND	ND
1,1-Dichloropropene	0.5	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Hexachlorobutadiene	0.5	ND	ND
Isopropylbenzene	0.5	ND	ND
4-Isopropyltoluene	0.5	ND	ND
Methylene chloride	0.5	ND	ND
Naphthalene	0.5	ND	ND
n-Propylbenzene	0.5	ND	1.1
Styrene	0.5	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
Tetrachloroethene	0.5	ND	ND
Toluene	0.5	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
Trichloroethene	0.5	ND	ND
Trichlorofluoromethane	0.5	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	1.8
Vinyl chloride	0.5	ND	0.8
m,p-Xylene	0.5	ND	ND
o-Xylene	0.5	ND	1.3
	0.5	ND	0.6

Results expressed as mg/kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

COPY

Lab Sample ID: 990423Q-4
Field ID: CLI Composite of Samples 2-3
Date/Time: 04/23/99
Matrix: Sludge

EPA Category: Volatile Organics
Analysis Performed: EPA 8260: Volatile Organics by GC/MS.
Analysis Date: 04/26/99
Analyst: SBP

Parameter	Detection Limit	Laboratory Blank	Analytical Result
Benzene	0.5	ND	ND
Bromobenzene	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
Bromodichloromethane	0.5	ND	ND
Bromoform	0.5	ND	ND
Bromomethane	0.5	ND	ND
n-Butylbenzene	0.5	ND	0.7
sec-Butylbenzene	0.5	ND	ND
tert-Butylbenzene	0.5	ND	ND
Carbon tetrachloride	0.5	ND	ND
Chlorobenzene	0.5	ND	ND
Chloroethane	0.5	ND	ND
Chloroform	0.5	ND	ND
Chloromethane	0.5	ND	ND
2-Chlorotoluene	0.5	ND	ND
4-Chlorotoluene	0.5	ND	ND
1,2-Dibromo-3-chloropropane	0.5	ND	ND
Dibromochloromethane	0.5	ND	ND
1,2-Dibromoethane	0.5	ND	ND
Dibromomethane	0.5	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND
Dichlorodifluoromethane	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
1,1-Dichloroethene	0.5	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND

Results expressed as mg/kg unless otherwise noted.
ND means none detected at or above the detection limit listed.

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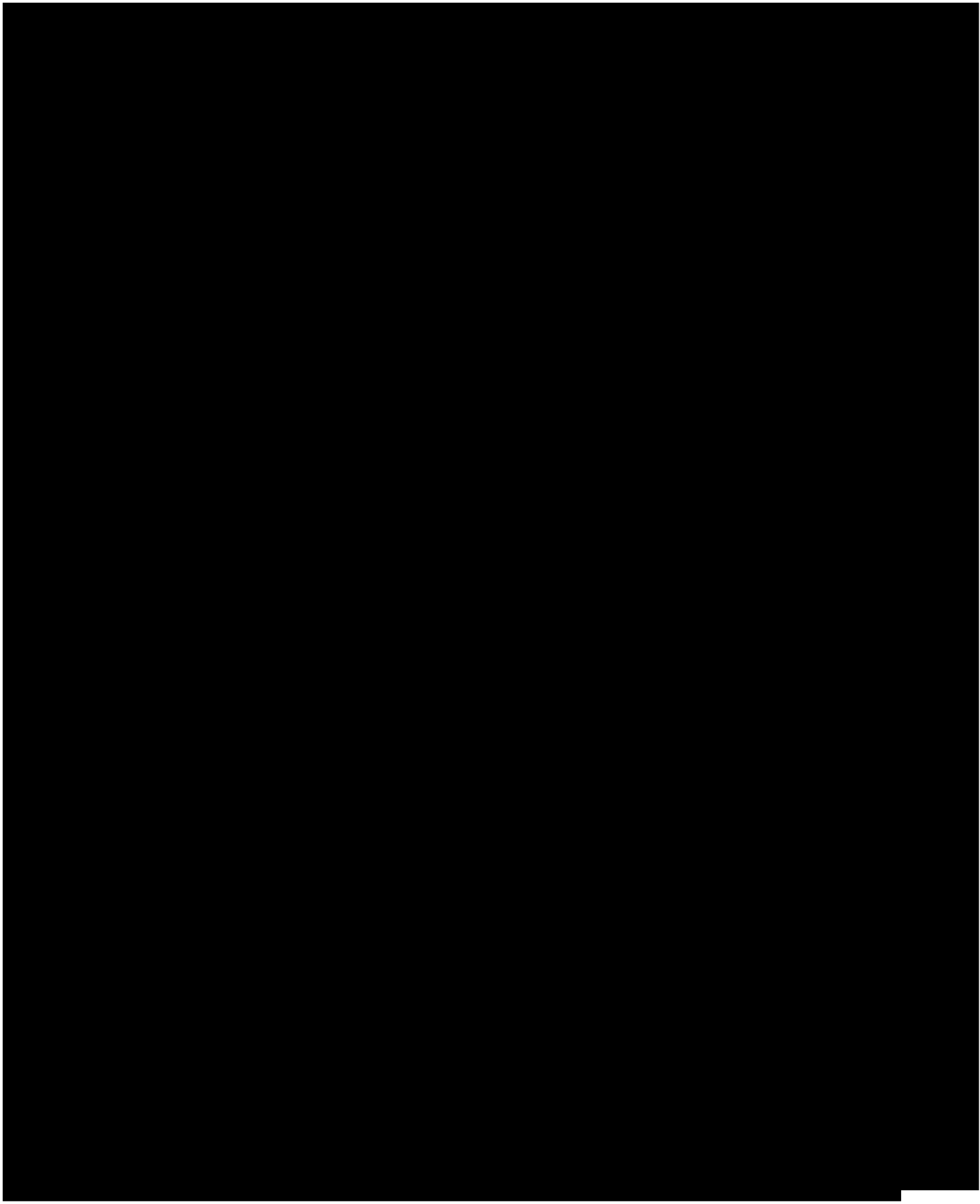
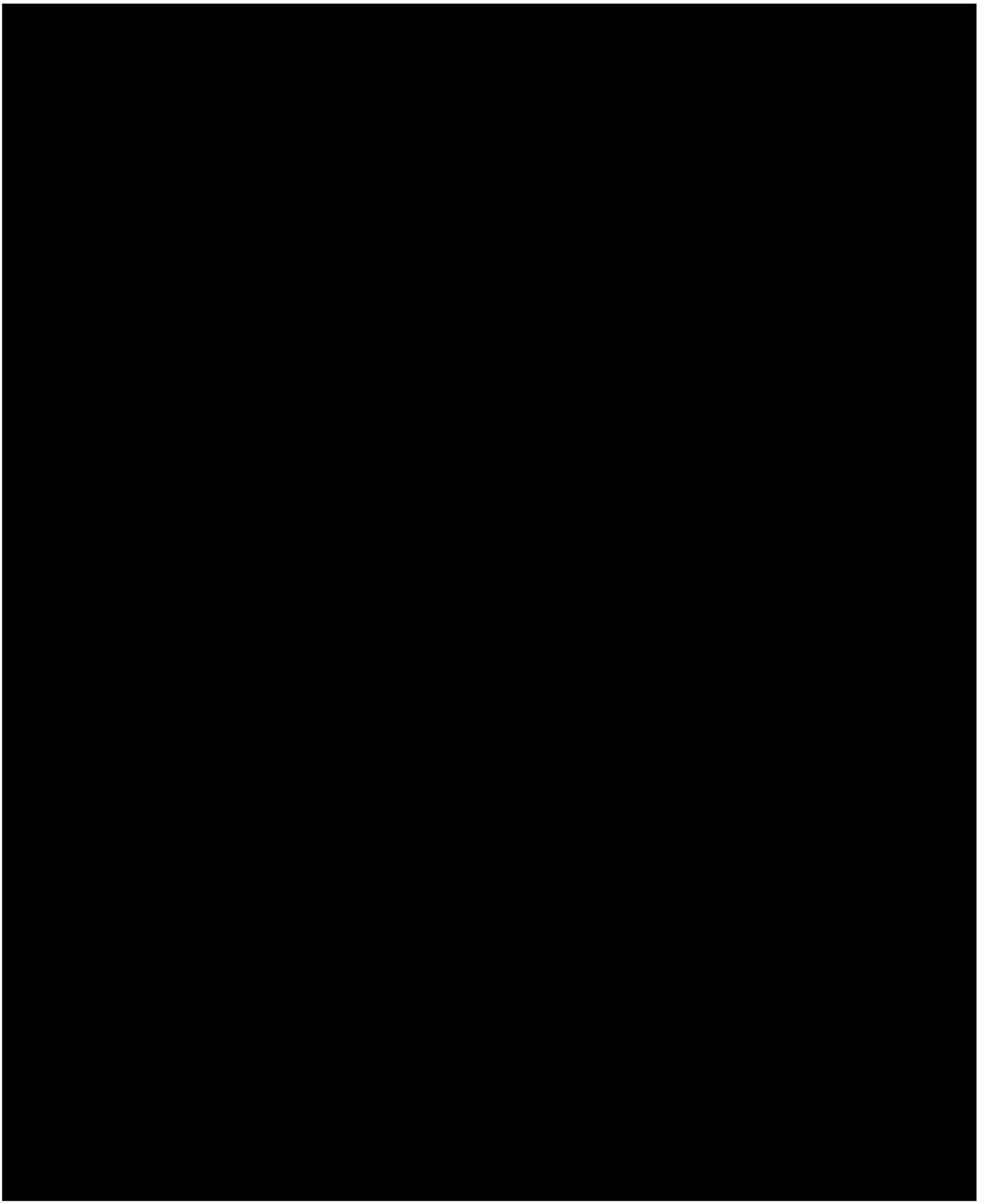
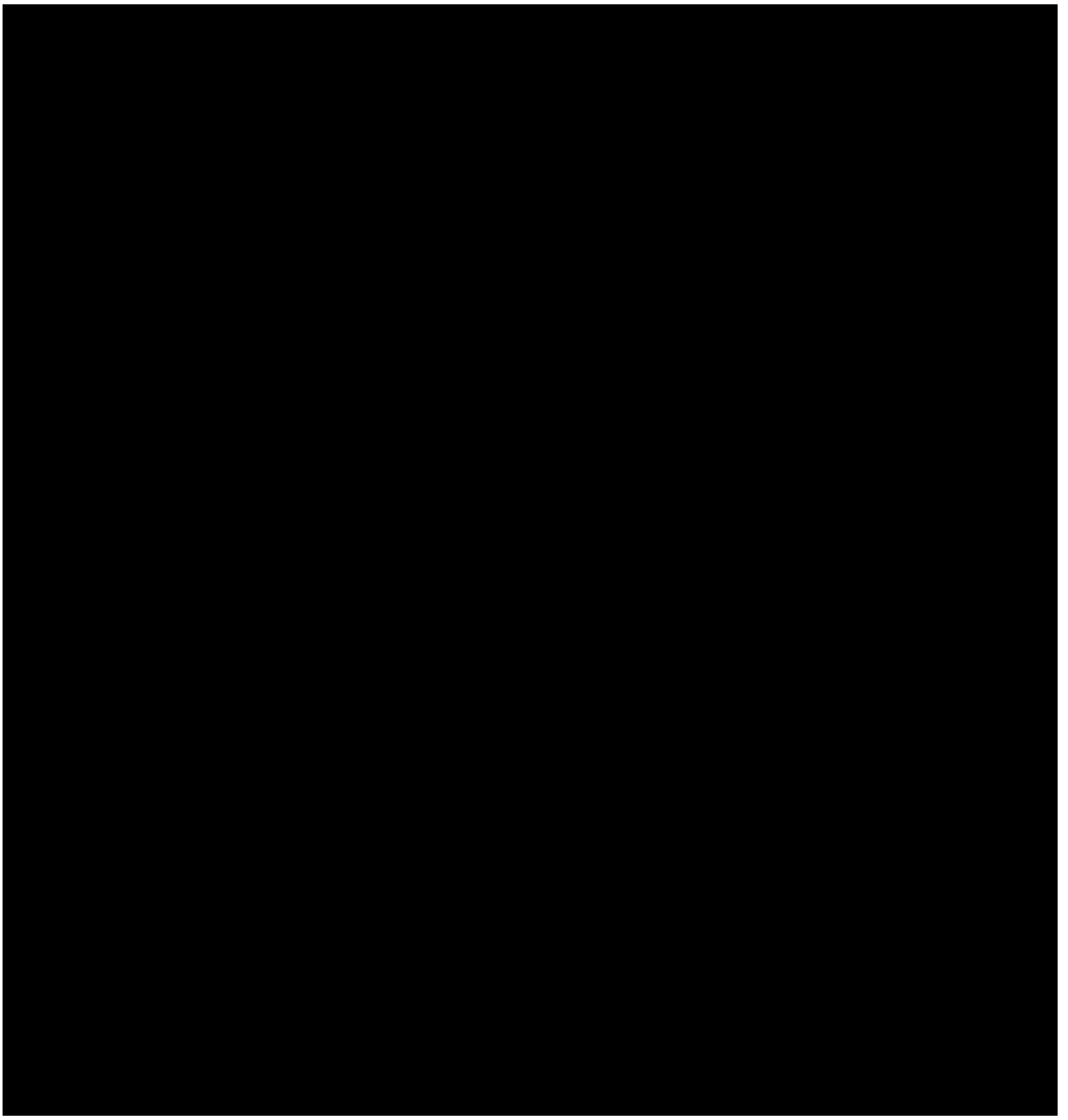
Koppers020967







BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF:	)	MUTUAL AGREEMENT
	)	AND ORDER
Koppers, Inc.	)	NO. WQ/I-NWR-07-099
Permittee	)	MULTNOMAH COUNTY
	)	

WHEREAS:

1. On June 8, 2007, the Department of Environmental Quality (Department or DEQ) issued National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit Number 101642 (Permit) to Koppers, Inc. (Permittee). The Permit authorizes the Permittee to construct, install, modify or operate wastewater treatment control and disposal facilities (facilities) and discharge adequately treated wastewater and stormwater into Doane Creek which drains to the Willamette River, waters of the state, in conformance with the requirements, limitations and conditions set forth in the Permit. The Permit expires on December 31, 2010. The Permit is in effect on this date as Permittee has made timely application for renewal. The Permit covers stormwater and wastewater related to the Tank Farm, runoff, and boiler blowdown at the Koppers Northwest Terminal. Evidence indicates that contaminated groundwater (from historic site operations) may be entering the stormwater collection system through unknown means. Accordingly, this MAO is necessary to allow Permittee adequate time to investigate the possible intrusion of contaminated groundwater and to stop such infiltration, implement treatment, stormwater management or facility modifications as necessary and feasible.

Koppers Inc. was incorporated in 1988 and operates a coal tar pitch transfer station located at the Northwest Terminal on property leased from Northwest Natural. Koppers Inc is not a successor in interest to parties that previously operated on this site. The Northwest Terminal is a 2.6 hectare site overlaying a portion of the former Portland Gas and Coke Company (Gasco) site which historically was a manufactured gas plant and oil gasification facility from 1913 to 1956. DEQ has determined that waste from the Gasco manufacturing process was disposed on site and

such waste has contaminated soil and groundwater in the area. In 1996, DEQ entered into an agreement with Northwest Natural, the current Gasco site owner and successor in interest, to conduct a remedial investigation and feasibility study, although no active remediation of contaminated groundwater has occurred in the intervening 10 years. Koppers, Inc. has never conducted any manufactured gas or coal tar pitch operations at the Gasco site.

2. Condition 1 of Schedule A of the Permit does not allow Permittee to exceed the following waste discharge limitations after the Permit issuance date:

Outfall Number 001:

Parameter	MAXIMUM EFFLUENT CONCENTRATIONS, µg/L Monthly Average	Daily Maximum
Benzo(a)anthracene	NA*	0.032
Benzo(a)pyrene	NA	0.032
Benzo(b)fluoranthene	NA	0.032
Benzo(k)fluoranthene	NA	0.032
Chrysene	NA	0.032
Dibenzo(ah)anthracene	NA	0.032
PAHs, total	NA	250
Benzene	NA	25
BTEX	NA	250
Cyanide**	4.9	8.5

*NA means not applicable

**Cyanide sampling: shall be for weak acid dissociable (WAD) cyanide via EPA Method OIA-1677 .

3. During the time period the permit has been in effect, Permittee may not have been able to consistently meet the above effluent limitations, and this MAO expressly includes, and is intended to settle, any such violations or variances.

4. DEQ and the Permittee recognize that until new or modified facilities are constructed and put into full operation, until infiltration can be stopped, or until feasible and

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effective wastewater and/or stormwater management practices or modifications can be implemented, Permittee will or may continue to violate the above permit effluent limitations at times.

5. Permittee presently is capable of treating its effluent so as to meet the following effluent limitations (95th percentile historically for monthly average and 99th percentile for daily maximum, except for cyanide, BTEX, total PAH, and benzene), measured as specified in the Permit:

Parameter	MAXIMUM EFFLUENT CONCENTRATIONS, µg/L Monthly Average	Daily Maximum
Benzo(a)anthracene	13	22
Benzo(a)pyrene	26	39
Benzo(b)fluoranthene	15	27
Benzo(k)fluoranthene	16	26
Chrysene	20	27
Dibenzo(ah)anthracene	7	9
PAHs, total	NA	400
Benzene	NA	250
BTEX	NA	1000
Cyanide*	NA	8.5

*Cyanide sampling: shall be for weak acid dissociable (WAD) cyanide via EPA Method OIA-1677.

6. The Department and Permittee recognize that the Environmental Quality Commission has the power to impose a civil penalty and to issue an abatement order for violations of conditions of the Permit. Therefore, pursuant to ORS 183.415(5), the Department and Permittee wish to settle those past violations, if any, referred to in Paragraph 3 and to limit and settle any future violations referred to in Paragraph 4 in advance by this Mutual Agreement and Order (MAO).

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7. This MAO is not intended to settle any violation of any interim effluent limitations set forth in Paragraph 5 above. Furthermore, this MAO is not intended to limit, in any way, the Department's right to proceed against Permittee in any forum for any past or future violations not expressly settled herein.

NOW THEREFORE, it is stipulated and agreed that:

8. The Environmental Quality Commission shall issue a final order:

A. Requiring Permittee to comply with the following schedule:

(1) By no later than July 31, 2008 submit to the Department for approval, plans and specifications for an approvable proposed treatment system, or wastewater and/or stormwater management practices or modifications, capable of meeting the limits in Schedule A of the Permit except, until analytical techniques are available to measure chrysene at the levels required by the permit, Permittee need only show the system is capable of meeting an effluent concentration of 0.2 µg/L chrysene.

(2) By no later than November 30, 2008, complete installation of the approved treatment system or wastewater and/or stormwater management practices or modifications.

(3) Within one month after the treatment system is installed, or wastewater and/or stormwater management practices or modifications are implemented, submit to the Department a report demonstrating that the system has been tested and is capable of meeting the limits in Schedule A except, until analytical techniques are available to measure chrysene at the levels required by the Permit, Permittee need only show the system is capable of meeting an effluent concentration of 0.2 µg/L chrysene.

B. Requiring Permittee to meet the interim effluent limitations set forth in Paragraph 5 above until November 30, 2008.

C. Requiring Permittee, upon receipt of a written Penalty Demand Notice from the Department following a determination by the Department that Permittee has violated the

Koppers020974

compliance schedule or interim permit limits provided in this MAO, to pay the following civil penalties:

(1) $250 for each day of each violation of the compliance schedule set forth in Paragraph 8A.

(2) $100 for each violation of each daily or weekly average waste discharge limitation set forth in Paragraph 5.

(3) $500 for each violation of each monthly average waste discharge limitation set forth in Paragraph 5.

9. If any event occurs that is beyond Permittee's reasonable control and that causes or may cause a delay or deviation in performance of the requirements of this MAO, Permittee shall immediately notify the Department verbally of the cause of delay or deviation and its anticipated duration, the measures that have been or will be taken to prevent or minimize the delay or deviation, and the timetable by which Permittee proposes to carry out such measures. Permittee shall confirm in writing this information within five (5) working days of the onset of the event. It is Permittee's responsibility in the written notification to demonstrate to the Department's satisfaction that the delay or deviation has been or will be caused by circumstances beyond the control and despite due diligence of Permittee. If Permittee so demonstrates, the Department shall extend times of performance of related activities under this MAO as appropriate. Circumstances or events beyond Permittee's control include, but are not limited to technical impossibility of controlling or measuring the effluent concentrations, acts of nature, unforeseen strikes, work stoppages, fires, explosion, riot, sabotage, or war. Increased cost of performance or consultant's failure to provide timely reports may not be considered circumstances beyond Permittee's control.

10. Regarding the violations set forth in Paragraphs 3 and 4 above, which are expressly settled herein without penalty, Permittee and the Department hereby waive any and all of their rights to any and all notices, hearing, judicial review, and to service of a copy of the final order

Koppers020975

herein. The Department reserves the right to enforce this order through appropriate administrative and judicial proceedings.

11. Regarding the schedule set forth in Paragraph 8A above, Permittee acknowledges that Permittee is responsible for complying with that schedule regardless of the availability of any federal or state grant or loan funds.

12. The terms of this MAO may be amended by the mutual agreement of the Department and Permittee.

13. The Department may amend the compliance schedule and conditions in this MAO upon finding that such modification is necessary because of changed circumstances or to protect public health and the environment. The Department shall provide Permittee a minimum of thirty (30) days written notice prior to issuing an Amended Order modifying any compliance schedules or conditions. If Permittee contests the Amended Order, the applicable procedures for conduct of contested cases in such matters shall apply.

14. This MAO shall be binding on the parties and their respective successors, agents, and assigns. The undersigned representative of each party certifies that he or she is fully authorized to execute and bind such party to this MAO. No change in ownership or corporate or partnership status relating to the facility shall in any way alter Permittee's obligations under this MAO, unless otherwise approved in writing by DEQ.

15. All reports, notices and other communications required under or relating to this MAO should be directed to Elliot Zais, DEQ Water Quality, Northwest Region, 2020 SW 4th Ave., Suite 400, Portland, Oregon 97201-4987, phone number 503/229-5292. The contact person for Permittee shall be T. J. Turner, Koppers, Inc. 7540 NW St. Helens Road, Portland, OR 97210, phone number 503/286-3681.

16. Permittee acknowledges that it has actual notice of the contents and requirements of the MAO and that failure to fulfill any of the requirements hereof would constitute a violation of this MAO and subject Permittee to payment of civil penalties pursuant to Paragraph 8.C above.

17. Any stipulated civil penalty imposed pursuant to Paragraph 8.C shall be due upon written demand. Stipulated civil penalties shall be paid by check or money order made payable to the "Oregon State Treasurer" and sent to: Business Office, Department of Environmental Quality, 811 SW Sixth Avenue, Portland, Oregon 97204. Within 21 days of receipt of a "Demand for Payment of Stipulated Civil Penalty" Notice from the Department, Permittee may request a hearing to contest the Demand Notice. At any such hearing, the issue shall be limited to Permittee's compliance or non-compliance with this MAO. The amount of each stipulated civil penalty for each violation and/or day of violation is established in advance by this MAO and shall not be a contestable issue.

18. Providing Permittee has paid in full all stipulated civil penalties pursuant to Paragraph 17 above, this MAO shall terminate 60 days after Permittee demonstrates full compliance with the requirements of the schedule set forth in Paragraph 8.A above.

PERMITTEE

June 18, 2007
Date

Name: Gregory P Traczek

Title: Operations Mgr., Koppers Inc. C&C Division

DEPARTMENT OF ENVIRONMENTAL QUALITY

Date

Nina DeConcini, Regional Administrator
Northwest Region

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Koppers020977

FINAL ORDER

IT IS SO ORDERED:

ENVIRONMENTAL QUALITY COMMISSION

_____ _____

Date

Nina DeConcini, Regional Administrator
Northwest Region
Pursuant to OAR 340-11-136(1)

Koppers020978

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

May 27, 1998

Mr. Elliot Zais
State of Oregon
Department of Environmental Quality
2020 SW Fourth Ave., #400
Portland, OR 97201-4987

Reference: Spill Prevention, Control, and Countermeasures Plan

Dear Sir,

As per our company policy, enclosed please find a copy of our revised SPCC plan for your files. Should you have any questions or comments, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer

BCC: T.I. Self, J.T. Dietz

Table 1
KOPPERS INDUSTRIES, INC.
NW Portland Terminal
Organic Vapor Monitoring Results — Benzene, Naphthalene, Toluene and Xylene
September 29-30, 1993

IH Logbook Number	Sampling Date	Employee/Soc. Sec. #	Job Classification/Location	Sampling Duration (minutes)	Organic Vapor Concentrations (ppm)[1]			
					Benzene	Toluene	Xylene	Naphthalene
6000-295-1	9-29-93		Operator — Pitch Loading Platform	490	<0.01	0.02	0.07	<0.01
6000-295-2	9-29-93		Operator — Pitch Loading Platform	476	<0.01	0.03	0.12	<0.01
6000-295-3	9-29-93	AREA SAMPLE	Lab Bench — Laboratory	518	0.02	0.20	0.85	0.01
6000-296-1	9-29-93		Control Operator — Pitch Melter	488	0.01	0.02	0.05	<0.01
6000-296-2	9-29-93		Operator — Maintenance	491	<0.01	0.03	0.08	<0.01
6000-296-3	9-29-93	AREA SAMPLE	Pitch Loading Platform	453	<0.01	0.01	0.04	<0.01
6000-297-1	9-29-93	AREA SAMPLE	Plant Office	446	0.01	0.13	0.50	0.01
6000-297-3	9-30-93		Laboratory Technician — Laboratory	448	0.12	0.30	2.1	0.02
6000-298-1	9-30-93		Operator — Track/Tank Farm (loading creosote)	482	0.18	0.10	0.11	0.02
6000-298-2	9-30-93		Control Operator — Pitch Melter	475	0.01	0.04	0.16	<0.01
6000-298-3	9-30-93	AREA SAMPLE	Creosote Loading Arm	35[2]	0.86	0.82	2.0	<0.15
OSHA Permissible Exposure Limits (29 CFR 1910.1000, Table Z-1-A & Z-2 and 1910.1028), 8-hour TWAs					**1.0[2]**	**100**	**100**	**10**
OSHA Short Term Exposure Limits (29 CFR 1910.1000, Table Z-1-A & Z-2 and 1910.1028), 15-minute STELs					**5**	**150**	**150**	**15**
Analytical Limits of Detection (micrograms)					**2.3**	**2.3**	**2.2**	**4.3**

Analytical Method: National Institute for Occupational Safety and Health (NIOSH) P&CAM Nos. 1500 (benzene & toluene) and 1501 (naphthalene & xylene). Component identification was based on retention data using a gas chromatographic technique with flame ionization detection.

Sampling Method: Koppers Industries, Inc. Procedure for Solid/Liquid Sorbent Industrial Hygiene Sampling Applications using passive monitors (July, 1986). The samples were collected on 150 mg activated charcoal tubes by drawing air through the tubes at a flow rate of approximately 140-160 cc/min.

Pump Calibration Reference: MSA Model G pumps in conjunction with Gemini Twin-Port Samplers calibrated in the field prior to and following sample collection using a Buck Calibrator.

Shift: Day

NOTE: • Values reported as less than (<) concentrations represent the volume adjusted limit of detection where no material was present at the detection limit. These values should be considered maximum concentrations.

(1) Parts of contaminant per million parts of air.
(2) Short-term sample — see OSHA Short-Term Exposure Limits (STELs).
(3) In addition to the Permissible Exposure Limit, OSHA has an Action Level of 0.5 ppm for benzene.

/mad
10/November/1993

Koppers020980

Table 2
Koppers Industries, Inc.
NW Portland Terminal
Organic Vapor Monitoring — Cresols & Phenol
September 29-30, 1993

IH Logbook Number	Sampling Date	Employee/Social Security #	Job Classification/Location	Sampling Duration (minutes)	Organic Vapor Concentrations (ppm)[1]	
					Cresols[2]	Phenol
6000-291-1	9-29-93		Operator — Pitch Loading Platform	490	<0.005	<0.002
6000-291-2	9-29-93		Operator — Pitch Loading Platform	476	<0.005	<0.002
6000-291-3	9-29-93	AREA SAMPLE	Lab Bench — Laboratory	518	<0.004	<0.002
6000-292-1	9-29-93		Control Operator — Pitch Melter	488	<0.005	<0.002
6000-292-2	9-29-93		Operator — Maintenance	491	<0.004	<0.002
6000-292-3	9-29-93	AREA SAMPLE	Pitch Loading Platform	453	<0.005	<0.002
6000-293-1	9-29-93	AREA SAMPLE	Plant Office	446	<0.005	<0.002
6000-293-3	9-30-93		Laboratory Technician — Laboratory	448	<0.005	<0.002
6000-294-1	9-30-93		Operator — Track/Tank Farm (loading creosote)	482	<0.005	<0.002
6000-294-2	9-30-93		Control Operator — Pitch Melter	475	<0.005	<0.002
6000-294-3	9-30-93	AREA SAMPLE	Creosote Loading Arm	35	<0.006	<0.002
OSHA Permissible Exposure Limits (29 CFR 1910.1000, Table Z-1-A), 8-hour Time-weighted Average					**5.0**	**5.0**
Analytical Limits of Detection (microgram)					**1.5**	**0.46**

Analytical Method: OSHA Method #32, component identification was based on retention data using a high-pressure liquid chromatographic technique.

Sampling Method: Koppers Industries, Inc. Procedure for Solid/Liquid Sorbent Industrial Hygiene Sampling Applications (July, 1986). Samples were collected on 150 mg XAD-7 tubes by drawing air through the tubes at a flow rate of approximately 150-160 cc/min.

Pump Calibration Reference: MSA Model G pumps in conjunction with Gemini Twin-Port Samplers calibrated in the field prior to and following sample collection using a Buck Calibrator.

Shift: Day

NOTE: All values reported as "less than" (<) concentrations represent the volume-adjusted limit of detection where no material was present at the detection limits. Values should be considered maximum concentrations.

(1) Parts of contaminant per million parts of air sampled.
(2) Represents the concentration of ortho, meta and para isomers.

/mad
10/November/1993

Koppers020981

Table 3
KOPPERS INDUSTRIES, INC.
NW Portland Terminal
Industrial Hygiene Monitoring Results — Coal Tar Pitch Volatiles
September 29-30, 1993

IH Logbook Number	*Sampling Date*	*Employee/Social Security #*	*Job Classification/Location*	*Sampling Duration (minutes)*	*CTPVs [1] (mg/m^3)[2]*
6000-299-1	9-29-93		Control Operator — Pitch Melter	489	0.17[3]
6000-299-2	9-29-93		Operator — Pitch Loading Platform	476	0.03
6000-299-3	9-29-93	AREA SAMPLE	Lab Bench — Laboratory	518	<0.02
6000-300-1	9-29-93		Operator — Pitch Loading Platform	490	0.09
6000-300-2	9-29-93		Operator — Maintenance	491	0.10
6000-300-3	9-29-93	AREA SAMPLE	Plant Office	514	<0.02
6000-301-1	9-29-93	AREA SAMPLE	Pitch Loading Platform	453	0.03
6000-301-3	9-30-93		Operator — Track/Tank Farm (loading creosote)	482	<0.02
6000-302-1	9-30-93	AREA SAMPLE	Creosote Loading Arm	35	1.4 [3]
6000-302-2	9-30-93		Control Operator — Pitch Melter	475	0.16[3]
6000-302-3	9-30-93		Laboratory Technician — Laboratory	448	0.03
OSHA Permissible Exposure Limit (29 CFR 1910.1000, Table Z-1-A), 8-hour time-weighted average					**0.20**

Analytical Method: National Institute for Occupational Safety and Health (NIOSH) P&CAM No. 5023, *Determination of Coal Tar Pitch Volatiles-Benzene Solubles.*

Sampling Method: Samples were collected on 37mm glass fiber filters by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Analytical Limit of Detection: 0.02 milligram per sample.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

Shift: Day

NOTE: All less than (<) values represent the volume-adjusted limit of detection where no material was present at the analytical limits of detection. Values should be considered maximum concentrations.

(1) Coal tar pitch volatiles [benzene soluble fraction of particulate (dusts, fumes & mists) loaded onto the filter].

(2) Milligrams of benzene soluble material per cubic meter of air sampled.

(3) Additional analysis for PNAHs requested.

/mad
10/November/1993

Koppers020982

TABLE 4
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Follow-up Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
FILTER CASSETTES
September, 1993

EMPLOYEE/SS #:			
JOB CLASSIFICATION:		Control Operator	Control Operator
LOCATION:		Pitch Melter	Pitch Melter
IH LOGBOOK NUMBER:		6000-299-1	6000-302-2
SAMPLE DATE:		09-29-93	09-30-93
SAMPLE DURATION (minutes):		489	475
POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m3)1*	
Naphthalene	1.1	<1.1 <0.0002	<1.1 <0.0002
Acenaphthylene	2.3	<2.3	<2.3
Acenaphthene	1.2	<1.2	<1.2
Fluorene	0.23	<0.23	<0.23
Phenanthrene	0.12	0.13	0.27
Anthracene	0.12	<0.12	<0.12
Fluoranthene	0.22	0.40	0.65
Pyrene	0.11	0.29	0.69
Benz[a]anthracene	0.12	0.22	0.47
Chrysene	0.11	0.24	0.55
Benzo[b]fluoranthene	0.22	0.27	0.63
Benzo[k]fluoranthene	0.11	0.12	0.25
Benzo[a]pyrene	0.11	0.29	0.66
Dibenz[a,h]anthracene	0.23	<0.23	0.45
Benzo[g,h,i[perylene	0.23	0.26	0.63
Indeno[1,2,3-c,d]pyrene	0.11	0.19	0.40
Actual CTPVs Value2 based on PNAHs Detected		0.002 mg/m3(3)	0.006 mg/m3(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* from the benzene soluble fraction of total particulate collected on glass fiber filters.

Sampling Method: Samples were collected on 37mm glass fiber filters by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m3. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 5
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Follow-up Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
FILTER CASSETTES
September, 1993

EMPLOYEE/SS #:	AREA SAMPLE
JOB CLASSIFICATION:	
LOCATION:	Creosote Loading Arm
IH LOGBOOK NUMBER:	6000-302-1
SAMPLE DATE:	09-30-93
SAMPLE DURATION (minutes):	35

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m³)*[1]
Naphthalene	1.1	18 (0.003 ppm)
Acenaphthylene	2.3	<2.3
Acenaphthene	1.2	<1.2
Fluorene	0.23	<0.23
Phenanthrene	0.12	<0.12
Anthracene	0.12	<0.12
Fluoranthene	0.22	<0.22
Pyrene	0.11	<0.11
Benz[a]anthracene	0.12	<0.12
Chrysene	0.11	<0.11
Benzo[b]fluoranthene	0.22	<0.22
Benzo[k]fluoranthene	0.11	<0.11
Benzo[a]pyrene	0.11	<0.11
Dibenz[a,h]anthracene	0.23	<0.23
Benzo[g,h,i[perylene	0.23	<0.23
Indeno[1,2,3-c,d]pyrene	0.11	<0.11
Actual CTPVs Value[2] based on PNAHs Detected		<0.006 mg/m³(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* from the benzene soluble fraction of total particulate collected on glass fiber filters .

Sampling Method: Samples were collected on 37mm glass fiber filters by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m³. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 6
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
XAD-2 SORBENT TUBES
September, 1993

EMPLOYEE/SS #:		
JOB CLASSIFICATION:	Control Operator	Operator
LOCATION:	Pitch Melter	Pitch Loading Platform
IH LOGBOOK NUMBER:	6001-1-1	6001-1-2
SAMPLE DATE:	9-29-93	9-29-93
SAMPLE DURATION (minutes):	489	476

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m³)*[1]	
Naphthalene	1.0-1.1	22 (0.004 ppm)	25 (0.005 ppm)
Acenaphthylene	2.0	<2.0	<2.0
Acenaphthene	1.0	9.7	15
Fluorene	0.20	3.8	8.3
Phenanthrene	0.09	3.5	8.8
Anthracene	0.09	0.38	0.82
Fluoranthene	0.16	0.64	1.8
Pyrene	0.08	0.36	0.97
Benz[a]anthracene	0.08	<0.08	0.08
Chrysene	0.07	<0.07	0.11
Benzo[b]fluoranthene	0.16	<0.16	<0.16
Benzo[k]fluoranthene	0.08	0.19	<0.08
Benzo[a]pyrene	0.08	<0.08	<0.08
Dibenz[a,h]anthracene	0.16	<0.16	<0.17
Benzo[g,h,i[perylene	0.16-0.17	<0.17	<0.17
Indeno[1,2,3-c,d]pyrene	0.08	<0.08	<0.08
Actual CTPVs Value[2] based on PNAHs Detected		0.02 mg/m³(3)	0.04 mg/m³(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* using XAD-2 porous polymer tubes.

Sampling Method: Samples were collected on 120 mg XAD-2 porous polymer tubes by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m³. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 7
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
XAD-2 SORBENT TUBES
September, 1993

EMPLOYEE/SS #:	AREA SAMPLE	
JOB CLASSIFICATION:	—	Operator
LOCATION:	Lab Bench — Laboratory	Pitch Loading Platform
IH LOGBOOK NUMBER:	6001-1-3	6001-2-1
SAMPLE DATE:	9-29-93	9-29-93
SAMPLE DURATION (minutes):	518	490

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m3)1*	
Naphthalene	1.0	73 (0.01 ppm)	21 (0.004 ppm)
Acenaphthylene	2.0	<2.0	<2.1
Acenaphthene	1.0	16	12
Fluorene	0.20	8.2	6.7
Phenanthrene	0.09	8.1	8.9
Anthracene	0.09	0.62	0.61
Fluoranthene	0.16	0.54	1.1
Pyrene	0.08	<0.08	0.31
Benz[a]anthracene	0.08	<0.08	<0.08
Chrysene	0.07	<0.07	<0.08
Benzo[b]fluoranthene	0.16	<0.16	<0.17
Benzo[k]fluoranthene	0.08	<0.08	<0.08
Benzo[a]pyrene	0.08	<0.08	<0.08
Dibenz[a,h]anthracene	0.16	<0.16	<0.17
Benzo[g,h,i[perylene	0.17	<0.17	<0.18
Indeno[1,2,3-c,d]pyrene	0.08	<0.08	<0.08
Actual CTPVs Value2 based on PNAHs Detected		0.03 mg/m3(3)	0.03 mg/m3(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* using XAD-2 porous polymer tubes.

Sampling Method: Samples were collected on 120 mg XAD-2 porous polymer tubes by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m3. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 8
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
XAD-2 SORBENT TUBES
September, 1993

EMPLOYEE/SS #:		AREA SAMPLE	AREA SAMPLE
JOB CLASSIFICATION:	Operator	—	—
LOCATION:	Maintenance	Office	Pitch Loading Platform
IH LOGBOOK NUMBER:	6001-2-2	6001-2-3	6001-3-1
SAMPLE DATE:	9-30-93	9-29-93	9-29-93
SAMPLE DURATION (minutes):	491	514	453

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m³)[1]*		
Naphthalene	1.0	14 (0.003 ppm)	15 (0.003 ppm)	68 (0.01 ppm)
Acenaphthylene	2.0	<2.1	<1.9	<2.0
Acenaphthene	1.0	5.6	4.0	14
Fluorene	0.20	3.9	3.2	7.1
Phenanthrene	0.09	3.9	3.5	5.2
Anthracene	0.09	0.36	0.18	0.30
Fluoranthene	0.16	0.49	0.79	0.34
Pyrene	0.08	<0.08	0.27	<0.08
Benz[a]anthracene	0.08	<0.08	<0.08	<0.08
Chrysene	0.07	<0.08	<0.07	<0.07
Benzo[b]fluoranthene	0.16	<0.17	<0.16	<0.16
Benzo[k]fluoranthene	0.08	<0.08	<0.08	<0.08
Benzo[a]pyrene	0.08	<0.08	<0.08	<0.08
Dibenz[a,h]anthracene	0.16	<0.17	<0.16	<0.16
Benzo[g,h,i[perylene	0.17	<0.18	<0.17	<0.17
Indeno[1,2,3-c,d]pyrene	0.08	<0.08	<0.08	<0.08
Actual CTPVs Value[2] based on PNAHs Detected		0.01 mg/m³(3)	0.01 mg/m³(3)	0.03 mg/m³(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* using XAD-2 porous polymer tubes.

Sampling Method: Samples were collected on 120 mg XAD-2 porous polymer tubes by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m³. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 9
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
XAD-2 SORBENT TUBES
September, 1993

EMPLOYEE/SS #:		AREA SAMPLE
JOB CLASSIFICATION:	Operator	—
LOCATION:	Track/Tank Farm	Creosote Loading Arm
IH LOGBOOK NUMBER:	6001-3-3	6001-4-1
SAMPLE DATE:	9-30-93	9-30-93
SAMPLE DURATION (minutes):	482	35

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations (µg/m3)1*	
Naphthalene	1.0	125 (0.02 ppm)	838 (0.16 ppm)
Acenaphthylene	2.0	<2.1	<27
Acenaphthene	1.0	29	96
Fluorene	0.20	12	36
Phenanthrene	0.09	8.3	27
Anthracene	0.09	0.87	6.4
Fluoranthene	0.16	0.72	3.5
Pyrene	0.08	0.14	<1.1
Benz[a]anthracene	0.08	<0.08	<1.1
Chrysene	0.07	<0.08	<0.97
Benzo[b]fluoranthene	0.16	<0.17	<2.1
Benzo[k]fluoranthene	0.08	<0.08	<1.1
Benzo[a]pyrene	0.08	<0.08	<1.1
Dibenz[a,h]anthracene	0.16	<0.17	<2.1
Benzo[g,h,i[perylene	0.17	<0.18	<2.3
Indeno[1,2,3-c,d]pyrene	0.08	<0.08	<1.1
Actual CTPVs Value2 based on PNAHs Detected		0.05 mg/m3(3)	0.17 mg/m3(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* using XAD-2 porous polymer tubes.

Sampling Method: Samples were collected on 120 mg XAD-2 porous polymer tubes by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m3. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

TABLE 10
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Polynuclear Aromatic Hydrocarbons (PNAHs) Monitoring Results
XAD-2 SORBENT TUBES
September, 1993

EMPLOYEE/SS #:		
JOB CLASSIFICATION:	Control Operator	Lab Technician
LOCATION:	Pitch Melter	Laboratory
IH LOGBOOK NUMBER:	6001-4-2	6001-4-3
SAMPLE DATE:	9-30-93	9-30-93
SAMPLE DURATION (minutes):	475	448

POLYNUCLEAR AROMATIC HYDROCARBONS	*Analytical Limits of Detection (micrograms)*	*Airborne Concentrations ($\mu g/m^3$)[1]*	
Naphthalene	1.0	33 (0.006 ppm)	89 (0.02 ppm)
Acenaphthylene	2.0	<2.0	<2.2
Acenaphthene	1.0	19	27
Fluorene	0.20	10	11
Phenanthrene	0.09	8.4	8.2
Anthracene	0.09	0.78	0.66
Fluoranthene	0.16	0.64	0.73
Pyrene	0.08	0.13	0.19
Benz[a]anthracene	0.08	<0.08	<0.09
Chrysene	0.07	<0.07	<0.08
Benzo[b]fluoranthene	0.16	<0.16	<0.18
Benzo[k]fluoranthene	0.08	<0.08	<0.09
Benzo[a]pyrene	0.08	<0.08	<0.09
Dibenz[a,h]anthracene	0.16	<0.16	<0.18
Benzo[g,h,i[perylene	0.17	<0.17	<0.19
Indeno[1,2,3-c,d]pyrene	0.08	<0.08	<0.09
Actual CTPVs Value[2] based on PNAHs Detected		0.04 mg/m3(3)	0.05 mg/m3(3)

Analytical Method: National Institute for Occupational Health & Safety (NIOSH) P&CAM No. 5506, *Determination of Selected PNAHs* using XAD-2 porous polymer tubes.

Sampling Method: Samples were collected on 120 mg XAD-2 porous polymer tubes by drawing air through a glass fiber filter preceding an XAD-2 tube at a flow rate of approximately 2 liters/min.

Pump Calibration Reference: MSA Model G pumps calibrated in the field prior to and following sample collection using a Buck Calibrator.

NOTES:
- There are on OSHA-PELs for listed PNAHs, with the exception of naphthalene (52 milligrams per cubic meter or equivalently 10 parts per million).
- All less than (<) values represent the volume-adjusted limit of detection where no PNAHs were present at the analytical limit of detection. Concentrations are reported as less than (<) values and represent maximum levels.

(1) MICROgrams per cubic meter of air sampled.

(2) Coal tar pitch volatiles (CTPVs) are taken to represent PNAHs which are considered the hazardous constituent in coal tar derived materials. The OSHA-PEL for CTPVs is 0.2 milligrams per cubic meter of air sampled.

(3) MILLIgrams per cubic meter of air sampled. This value represents the total amount of detectable PNAHs analyzed compared to the CTPVs PEL of 0.2 mg/m^3. Naphthalene is not included, since it has a separate permissible exposure limit.

/mad
10/November/1993

Table 11
KOPPERS INDUSTRIES, INC. — NW Portland Terminal
Coal Tar Pitch Volatiles as Benzene Solubles/PNAHs
SUMMARY
September, 1993

IH Logbook Number	*Sample Description/Location*	*CTPVs [1] (mg/m³)*	*Actual PNAHs[2] — Filter (mg/m³)*	*PNAHs [3] — XAD-2 Tube (mg/m³)*	*Total PNAHs[4] — Filter & Tube (mg/m³)*
6000-299-1	Control Operator — Pitch Melter	0.17	0.002	0.02	0.02
6000-299-2	Operator — Liquid Pitch Loading	0.03	Not Determined[5]	0.04	0.07
6000-299-3	AREA — Lab Bench — Laboratory	<0.02	Not Determined[5]	0.03	0.05
6000-300-1	Operator — Liquid Pitch Loading	0.09	Not Determined[5]	0.03	0.12
6000-300-2	Operator — Maintenance	0.10	Not Determined[5]	0.01	0.11
6000-300-3	AREA — Plant Office	<0.02	Not Determined[5]	0.01	0.03
6000-301-1	AREA — Pitch Loading Arm	0.03	Not Determined[5]	0.03	0.06
6000-301-3	Operator — Track/Tank Farm loading	<0.02	Not Determined[5]	0.05	0.07
6000-302-1	AREA — Creosote Loading Arm	1.4	<0.006	0.17	0.17
6000-302-2	Control Operator — Pitch Melter	0.16	0.006	0.04	0.05
6000-302-3	Laboratory Technician — Laboratory	0.03	Not Determined[5]	0.05	0.08
OSHA Permissible Exposure Limit (CFR 1910.1000, Table Z-1-A), 8-hour time-weighted average		0.2	(6)	(6)	0.2

(1) Coal tar pitch volatiles (CTPVs) as the benzene soluble fraction of total particulate (BSFTP) (dusts, fumes, mists) captured on the filter media where CTPVs are taken to represent PNAHs which are considered the hazardous constituent in coal tar-derived materials.. Reported as milligrams of benzene soluble particulate per cubic meter of air sampled — quantitates fume component of coal tar emissions (i.e., heavier molecular weight PNAHs C_{18} [benz(a)anthracene] to C_{20} [indeno(1,2,3-c)pyrene]

(2) Total amount of those 16 polynuclear aromatic hydrocarbons (PNAHs) considered to have regulatory impact that were present at detectable levels, excluding naphthalene, in the CTPVs (benzene solubles) filter extract.

(3) Total amount of the 16 polynuclear aromatic hydrocarbons (PNAHs) considered to have regulatory impact captured on solid sorbent tubes (XAD-2) — quantitates vaporous component of coal tar emissions (i.e., lower molecular weight PNAHs, roughly C_{10} (naphthalene) to C_{16} (pyrene).

(4) Total CTPVs (benzene soluble extract)/PNAHs quantitated using both media (filter and sorbent tube). Quantitation of the full range of emissions (fume and vapor) C_{10} to C_{22} PNAHs. CTPVs (filter value) was utilized except where additional characterization of the benzene solubles extract for PNAHs was undertaken.

(5) PNAH analysis of the benzene soluble filter extract was not undertaken where the CTPVs result did not exceed/approach the OSHA-PEL of 0.2 mg/m³.

(6) There are no OSHA-PELs for the 16 PNAHs analyzed with the exception of naphthalene (10 ppm or 52 milligrams per cubic meter). A long-standing proposed PEL of 0.2 µg/m³ for benzo(a)pyrene has never moved forward.

NOTE: All values reported as less than (<) concentrations represent the volume-adjusted limit of detection where no material was present at the detection limit. Values should be considered maximum concentrations.

/mad
10/November/1993

Koppers020990

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

Koppers020991

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

HAZCON, Inc.
April 1994

Koppers020992

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

TABLE 1.3

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 7	Apr 14, 1994	Sample 14	Apr 15, 1994
Location 7 Samples #7 and #14 Ivanhoe and Alta	CTPV-7	9:59 am / 6:01 pm 482 minutes	2309	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001
	CTPV-14	8:47 am / 5:47 pm 540 minutes	2587	Pyrene Chrysene	< 0.0019 < 0.0002	Pyrene Chrysene	0.0002 < 0.0002
				Sample 8	Apr 14, 1994	Sample #15	Apr 15, 1994
Location 8 Samples #8 and #15 Philadelphia and Syracuse	CTPV-8	10:09 am / 6:11 pm 482 minutes	2309	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001
	CTPV-15	8:53 am / 5:51 pm 538 minutes	2577	Pyrene Chrysene	< 0.0019 < 0.0002	Pyrene Chrysene	< 0.0017 < 0.0002
				Sample 9	Apr 14, 1994	Sample 16	Apr 15, 1994
Location #9 Samples #9 and #16 Willamette and Philadelphia	CTPV-9	10:12 am / 6:16 pm 484 minutes	2147	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 0.0001	Phenanthrene Anthracene Benzo a Pyrene	< 0.0003 < 0.0003 < 0.0002
	CTPV-16	8:59 am / 5:57 pm 538 minutes	2577	Pyrene Chrysene	< 0.002 < 0.0002	Pyrene Chrysene	0.0002 0.0001
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

Koppers020993

HEALTH HAZARD CONTROL SERVICES
HAZCON INC.

TABLE 1.4

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 10	Apr 14, 1994
Location 10 Sample #10 Entrance Road to Koppers	CTPV-10	10:28 am / 6:30 pm 482 minutes	2309	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	0.0001 < 0.0003 0.0015 0.0003 0.0005
				Sample 17	Apr 15, 1994
Location 11 Sample #17 T-4, 2nd Row Light Post #1 Terminal 4	CTPV-17	9:11 am / 6:07 pm 536 minutes	2567	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.0017 < 0.0002
				Sample 18	Apr 15, 1994
Location 12 Sample #18 T-4, 2nd Row Light Post #4 Terminal 4	CTPV-18	9:17 am / 6:10 pm 533 minutes	2553	Phenanthrene Anthracene Benzo a Pyrene Pyrene Chrysene	< 0.0003 < 0.0003 < 0.0002 < 0.0017 < 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

Koppers020994

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

HAZCON, Inc.
April 1994

Koppers020995

Copy

KOPPERS

Interoffice Correspondence

To LARRY FLAHERTY

From JOHN A OXFORD

Location K-1750

Location PORTLAND PLANT

Subject DOANES LAKE PROJECT

Date 5-8-89

Dear Larry:

Per our phone conversation of 5-6-89, the following is a recap of a conference call involving Potentially Responsible Parties in the Doanes Lake Project of which Koppers Beazer and Koppers Industries may be involved.

First of all a conference call between the P.R.P's came in on 5-6-89 about 10:00 AM. A roll call was taken, and I answered present, that was the only comment that I made during the whole conversation. In the call I learned that Garrity & Miller Environmental Consulting Firm has been selected by the Parties to do the preliminary work study and the actual testing. Garrity's initial cost proposal was $77,000.00, but it was decided to try and persuade E.P.A. & D.E.Q. to accept a revised scope of work that calls for ground water testing from 2 directions only, instead of 4. If the agencies go along with the revised plan then Garrity's cost will be $50,000.00. It was decided that Garrity would be asked to supply a draft proposal to the parties by May 12,1989. Then a meeting with Oregon D.E.Q. would be held the week of June 1, 1989.

It was also reported that, in regard to the companies who are not participating, E.P.A. did not seem overly concerned as E.P.A. is letting D..E.Q. take the lead and responsibiltiy to get all these companies on board by summer. The companies agreeing to participate now are as follows.

National Lead - Gould
Esco Corporation
N.W. Natural Gas
Pacific Northern Oil
Penwalt Corporation
Rhone Poulenc
Snitzer Steel Industries

Regards,

John Oxford

John Oxford
Plant Manager

CC: J. BATCHELDER K-1701
J. BLUNDON K-1400
B. NOLAN K-1400

K-5 REV. 2

NW NATURAL
SUPPLEMENTAL AMBIENT
INDOOR AIR EVALUATION REPORT

Koppers, Inc. Lease Area
NW Natural - Gasco Site
7900 NW St. Helens Road
Portland, Oregon

October 6, 2006

Project No. 2708

OCT 11 2006

HAI **HAHN AND ASSOCIATES, INC.**
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ENVIRONMENTAL CONSULTANTS
ASSESSMENT
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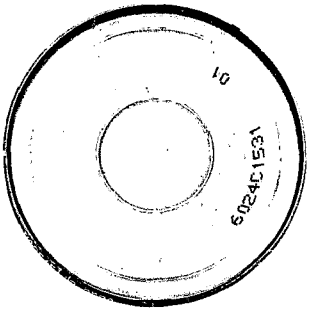
NW Natural Supplemental Ambient Indoor Air Evaluation Report

Koppers, Inc. Lease Area
NW Natural Gasco Site
7900 NW St. Helens Road
Portland, Oregon



Prepared for
NW Natural
Portland, Oregon

Project No. 2708
October 6, 2006

Hahn and Associates, Inc.
Portland, Oregon
www.hahnenv.com

NW NATURAL
SUPPLEMENTAL AMBIENT
INDOOR AIR EVALUATION REPORT

Koppers Inc. Lease Area
NW Natural – Gasco Site
7900 NW St. Helens Road
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October 6, 2006

Prepared for:

NW Natural
Portland, Oregon

Prepared by:

Hahn and Associates, Inc.
Portland, Oregon

HAI Project No. 2708

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APPENDICES

A Clayton Group Services Report

1.0 INTRODUCTION

On behalf of NW Natural, Hahn and Associates, Inc. (HAI) has prepared this report providing results of the ambient indoor air evaluation conducted at the Koppers Inc. (KI) Lease Area facility located on the southern portion of the overall Gasco property, 7900 NW St. Helens Road, Portland, Oregon (Figures 1 and 2). The supplemental air evaluation was proposed by NW Natural to verify the results of the first sampling event. Sampling and analytical procedures were conducted in accordance with the Oregon Department of Environmental Quality (DEQ) approved *Final Work Plan for Ambient Indoor Air Evaluation, Addendum 1* (HAI 2006b).

The remainder of this report presents background information, a description of field activities, air sample results and discussion, and conclusions and recommendations.

2.0 BACKGROUND

At the request of DEQ, NW Natural conducted an indoor air evaluation at the Gasco site on July 21, 2005 in accordance with the Final Work Plan for Ambient Indoor Air Evaluation (HAI, 2005). The primary objective of the study was to evaluate the potential volatilization of aromatic hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylene [BTEX] and naphthalene) from shallow groundwater to air within occupied site buildings at that portion of the site with the greatest BTEX concentrations in groundwater (e.g., the Koppers Lease Area). Air samples were collected at six locations, including two indoor air samples and four outdoor control/background air samples. The results of the air sampling activities did not indicate the presence of aromatic hydrocarbons at levels that would suggest contribution from on-site soil or groundwater impacts (HAI 2006a).

In March 2006, HAI submitted a Final Work Plan for Ambient Indoor Air Evaluation, Addendum 1 (Work Plan) (HAI 2006b) to DEQ for conducting a supplemental indoor air evaluation at the Gasco property. The Work Plan describes the air sampling methodology, sample collection locations, and sample analysis and reporting procedures. The objective included in the Work Plan was to confirm the findings of the first air sampling event at the

Koppers Lease portion of the Gasco property. The Work Plan included a total of six samples to be collected and analyzed, including four control/background outdoor air samples (identical to the initial sampling event). DEQ approved the Work Plan in correspondence dated March 24, 2006 (Ms. Heidi Blischke to Mr. Bob Wyatt).

3.0 FIELD ACTIVITIES

HAI contracted with Clayton Group Services (Clayton) to provide a Certified Industrial Hygienist to conduct the air sampling activities at the KI property. On March 30, 2006, Clayton (accompanied by HAI and KI personnel) collected air samples from six locations at the KI facility. The air samples included two collected from occupied buildings at the facility, plus four control/background outdoor air samples. Background information concerning the two buildings that were sampled, sample locations, and sampling and analysis methodology are described below.

3.1 Building Construction and Operation

The KI facility consists of the pencil pitch storage building, a boiler house building, an office building, an employee service room building, a maintenance shop building, a control room building, and a support building. The following buildings were identified to be included in the indoor air evaluation since they are representative of potential indoor air quality in the KI lease area and are the buildings that have the greatest frequency of occupation:

- Office Building
- Control Room Building (CRB)

The Office Building contains offices, and had a recirculating heating ventilating and air conditioning "package" system located on the roof-with ceiling mounted supply and return ducts. A fresh air inlet could not be located. The Office Building was determined to be under neutral pressure to the outdoors. Construction information provided by representatives of KI indicates the building is located on a slab-on-grade and the slab is six inches thick.

The CRB had two window air conditioners that did not have physical control options for fresh air supply vent, so it could not be determined if or how

much outdoor air was being supplied. The CRB was under neutral pressure to the outdoors. Construction information provided by representatives of KI indicates the building is located on a slab-on-grade and the slab is four inches thick.

3.2 Air Sampling Activities and Locations

Clayton implemented the field work activities for the air sampling event concurrent with a moderately low pressure system passing through the region, providing a conservative atmospheric setting. Clayton's report describing the sampling activities is included as Appendix A. The sampling consisted of deployment of Summa canisters fitted with flow controllers designed to collect air over an eight-hour period. The samples were submitted to Air Toxics Ltd. in Folsom, California for analysis by US Environmental Protection Agency (EPA) Modified Method TO-15 plus naphthalene gas chromatography with mass spectrometry.

Brief descriptions of the six sample locations are provided below and are shown on Figure 2. The sample location numbers presented in the Work Plan were used for the March 30, 2006 sampling event.

Station 1: Office Building, in the main office area.

Station 2: Outdoors, Roof of the Office Building.

Station 3: Control Room Building, in the main room of the building.

Station 4: Outdoors, At Grade, North of Pencil Pitch Storage Building.

Station 5: Outdoors, At Grade, North of the containment wall for the tank farm.

Station 6: Outdoors, At Grade, near the guard shack at the Gasco Site entrance. This structure has since been relocated.

3.3 Sampling Equipment

The air samples were collected using stainless steel evacuated (partial vacuum or negative pressure) 6-liter Summa canisters. The canisters utilized a calibrated precision critical orifice device to slowly collect representative air samples. The canisters were ordered from Air Toxics Ltd.,

an accredited laboratory located in Folsom, California. All of the canisters were 100% certified and calibrated with matched canister, matched mass flow controller, and matched stainless steel sampling cane. The canisters were set for an 8-hour integrated sample period. The sampling canes were custom ordered to a height of 4.5 feet above the floor or ground to simulate a breathing zone level. The top of each cane was designed with an inverted curve downward to reduce the potential for rain, dust or other debris from being improperly entrained into the sample stream.

For the exterior sample locations, a Brunton Summit Atmospheric Data Center® meter was used to measure wind speed, wind direction, temperature, and barometric pressure.

3.4 Analytical Methods

The air samples were submitted to Air Toxics Ltd. for analysis. Chain of custody procedures were maintained for the samples. The samples were analyzed utilizing EPA Modified TO-15 plus naphthalene gas chromatography with mass spectrometry. Laboratory Quality Control and Quality Assurance standards were conducted and documented. In limited cases (where detected concentrations were greater than method detection limit [MDL] but lower than practical quantitation limit [PQL]) the data was J-Flagged for estimated concentrations. The data were validated and no sample results were invalidated.

4.0 RESULTS AND DISCUSSION

A summary of target analytical method detection and practical quantitation limits for contaminants of interest (COIs) are presented in Table 1, while COI results are summarized in Table 2. Analytical results for other analytes and the laboratory report, including analytical results, data validation, and quality assurance/quality control documentation, are included in Appendix A.

4.1 Screening Levels

Analytical results summarized in Table 2 are compared to the following standards, guidelines, and ambient levels:

- Oregon Department of Consumer & Business Services, Oregon Occupational Safety & Health Division (OR-OSHA), Permissible

Exposure Limits (PELs). The PELs (Tables 1 and 2) are regulatory levels that are set to protect workers against the health effects of exposure to hazardous substances. PELs are based on an 8-hour time weighted average exposure.

- DEQ Guidance, Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Appendix A: Table of Risk-Based Concentrations (RBCs); Contaminated Medium of Air, Exposure Pathway via Inhalation with the Receptor Scenario as Occupational) and Table J.4: Generic RBCs for Chlorinated Solvents (Contaminated Medium of Air, Exposure Pathway via Inhalation with the Receptor Scenario as Occupational). The DEQ RBCs (Tables 1 and 2) are guidelines that are used in the evaluation of petroleum-contaminated sites. The RBCs are used as a screening tool; an exceedance of an RBC does not necessarily indicate that an unacceptable risk actually exists or that remedial action is required.
- U.S. National Institute for Occupational Safety and Health (NIOSH), Recommended Exposure Limits (RELs). RELs (Table 2) are 8-hour time weighted average guidelines that are used as general industry standards for employee exposures.
- American Conference of Governmental Industrial Hygienists (ACGIH), 2004 Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs) booklet. TLVs (Table 2) are 8-hour time weighted average guidelines that are used as general industry standards for employee exposures.
- Volatile Organic Compound (VOC) data collected from two DEQ ambient air monitoring stations in Portland (Table 2): the Forest Heights Post Office station at 1706 NW 24th Street; and the North Roselawn station located at 24 N. Emerson.
- U.S. EPA Building Assessment and Survey Evaluation (BASE) database of indoor environmental conditions in office buildings (Table 2).

4.2 Results

Eight aromatic hydrocarbons and two chlorinated compounds on the COI list were detected in the samples. Six of the 8 aromatic hydrocarbons (toluene, ethylbenzene, m,p-xylene, o-xylene, 1,2,4-trimethylbenzene, 1,3,5-

trimethylbenzene) were not detected at concentrations exceeding DEQ RBCs (the most conservative of the various screening levels). The concentrations of these constituents are also well below OR-OSHA PELs, and NIOSH and ACGIH guidelines.

Of the aromatic hydrocarbons, benzene and naphthalene were the only constituents detected in the air samples that exceeded DEQ RBCs. Of the chlorinated compounds, tetrachloroethene (PCE) and trichloroethene (TCE) were the only constituents detected in air at a concentration greater than the laboratory method detection limits, with each of these constituents identified at concentrations greater than their respective DEQ RBCs. Neither PCE nor TCE are COIs related to the Gasco site, although TCE was identified as a COI for the indoor air study due to the presence of off-site impacts related to operations conducted by Siltronic Corporation (Siltronic) on the adjacent property to the south. The identification of benzene, naphthalene, PCE, and TCE within the referenced ambient air samples are described further below.

4.2.1 Benzene

The RBC for benzene is 1.5 ug/m^3. The benzene concentrations in all six of the air samples exceeded the DEQ RBC for this constituent. The identified concentrations for all samples ranged from 2.5 ug/m^3 (inside, office building) to 3.6 ug/m^3 (outside, north of the Tank Farm area) (Figure 3). No pattern could be determined between interior and exterior samples or site location. Although samples from all air monitoring stations detected benzene at concentrations greater than the DEQ RBC, the detected benzene concentrations are well below OR-OSHA PELs and NIOSH guidelines. There is not an ACGIH guideline for benzene.

DEQ operates two ambient air monitoring stations located in residential / commercial portions of northwest and north Portland, as shown on Table 2. Benzene data are available for these stations. Measured benzene concentrations for the DEQ's Forest Heights Post Office ambient air monitoring station (located at 1706 NW 24th St., Portland, Oregon) range from <0.3 to 5.1 ug/m^3. Measured benzene concentrations for the DEQ's North Roselawn ambient air monitoring station (located at 24 N Emerson Street, Portland, Oregon) range from <0.3 to 7.7 ug/m^3. The range of benzene concentrations identified at the Gasco property (an estimated 0.8 to 3.6 ug/m^3) are all within the range of benzene concentrations historically

detected at the DEQ North Roselawn and Forest Heights Post Office stations.

Benzene concentrations were also compared to EPA's Building Assessment and Survey Evaluation (BASE) data as shown on Table 2. The BASE study has included data collection in over 70 office buildings for different regions throughout the United States (IEQ Strategies 1998). The buildings were selected without regard to indoor air quality concerns, except that buildings with highly publicized indoor air quality problems were excluded. The objective of the BASE study has been to characterize indoor environmental conditions in buildings and provide a database for other researchers to use. In a report on study results, researchers identified VOCs in 41 of the buildings studied. Benzene was detected in 81% to 100% of the analyzed samples, with concentrations ranging from 1.7 to 61 ug/m^3 being identified. The benzene concentrations at the Gasco site (2.5 to 3.6 ug/m^3) as identified during the March 2006 sampling event are at the lower end of the BASE study range, and are consistent with the concentrations identified during the initial sampling event in July 2005 (0.74 to 4.7 ug/m^3).

The preceding data evaluation suggests that the identified benzene concentrations are present at levels typical for north and northwest Portland, and are within the range identified within typical air quality anticipated for urban (outdoor) or office (indoor) environment. Benzene concentrations identified at indoor sampling locations were similar to concentrations identified at proximate outdoor control sampling locations (Stations #2 and #4).

As indicated above, all of the detected benzene concentrations were compliant with OR-OSHA PELs and NIOSH guidelines.

4.2.2 Naphthalene

The RBC for naphthalene is 13 ug/m^3. The naphthalene concentrations in one of the air samples exceeded the DEQ RBC for this constituent. The identified concentrations for all samples ranged from an estimated 0.48 ug/m^3 (outside, roof of office building) to 30 ug/m^3 (control room building) (Figure 4). Although one of the identified concentrations was greater than the DEQ RBC (control room building), all of the detected naphthalene concentrations were well below OR-OSHA PELs and NIOSH guidelines. There is not an ACGIH guideline for naphthalene.

The range of concentrations recorded in ambient air at the North Roselawn station is <0.0003 to 0.0125 ug/m^3, and the range of concentrations recorded at the Forest Heights Post Office station is < 0.0082 to 0.0086 ug/m^3. The range of detected naphthalene concentrations at the KI Lease Area (0.48 J to 30 ug/m^3) exceeds the concentration range reported for the DEQ ambient air monitoring stations. With regard to the EPA BASE Study, naphthalene was detected in 21% to 40% of the analyzed samples, with concentrations ranging from 2.2 to 410 ug/m^3. The naphthalene concentrations at the KI office building (8.2 ug/m^3) did not exceed the 410 ug/m^3 upper limit of the BASE study range, and are at the lower end of the BASE study range.

The presence of naphthalene at concentrations greater than identified at the DEQ ambient air stations is likely a function of heated coal tar storage, heating, and loading operations at the KI Lease portion of the property. As noted in the Clayton Report (Appendix A), although loading/transfer of heated coal tar pitch did not occur during the sampling event, there was a noticeable pitch/coal-tar like odor at the time of the air sampling event and transfer activities had been completed immediately prior to the sampling. Naphthalene is a component of the KI coal tar pitch product and therefore the identified presence of this constituent in nearby air samples is expected. As indicated above, all of the detected naphthalene concentrations (0.48 to 30 ug/m^3) were compliant with OR-OSHA PELs, BASE, and NIOSH guidelines and are consistent with the concentrations identified during the initial sampling event in July 2005 (up to 41 ug/m^3).

4.2.3 PCE

The RBC for PCE is 1.9 ug/m^3. The sample detecting PCE above the RBC was collected at Station 1 (within the office building), where 26 ug/m^3 was identified. The identified concentration is consistent the concentration identified during the July 2005 initial sampling event, when 22 ug/m^3 was identified at this location. PCE was also identified at an estimated concentration of 0.81 ug/m^3 at Station 4 (outside, north of pencil pitch storage structure) during the March 2006 sampling event. The detected PCE concentrations are well below the ACGIH guideline and OR-OSHA PELs of 678,000 and 170,000 ug/m^3, respectively (Table 2). There is not a NIOSH guideline for PCE. No PCE data were identified for the north or northwest Portland DEQ Ambient Air Monitoring Stations. With regard to the EPA BASE Study, PCE was detected in 61% to 80% of the analyzed samples, with concentrations ranging from 0.7 to 56 ug/m^3.

The identified PCE concentrations (0.81 ug/m^3 and 26 ug/m^3) at the site are within the lower to middle range of the BASE study range (0.7 to 56 ug/m^3). and therefore would appear likely attributable to the presence of solvent-based office products as described in the Clayton Report (Appendix A). Some common everyday sources of PCE to indoor air within an office environment include glues, paint and spot removers, dry cleaned clothing, and water repellents.

4.2.4 TCE

The RBC for TCE is 0.10 ug/m^3. The samples detecting estimated concentrations of TCE above the RBC were collected at Station 2 (0.37 ug/m^3 outside on roof of the office structure) and Station 3 (0.48 ug/m^3 inside within the control room building). The identified concentrations are provided as estimated values by the laboratory since they were identified at concentrations below laboratory method reporting levels.

The detected TCE concentrations are well below the ACGIH guideline (269,000 ug/m^3), the OR-OSHA PEL (537,000 ug/m^3), and the NIOSH guideline (134,000 ug/m^3) for TCE (Table 2). The range of concentrations recorded in ambient air at both the North Roselawn and the Forest Heights Post Office station are between <0.54 and 0.65 ug/m^3. The TCE concentrations identified at the Gasco property (0.37 ug/m^3 and 0.48 ug/m^3) are all below the range of TCE concentrations historically detected at the DEQ North Roselawn and Forest Heights Post Office stations.

TCE concentrations were also compared to EPA's Building Assessment and Survey Evaluation (BASE) data as shown on Table 2. TCE was detected in 21% to 40% of the analyzed samples, with concentrations ranging from 0.9 to 90 ug/m^3 being identified. The TCE concentrations at the Gasco site (0.48 ug/m^3 maximum) as identified during the March 2006 sampling event are less than the lowest concentration reported within the BASE study range.

The preceding data evaluation suggests that the identified TCE concentrations are present at levels typical for north and northwest Portland, and are within the range identified within typical air quality anticipated for urban (outdoor) or office (indoor) environment.

As indicated above, all of the detected TCE concentrations were compliant with OR-OSHA PELs and NIOSH guidelines.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the ambient indoor air evaluation at the KI facility, conclusions and recommendations are as follows:

- Six of the eight detected aromatic hydrocarbon COIs (toluene, ethylbenzene, m,p-xylene, o-xylene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene) were not detected at concentrations exceeding DEQ RBCs. Concentrations of all eight of the aromatic hydrocarbon COIs were well below OR-OSHA PELs, NIOSH, and ACGIH guidelines.
- Benzene concentrations identified at indoor sampling locations were similar to concentrations identified at proximate outdoor control sampling locations
- Identified benzene concentrations are well within the range of concentrations deemed representative of ambient conditions for north and northwest Portland and are representative of benzene concentrations typical for indoor air per the EPA BASE Study.
- Naphthalene concentrations in all six samples exceeded the range of concentrations as identified at the DEQ ambient air monitoring stations in northwest and north Portland. Of these, the naphthalene concentration of one sample exceeded the DEQ RBC. However, the elevated naphthalene concentrations were identified within samples collected at locations likely influenced by coal tar pitch storage and heating activities conducted at the site, with the naphthalene likely being a function of volatilization from the heated coal tar pitch. All naphthalene detections were well below OR-OSHA PELs, NIOSH, and ACGIH guidelines.
- PCE concentrations exceeded the DEQ RBC in one sample, but at a concentration that falls within the indoor air study conducted by EPA (i.e., BASE), and appears attributable to the presence of common office products.
- TCE concentrations exceeded the DEQ RBC in two samples, but at estimated concentrations that fall below laboratory method reporting levels as well as below levels identified within the indoor air study

conducted by EPA (i.e., BASE). The identified TCE appears representative of ambient urban levels.

- All of the detected benzene, naphthalene, PCE, and TCE concentrations are well below OR-OSHA PELs, NIOSH, and ACGIH guideline concentrations.

In summary, results of the supplemental air sampling activities described herein confirm the findings of the first air sampling event and do not indicate the presence of aromatic hydrocarbons at levels greater than the typical range of ambient air concentrations for north or northwest Portland.

6.0 LIMITATIONS

The information presented in this report was collected, analyzed, and interpreted following the standards of care, skill, and diligence ordinarily provided by a professional in the performance of similar services as of the time the services were performed. This report and the conclusions and/or recommendations contained in it are based solely upon research and/or observations, and physical sampling and analytical activities, if any, that were conducted at the Client's request.

The information presented in this report is based only upon activities witnessed by HAI or its contractors, and/or upon information provided to HAI by the Client and/or its contractors. The analytical data presented in this report, if any, document only the concentrations of the target analytes in the particular sample, and not the property as a whole.

Unless otherwise specified in writing, this report has been prepared solely for the use by the Client and for use only in connection with the evaluation of the subject property. Any other use by the Client or any use by any other person shall be at the user's sole risk, and HAI shall have neither liability nor responsibility with respect to such use.

Hahn and Associates, Inc.

Prepared by:

Rob B. Ede, R.G.
Sr. Associate

Date 10-6-2006

7.0 REFERENCES

DEQ (Oregon Department of Environmental Quality), 2003, *Risk-based Decision Making for the Remediation of Petroleum-Contaminated Sites*, September 22, 2003.

HAI (Hahn and Associates, Inc.), 2005, *Final Work Plan for Ambient Indoor Air Evaluation, Koppers Inc. Lease Area, NW Natural – Gasco Site, 7900 NW Front Avenue, Portland, Oregon*, June 13, 2005.

HAI (Hahn and Associates, Inc.), 2006a, *NW Natural Ambient Indoor Air Evaluation Report, Koppers Inc. Lease Area, NW Natural – Gasco Site, 7900 NW St. Helens Road, Portland, Oregon*, February 8, 2006.

HAI (Hahn and Associates, Inc.), 2006b, *Supplemental Work Plan for Ambient Indoor Air Evaluation, NW Natural Gasco Property - Koppers Industries, Inc. Lease Area, 7900 NW St. Helens Road, Portland, Oregon*, March 6, 2006.

IEQ Strategies, 1998, *BASE Study Finds 50 VOCs in "Non-Complaint" US Office Buildings,* IEQ Strategies Publication, January 1998.

8.0 GLOSSARY OF ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
BASE	Building Assessment and Survey Evaluation
BEI	biological exposure indices
BTEX	benzene, toluene, ethylbenzene, xylene
Clayton	Clayton Group Services, Inc.
COI	contaminant of interest
CRB	control room building
DCE	dichloroethene
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAI	Hahn and Associates, Inc.
KI	Koppers, Inc.
MDL	method detection limit
NIOSH	U.S. National Institute for Occupational Safety and Health
OR-OSHA	Oregon Occupational Safety & Health Division
PCE	tetrachloroethene
PEL	permissible exposure limit
PQL	practical quantitation limit
RBC	risk-based concentration
REL	recommended exposure limits
Siltronic	Siltronic Corporation, Inc.
TCE	trichloroethene
TLV	threshold limit values
ug/m^3	micrograms per cubic meter of air
VOCs	volatile organic compounds

TABLES

Koppers021016

TABLE 1 - Modified EPA Method TO-15
Analytical Limits (No Dilution), RBCs, and PELs

Analyte	Method Detection Limit	Practical Quantitation Limit	DEQ Occupational Risk-Based Concentration (RBC_{air})[1]	OR-OSHA Permissable Exposure Limit (PEL)
	(ug/m^3)			
Benzene	0.10	0.52 - 0.58	1.5	3,190
Toluene	0.08	0.62 - 0.69	1,600.	754,000
Ethybenzene	0.13	0.71 - 0.79	4,200.	435,000
m,p-Xylene	0.13	0.71 - 0.79	420[2]	435,000
o-Xylene	0.17	0.71 - 0.79	420[2]	435,000
1,2,4-Trimethylbenzene	0.10	0.81 - 0.90	25.	-
1,3,5-Trimethylbenzene	0.15	0.81 - 0.90	25.	-
Naphthalene	1.05	4.3 - 4.8	13.	50,000
Trichloroethene	0.27	0.88 - 0.98	0.1	537,000
Tetrachloroethene	0.20	1.10 - 1.20	1.9	678,000
cis-1,2-Dichloroethene	0.36	0.68 - 0.78	150.	-
trans-1,2-Dichloroethene	0.24	3.2 - 3.6	290.	-
1,1-Dichloroethene	0.20	0.65 - 0.72	830.	-
Vinyl chloride	0.10	0.42 - 0.47	2.6	2,560

Notes:
DEQ = Oregon Department of Environmental Quality
OR-OSHA = Oregon Occupational Safety & Health Division
- = there is no PEL for this compound
ug/m^3 = micrograms per cubic meter of air
1 = from *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*, DEQ, September 22, 2003, Occupational Exposure Pathway
2 = RBC is for total xylenes

Koppers021017

TABLE 2 - Summary of Analytical Results for Contaminants of Interest in Air Samples by Modified EPA Method TO-15 - March 30, 2006 Sampling Event

Sample Location	Benzene		Toluene		Ethyl Benzene		m,p-Xylene		o-Xylene		1,2,4-Trimethylbenzene		1,3,5-Trimethylbenzene	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station #1 Office Building	0.77	**2.5**	39	150	2	8.5	9	39	2.8	12	0.24	1.2	0.071 J	0.35 J
Station #2 Outside, Roof of Office Building, Control/Background	0.90	**2.9**	2.2	8.4	0.29	1.3	0.9	3.9	0.33	1.4	0.34	1.7	0.11 J	0.54 J
Station #3 Control Room Building	1.1	**3.4**	3.5	13	0.43	1.9	1.4	5.9	0.44	1.9	0.34	1.7	0.11 J	0.55 J
Station #4 Outside, North of Pencil Pitch Area, Control/Background	0.97	**3.1**	2	7.7	0.25	1.1	0.9	3.9	0.32	1.4	0.3	1.5	0.11 J	0.55 J
Station #5 Outside, North of Tank Farm, Control/Background	1.1	**3.6**	2	7.4	0.32	1.4	0.86	3.7	0.34	1.5	0.27	1.3	0.097 J	0.48 J
Station #6 Outside, Near Guard Shack, Control/Background	0.87	**2.8**	1.8	6.9	0.25	1.1	0.83	3.6	0.32	1.4	0.30	1.5	0.11 J	0.53 J
DEQ RBC[1]	–	1.5	–	1,600	–	–	–	420	–	420	–	25	–	25
OR-OSHA 8-Hour TWA-PEL	1,000	3,190	$2.0x10^5$	$7.54x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	–	–	–	–
NIOSH TWA-REL	100	320	$1.0x10^5$	$3.75x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$2.5x10^4$	$1.25x10^5$	$2.5x10^4$	$1.25x10^5$
ACGIH TWA-TLV	500	–	$5.0x10^4$	–	$1.0x10^5$	–	$1.0x10^5$	–	$1.0x10^5$	–	–	–	–	–
US EPA BASE	–	1.7 - 61	–	3.8 - 390	–	1.2 - 20	–	4.0 - 69	–	1.1 - 15	–	1.2 - 93	–	1.2 - 11
Portland Forest Heights Post Office (1999-2003)	< 0.1 - 1.6	< 0.3 - 5.1	< 0.1 - 7.7	–	< 0.1 - 1.6	–	< 0.1 - 6.5	–	< 0.1 - 2.0	–	–	–	–	–
Portland North Roselawn (1999-2003)	< 0.1 - 2.4	< 0.3 - 7.7	< 0.1 - 7.6	–	< 0.1 - 1.8	–	< 0.1 - 7.7	–	< 0.1 - 2.9	–	–	–	–	–

Notes:
ppbv: parts per billion-volume
ug/m3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Suvey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Admin.
NIOSH: National Institute for Occupational Safety & Health
ACGIH: American Conf. of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
RBC: Risk-Based Concentration
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Department of Environmental Quality
ND: Not Detected
J: Estimated value, identified concentration is below laboratory Practical Quantitation Limit
Bold: Exceeds DEQ RBC
*: 10-hour TWA
1 = from *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*, DEQ, September 22, 2003, Occupational Exposure Pathway

Koppers021018

TABLE 2 - Summary of Analytical Results for Contaminants of Interest in Air Samples by Modified EPA Method TO-15 - March 30, 2006 Sampling Event

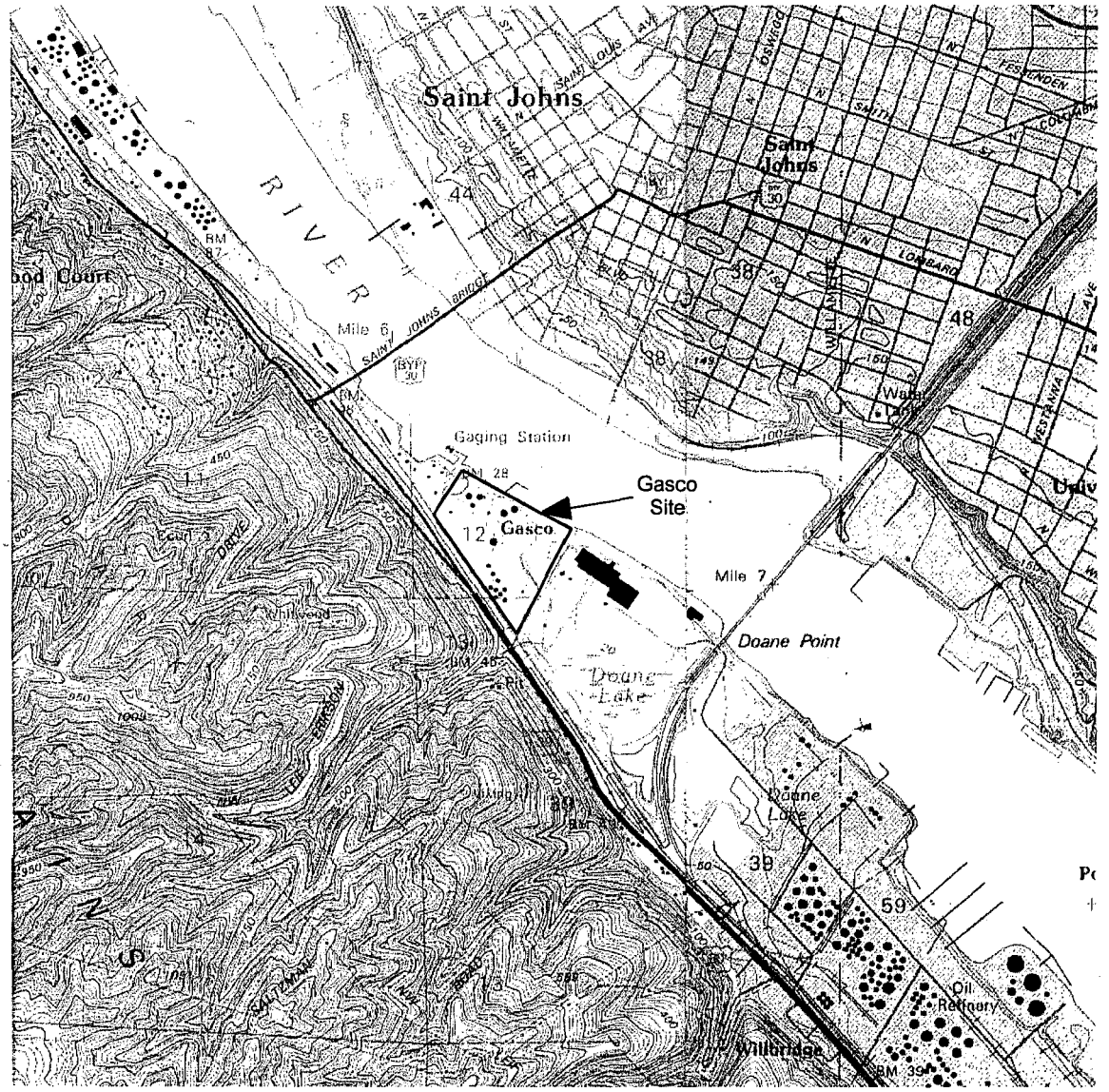
Sample Location	Naphthalene		Tetrachloroethene		Trichloroethene		cis-1,2-Dichloroethene		trans-1,2-Dichloroethene		1,1-Dichloroethene		Vinyl Chloride	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station #1 Office Building	1.6	8.2	3.8	**26**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Station #2 Outside, Roof of Office Building, Control/Background	0.092 J	0.48 J	ND	ND	0.068 J	**0.37 J**	ND	ND	ND	ND	ND	ND	ND	ND
Station #3 Control Room Building	5.8	**30**	ND	ND	0.088 J	**0.48 J**	ND	ND	ND	ND	ND	ND	ND	ND
Station #4 Outside, North of Pencil Pitch Area, Control/Background	0.12 J	0.66 J	0.12 J	0.81 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Station #5 Outside, North of Tank Farm, Control/Background	2.1	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Station #6 Outside, Near Guard Shack, Control/Background	0.83	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEQ RBC[1]	–	13	–	1.90	–	0.10	–	150	–	290	–	830	–	2.6
OR-OSHA 8-Hour TWA-PEL	1.0x10^4	5.0x10^4	1.0x10^5	678,000	1.0x10^5	5.37x10^5	–	–	–	–	–	–	1000	2560
NIOSH TWA-REL	1.0x10^4	5.0x10^4	–	–	2.5x10^{4*}	1.34x10^5	–	–	2.0x10^5	7.9x10^5	–	–	–	–
ACGIH TWA-TLV	1.0x10^4	–	2.5x10^4	170,000	5.0x10^4	2.69x10^5	2.0x10^5	–	2.0x10^5	–	5000	–	1000	–
US EPA BASE	–	2.2 - 410	–	0.7 - 56	–	0.9 - 90	–	–	–	–	–	–	–	7.5
Portland Forest Heights Post Office (1999-2003)	–	< 0.0082 - 0.0086	–	–	< 0.1 - 0.12	<0.54 - 0.65	< 0.10	–	–	–	–	–	< 0.1	–
Portland North Roselawn (1999-2003)	–	< 0.0003 - 0.0125	–	–	< 0.1 - 0.12	<0.54 - 0.65	< 0.10	–	–	–	–	–	< 0.1	–

Notes:
ppbv: parts per billion-volume
ug/m3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Suvey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Admin.
NIOSH: National Institute for Occupational Safety & Health
ACGIH: American Conf. of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
RBC: Risk-Based Concentration
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Department of Environmental Quality
ND: Not Detected
J: Estimated value, identified concentration is below laboratory Practical Quantitati
Bold: Exceeds DEQ RBC
*: 10-hour TWA
1 = from *Risk-Based Decision Making for the Remediation of Petroleum-Contamin*
DEQ, September 22, 2003, Occupational Exposure Pathway

Koppers021019

FIGURES

Koppers021020



Note: Base Map from Linnton (1990) and Portland (1990), Oregon, USGS 7.5-Minute Quadrangles

N

0 2,000 4,000

Approximate Scale in Feet
Contour Interval = 10 feet

FIGURE 1

Location Map

Koppers, Inc. Lease Area
NW Natural Gasco Site
7900 NW St. Helens Road
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 2708 March 2006

File: 2708 Location Map

Willamette River

City of Portland Outfall 22C

Siltronic Corporation

NW Natural (Gasco Site)

Administration Building

FAB 1 Building

Paved Parking

Paved Parking

LNG Containment Basin

Ponds

Koppers Inc. Lease Area

Air Sample #6 Control/Background

Air Sample #4 Control/Background

Central Facilities Building

Electrical Substation

FAB 2 Building

Pentachlorophenol Storage

84" Concrete Pipe to Willamette River

Air Sample #5 Control/Background

Control Room Building

Air Sample #3 Control Room

Stormwater Tanks

Maintenance Shop Building

Employee Service Room Building

Office Building

Air Sample #1 Office Building

Air Sample #2 Control/Background

Boiler House Building

NW Natural Pumping

Utility Easement

FAB 1 WWTP

FAB 2 WWTP

Culvert Pipe

Contractor Area

48" Culvert Pipe

NW St. Helens Road

Ditch (Ephemeral)

North Doane Lake

Note: Locations are approximate

LEGEND

- Site Boundary
- Existing Structure or Feature
- Railroad Tracks
- Air Sample Location

0 250 500

Approximate Scale in Feet

Figure 2
Site Map and Ambient Air Evaluation Sample Locations
March 30, 2006

NW Natural Gasco Site
7900 NW St. Helens Road
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 2708 March 2006

Koppers021022

Koppers021023

Willamette River

City of Portland Outfall 22C

Siltronic Corporation

NW Natural (Gasco Site)

Administration Building

FAB 1 Building

Paved Parking

Paved Parking

Paved Parking

LNG Containment Basin

Ponds

Koppers Inc. Lease Area

Air Sample #6 Control/Background

2.8

Air Sample #4 Control/Background

3.1

Hand Pitch Storage

Electrical Substation

Central Facilities Building

FAB 2 Building

84" Concrete Pipe to Willamette River

Air Sample #5 Control/Background

3.6

Stormwater Tanks

Control Room Building

Air Sample #3 Control Room

3.4

Maintenance Shop Building

Employee Service Room Building

Office Building

Air Sample #1 Office Building

2.9

2.5

Air Sample #2 Control/Background

Boiler House Building

NW Natural Pumping

Utility Easement

FAB 1 WWTP

FAB 2 WWTP

Culvert Pipe

Contractor Area

48" Culvert Pipe

NW St. Helens Road

Ditch (Ephemeral)

North Doane Lake

Note: Locations are approximate

LEGEND

- Site Boundary
- Existing Structure or Feature
- Railroad Tracks
- Air Sample Location
- 3.4 Benzene concentration in ambient air (ug/m^3). If bold, concentration exceeds DEQ RBC.

0 250 500

Approximate Scale in Feet

Figure 3
Benzene Results of the Ambient Air Evaluation
March 30, 2006

NW Natural Gasco Site
7900 NW St. Helens Road
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 2708 March 2006

Willamette River

City of Portland Outfall 22C

Siltronic Corporation

NW Natural (Gasco Site)

Administration Building

FAB 1 Building

Paved Parking

LNG Containment Basin

Ponds

Paved Parking

Koppers Inc. Lease Area

Air Sample #6 Control/Background

4.3

Air Sample #4 Control/Background

0.66 J

Central Facilities Building

Electrical Substation

FAB 2 Building

Pentachlorophenol Storage

84" Concrete Pipe to Willamette River

Air Sample #5 Control/Background

11

Control Room Building

Air Sample #3 Control Room

30

Maintenance Shop Building

Employee Service Room Building

Stormwater Tanks

Office Building

0.48 J

Air Sample #1 Office Building

8.2

Air Sample #2 Control/Background

Boiler House Building

NW Natural Pumping

FAB1 WWTP

FAB 2 WWTP

Utility Easement

Culvert Pipe

Contractor Area

48" Culvert Pipe

NW St. Helens Road

Ditch (Ephemeral)

Note: Locations are approximate

North Doane Lake

LEGEND

- Site Boundary
- Existing Structure or Feature
- Railroad Tracks
- Air Sample Location
- 39 — Napthalene concentration in ambient air (ug/m^3). If bold, concentration exceeds DEQ RBC.

J = Estimated Concentration

ND = Not Detected

0 250 500

Approximate Scale in Feet

Figure 4
Napthalene Results of the Ambient Air Evaluation March 30, 2006

NW Natural Gasco Site
7900 NW St. Helens Road
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 2708 March 2006

Koppers021024

APPENDICES

Koppers021025

A

APPENDIX A

Clayton Group Services Report

June 5, 2006

Ms. Jill S. Betts
Project Manager
HAHN AND ASSOCIATES, INC.
434 NW 6th Avenue
Suite 203
Portland, Oregon 97209

Clayton Project No. 65-06108.00

Subject: Ambient Indoor Air Evaluation at the Koppers Industries Inc. Facility

Dear Ms. Betts:

Clayton Group Services, Inc. (Clayton), a Bureau Veritas Company, is pleased to present our report for the ambient indoor air evaluation that was performed for Hahn and Associates Inc. at the Koppers Industries Inc. facility located at 7540 NW Saint Helens Road in Portland, Oregon. The volatile organic compounds sampling was conducted on March 30, 2006 at two interior locations and four exterior locations around the Koppers Site. This report contains our findings related to the assessment.

We appreciate the opportunity to provide this service for you. Please call me at 971.244.1200 with any questions or comments about this report.

Sincerely,

Scott B. Turkle, CIH
Senior Consultant
Occupational Health & Safety

ST/hm

Clayton Group Services, Inc.
A Bureau Veritas Company
1500 Northeast Irving Street, Suite 440
Portland, OR 97232

Main: (971) 244-1200
Fax: (971) 244-1209
www.us.bureauveritas.com

Ambient Indoor Air Evaluation at the Koppers Industries Inc. Facility

6/5/2006

Clayton Project No.: 65-06108.00

Hahn & Associates, Inc.
434 NW 6th Avenue
Suite 203
Portland, Oregon 97209

For the benefit of business and people

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BUREAU VERITAS

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1 Analytical Results

2 Sample Conditions at Koppers Site

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Laboratory Data Sheets

1.0 INTRODUCTION

Hahn and Associates, Inc. (Hahn) authorized Clayton Group Services, Inc. (Clayton), a Bureau Veritas Company, to conduct supplemental ambient indoor and outdoor air evaluations in and around Koppers Industries Inc. (Koppers), located at 7540 NW Saint Helens Road in Portland, Oregon. The air sampling project was conducted for NW Natural at the request of the Oregon Department of Environmental Quality (DEQ).

Air sampling was conducted for volatile organic compounds (VOC) including trichloroethylene (TCE) and its breakdown products, BTEX (benzene, toluene, ethyl benzene and xylene), and naphthalene. Summa canisters were used for typical full shift or 8-hour time-weighted average (TWA) exposure assessments. The samples were analyzed utilizing EPA Modified Method TO-15 gas chromatography with mass spectrometry. The analysis was conducted for the entire TO-15 list of chemicals plus naphthalene. Site access was coordinated with Koppers staff.

The scope of Clayton's services was described in the proposal letter PR-65OH06.171 to Hahn.

In conducting this assessment, the following tasks were performed:

- Conducted area monitoring for VOC and naphthalene at two interior locations within two different buildings and four exterior locations around the site, utilizing the DEQ approved Work Plan (dated March 6, 2006), for sample locations, analysis and reporting procedures .
- Measured the site conditions at each of the locations including the weather at the exterior locations.

Mr. Scott Turkle, Certified Industrial Hygienist (CIH), with Clayton conducted the assessment on March 30, 2006. Ms. Jill Betts, Project Manager with Hahn, provided coordination and assistance. Mr. T.J. Turner with Koppers provided site access, coordination and assistance.

2.0 BACKGROUND

Koppers leases a portion of land and currently operates a distribution facility for liquid coal tar pitch. The heated liquid coal tar pitch is imported via cargo ships, stored on site and shipped via tank rail cars or tanker trucks. Railroad siding tracks are utilized onsite and a main rail line is adjacent to the property. The coal tar distillation facility and solid pencil pitch storage facility is present on the site but are not currently active. A manufactured gas plant oil gasification facility used to operate on the property.

3.0 METHODOLOGY

3.1 SAMPLE MONITORING

Summa® canisters were set up in pre-approved sample locations at interior building locations and ground level site locations. Stainless steel evacuated (partial vacuum or negative pressure) 6-liter Summa® canisters utilize a calibrated precision critical orifice device to slowly collect representative air samples. The Summa® canisters were ordered from and analyzed by Air Toxics, Limited. Air Toxics, Limited is an accredited laboratory located in Folsom, California. All Summa® canisters were 100% certified and calibrated with matched canister, matched mass

flow controller and matched stainless steel sampling cane. They were set for an 8-hour (full work shift) integrated sampling period. The sampling canes were custom ordered to 4.5 foot above the floor or ground to simulate a breathing zone level. The use of matched canes allowed the Summa® canisters to be consistent in height while not having to be on table tops, desk tops or other surfaces where they could be knocked off or interfere with building occupants. The top of each cane was designed with an inverted curve downward to reduce the potential for rain, dust or other debris from being improperly entrained into the sample stream.

Summa® canisters were placed in the specified locations, according to the DEQ-approved locations, directly on the floor or ground in areas not likely to be bumped or disturbed by facility staff. Initial Summa® canister vacuum pressure was recorded and monitored until the end of the sample period or pressure equilibrium. In areas with potential impacts or outside wind, the Summa® canisters were secured in place with wire. Employees working adjacent to the sample locations were informed of the activity. Identification signs were attached to inform all employees. Routine inspection of the Summa® canisters was conducted throughout the sample period. All Summa® canisters had sufficient vacuum pressure to complete the planned 8-hour sample period.

At the end of the 8-hour sampling period, the final cylinder vacuum pressure was recorded and the valves were closed. Chain of custody forms were completed and all samples were maintained under direct supervision or locked until shipped via overnight air to the laboratory.

3.2 WEATHER MONITORING

As requested by DEQ, sampling was scheduled during a low pressure front passing through the region.

Exterior Summa® canister locations were subject to prevailing weather conditions. A Brunton Summit Atmospheric Data Center® meter was used for wind speed, wind direction, temperature and barometric pressure. The weather conditions for the exterior samples are reported in Table 2.

3.3 LABORATORY ANALYTICAL METHOD

Chain of custody procedures was maintained for the samples. No samples were invalidated. The samples were analyzed utilizing EPA Modified Method TO-15 plus naphthalene gas chromatography with mass spectrometry. Laboratory Quality Control and Quality Assurance standards were conducted and documented. The data was validated and J-Flagged.

4.0 GUIDELINES AND STANDARDS

The following standards and guidelines were utilized for this assessment:

- Oregon Department of Environmental Quality (DEQ) Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 2003, Appendix A: Table of RBCs (Contaminated Medium of Air, Exposure Pathway via Inhalation with the Receptor Scenario as Occupational) and Table J.4: Generic RBCs for Chlorinated Solvents (Contaminated Medium of Air, Exposure Pathway via Inhalation with the Receptor Scenario as Occupational)

- Oregon Department of Consumer & Business Services, Oregon Occupational Safety & Health Division (OR-OSHA), 8-Hour TWA Permissible Exposure Limits (PELs)
- US Environmental Protection Agency (EPA) Building Assessment and Survey Evaluation (BASE) database of indoor environmental conditions in buildings
- US National Institute for Occupational Safety and Health (NIOSH), Recommended Exposure Limits (RELs), January 2003
- American Conference of Governmental Industrial Hygienists (ACGIH), 2005 Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs) booklet

5.0 AREA MONITORING RESULTS

The area VOC monitoring results are summarized in Table 1 with full laboratory results included in the Appendix. Sample conditions are summarized in Table 2. Many of the samples did not have detectable airborne concentrations for most of the individual chemicals analyzed by the EPA TO-15 Method.

None of the sample analysis detected concentrations at or near the Oregon Occupational Safety & Health Division Permissible Exposure Limits. None of the samples detected levels at or near the NIOSH RELs or ACGIH TLV recommended levels.

Benzene was detected above the DEQ RBC level of 1.5 micrograms per cubic meter (ug/m^3) of air at all Sample Stations. Station #1 measured 2.5 ug/m^3, #2 at 2.9 ug/m^3, #3 at 3.4 ug/m^3, #4 at 3.1 ug/m^3, #5 at 3.6 ug/m^3, and #6 at 2.8 ug/m^3. The range was between 2.5 ug/m^3 and 3.6 ug/m^3, the latter of which was an outdoor Sample Station. No pattern could be determined between interior and exterior samples or site location.

Trichloroethylene was detected above the DEQ RBC of 0.10 ug/m^3 at two Sample Stations. Station #2 measured a concentration of 0.37 ug/m^3, and Station #3 measured a concentration of 0.48 ug/m^3. Both sampled values are J flag estimated. No pattern could be determined between interior and exterior samples or site location.

Naphthalene was detected above the DEQ RBC of 13 ug/m^3at Sample Station #3 at 30 ug/m^3. The measurements ranged from 0.48 ug/m^3 and 30ug/m^3.

Tetrachloroethene was detected above the DEQ RBC of 1.9 ug/m^3 at Sample Station #1 with a measurement of 26 ug/m^3. Station #4 measured 0.81 ug/m^3, which is a J flag estimated value. All other samples did not have detectable levels.

6.0 OBSERVATIONS AND DISCUSSION

The facility operations proceeded typically throughout the sampling period. Several tanker trucks were reported having already been loaded with warmed coal tar pitch and departed during the sampling period. No rail traffic was observed. All building ventilation systems were operating as usual, as reported by the available site staff.

Air samples were taken inside a typically occupied Office Building and the Control Room Building. Typical office usage chemicals were present including a copier machine, computer printer, ink pens, marker pens, high lighter pens, 'white out' supplies and other solvent based

items. Several solvents including carbon disulfide, acetone, toluene and xylenes were located down the hall in the Quality Control laboratory room. No chemical laboratory work activities were observed and all of the solvents were stored in closed containers inside a flammable storage cabinet. Cleaning supplies included Windex®, toilet cleaner, soaps and Derma-Shield®.

The Office Building had a recirculating heating ventilating and air conditioning 'package' system located on the roof. The site employees or Clayton staff could not locate a fresh air inlet. The Office Building has ceiling mounted supply and return ducts. The Control Room had two typical window air conditioners that did not have a fresh air supply control option so it could not be determined if or how much outdoor air was being supplied. The Office Building and the Control Room Building were both under neutral pressure to the outdoors.

Limited vehicle use is allowed within the fenced-in facility with full employee access and parking allowed within the fenced-in site. The site has an active truck and railroad siding and railroad use adjacent to the west fence with busy US Highway 30 just beyond that. The Willamette River on the north side is busy with commercial and private boats. Benzene and naphthalene are commonly present in motor vehicle fuels (boats, trains, cars and trucks) and commonly found in urban and port areas. The air samples reported by DEQ in an air survey at the Portland Forest Heights Post Office and Portland North Roselawn detected benzene levels ranging from <0.3 to 7.7 ug/m^3.

Typical creosote or pitch odors believed to be from the pitch handling activities or railroad track ties were noted during sample setup and periodic sample inspection on the site.

The weather was cool and overcast with occasional light rain, calm winds and a moderately low pressure weather system. Calm winds could reduce the mixing or dilution effect from any potential chemical source. Less wind also tends to keep potential air pollution within the river valley.

OR-OSHA has authority for this site and their regulations meet or exceed the US Federal OSHA regulations. OR-OSHA 8-Hour TWA PELs are included since the site and sampling employees are potentially being exposed to these chemicals in the workplace. PELs are set to protect typical workers in an occupational exposure location. The NIOSH and ACGIH 8-Hour TWA recommendations are not regulations but are provided as general industry standards for employee exposures.

The components and the break down by-products of petroleum products are commonly called BTEX for benzene, toluene, ethyl benzene and xylenes. Air sample concentrations consistent with typical urban locations were detected and consistent with the DEQ reported air survey at the Portland Forest Heights Post Office and Portland North Roselawn. While trichloroethene was reported as having concentrations above DEQ RBC requirements, its breakdown by-products, including 1,1-dichloroethene, vinyl chloride, trans-1,2-dichloroethene and cis-1,2-dichloroethene, were low or non-detected.

The US EPA Building Assessment and Survey Evaluation (BASE) reports that certain typical chemicals including BTEX are commonly found in buildings. Reported typical levels include: benzene at 1.7 to 61 ug/m^3, toluene at 3.8 to 390 ug/m^3, m- and p-xylenes at 4.0 to 69 ug/m^3, o-xylene at 1.1 to 15 ug/m^3, acetone at 12 to 240 ug/m^3, ethanol at 1.5 to 300 ug/m^3 and iso-propanol at 3.7 to 570 ug/m^3. The DEQ reported air survey at the Portland Forest Heights Post Office and Portland North Roselawn are within similar levels to those reported in the US EPA BASE report and the results of this study.

7.0 CONCLUSIONS

Clayton's conclusions are based on its observations, including results from the Summa® canister monitoring. Per the scope of work in the surveyed areas, no occupational safety and health conditions were discovered that appear to violate any of the OR-OSHA or Federal OSHA regulations for 8-Hour Time Weighted Average Permissible Exposure Levels.

Benzene, trichloroethene, naphthalene and tetrachloroethene were the only chemicals to exceed the DEQ Risk Based Concentrations (RBC) for inhalation based exposures in air in an occupational scenario. The RBC for benzene is 1.5 ug/m^3, trichloroethene is 0.10 ug/m^3, naphthalene is 30 ug/m^3 and the RBC for tetrachloroethene is 1.9 ug/m^3. However, all identified levels were within the range typical for urban air.

Report prepared by:

Scott B. Turkle, CIH
Senior Consultant
Occupational Health and Safety

Report reviewed by:

Venetia Runnion, CIH, CSP
Senior Consultant
Occupational Health and Safety

June 5, 2006

TABLES

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	Freon 12		Freon 114		Chloromethane		Vinyl Chloride		Bromomethane		Chloroethane		Freon 11		1,1-Dichloroethene		Freon 113		1,1-Dichloroethane		cis-1,2-Dichloroethene	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station 1: In Office Building in the main office area, between offices	0.65	3.2	ND	ND	0.80	1.6	ND	ND	ND	ND	ND	ND	0.45	2.5	ND	ND	ND	ND	ND	ND	ND	ND
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	0.74	3.7	ND	ND	0.74	1.5	ND	ND	ND	ND	ND	ND	0.37	2.1	ND	ND	0.13	0.97 J	ND	ND	ND	ND
Station 3: In Control Room Building, in main room, west of west desk	0.72	3.6	ND	ND	0.88	1.8	ND	ND	0.16	0.62	ND	ND	0.41	2.3	ND	ND	ND	ND	ND	ND	ND	ND
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	0.81	4.0	ND	ND	1.0	2.1	ND	ND	ND	ND	ND	ND	0.45	2.6	ND	ND	ND	ND	ND	ND	ND	ND
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	0.67	3.3	ND	ND	3.2	6.7	ND	ND	0.14 J	0.53 J	0.34	0.90	0.36	2.0	ND	ND	ND	ND	ND	ND	ND	ND
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	0.68	3.4	ND	ND	0.87	1.8	ND	ND	ND	ND	ND	ND	0.32	1.8	ND	ND	0.13 J	0.99 J	ND	ND	ND	ND
US EPA BASE	--	--	--	--	--	1.3 - 22	--	7.5	--	1.1 - 4.6	--	1.4 - 57	--	1.7 - 170	--	--	--	--	--	--	--	--
OR-OSHA 8-Hour TWA-PEL	$1.0x10^6$	$4.95x10^6$	$1.0x10^6$	$7.0x10^6$	$1.0x10^5$	$2.05x10^5$	1000	--	--	--	$1.0x10^6$	$2.6x10^6$	$1.0x10^6$	$5.6x10^6$	--	--	$1.0x10^6$	$7.6x10^6$	$1.0x10^5$	$4.0x10^5$	--	--
NIOSH 8-Hour TWA-REL	$1.0x10^6$	$4.95x10^6$	$1.0x10^6$	$7.0x10^6$	--	--	--	--	--	--	--	--	--	--	--	--	$1.0x10^6$	$7.6x10^6$	$1.0x10^5$	$4.0x10^5$	--	--
ACGIH 8-Hour TWA-TLV	$1.0x10^6$	--	$1.0x10^6$	--	$5.0x10^4$	--	1000	--	1000	--	$1.0x10^5$	--	--	--	5000	--	$1.0x10^6$	--	$1.0x10^5$	--	$2.0x10^5$	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	--	--	--	--	--	--	2.6	--	--	--	--	--	--	--	830	--	--	--	--	--	150
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	< 0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.10	--
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	< 0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.10	--

Notes:
ppbv: parts per billion-volume
ug/m^3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Survey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Administration
NIOSH: National Institute for Occupational Safety & Health
ACGIH: American Conference of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021037

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	Chloroform		1,1,1-Trichloroethane		Carbon Tetrachloride		Benzene		1,2-Dichloroethane		Trichloroethene		1,2-Dichloropropane		cis-1,3-Dichloropropene		Toluene		trans-1,3-Dichloropropene	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station 1: In Office Building in the main office area, between offices	ND	ND	ND	ND	0.095 J	0.60 J	0.77	2.5	ND	ND	ND	ND	ND	ND	ND	ND	39	150	ND	ND
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	ND	ND	ND	ND	ND	ND	0.90	2.9	ND	ND	0.068 J	0.37 J	ND	ND	ND	ND	2.2	8.4	ND	ND
Station 3: In Control Room Building, in main room, west of west desk	ND	ND	ND	ND	0.14 J	0.92 J	1.1	3.4	ND	ND	0.088 J	0.48 J	ND	ND	ND	ND	3.5	13	ND	ND
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	ND	ND	ND	ND	0.36	2.3	0.97	3.1	ND	ND	ND	ND	ND	ND	ND	ND	2.0	7.7	ND	ND
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	ND	ND	ND	ND	ND	ND	1.1	3.6	ND	ND	ND	ND	ND	ND	ND	ND	2.0	7.4	ND	ND
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	ND	ND	ND	ND	0.13 J	0.80 J	0.87	2.8	ND	ND	ND	ND	ND	ND	ND	ND	1.8	6.9	ND	ND
US EPA BASE	--	0.6 - 8.6	--	1.3 - 52		0.9 - 2.1	--	1.7 - 61	--	1.0 - 85	--	0.9 - 90	--	--	--	--	--	3.8 - 390	--	--
OR-OSHA 8-Hour TWA-PEL	--	--	$3.5x10^5$	$1.9x10^6$	$1.0x10^4$	--	1000	--	$5.0x10^4$	--	$1.0x10^5$	--	$7.5x10^4$	$3.5x10^5$	--	--	$2.0x10^5$	--	--	--
NIOSH 8-Hour TWA-REL	--	--	--	--	--	--	100	320	1000	4000	$2.5x10^4$*	--	--	--	--	--	$1.0x10^5$	$3.75x10^5$	--	--
ACGIH 8-Hour TWA-TLV	$1.0x10^4$	--	$3.5x10^5$	--	5000	--	500	--	$1.0x10^4$	--	$5.0x10^4$	--	$7.5x10^4$	--	--	--	$5.0x10^4$	--	--	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	--	--	9200	--	--	--	1.5	--	--	--	0.10	--	--	--	--	--	1600	--	--
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	< 0.1 - 1.6	< 0.3 - 5.1	--	--	< 0.1 - 0.12	--	--	--	--	--	< 0.1 - 7.7	--	--	--
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	< 0.1 - 2.4	< 0.3 - 7.7	--	--	< 0.1 - 0.12	--	--	--	--	--	< 0.1 - 7.6	--	--	--

Notes:
ppbv: parts per billion-volume
ug/m^3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Survey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Administration
NIOSH: National Institute for Occupational Safety & Health
ACGIH: American Conference of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021038

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	1,1,2-Trichloroethane		Tetrachloroethene		1,2-Dibromoethane (EDB)		Chlorobenzene		Ethyl Benzene		m,p-Xylene		o-Xylene		Styrene		1,1,2,2-Tetrachloroethane		1,3,5-Trimethylbenzene	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station 1: In Office Building in the main office area, between offices	ND	ND	3.8	26	ND	ND	ND	ND	2.0	8.5	9.0	39	2.8	12	ND	ND	ND	ND	0.071 J	0.35 J
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	ND	ND	ND	ND	ND	ND	ND	ND	0.29	1.3	0.90	3.9	0.33	1.4	0.12 J	0.50 J	ND	ND	0.11 J	0.54 J
Station 3: In Control Room Building, in main room, west of west desk	ND	ND	ND	ND	ND	ND	ND	ND	0.43	1.9	1.4	5.9	0.44	1.9	0.51	2.2	ND	ND	0.11 J	0.55 J
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	ND	ND	0.12 J	0.81 J	ND	ND	ND	ND	0.25	1.1	0.90	3.9	0.32	1.4	0.13 J	0.54 J	ND	ND	0.11 J	0.55 J
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	ND	ND	ND	ND	ND	ND	ND	ND	0.32	1.4	0.86	3.7	0.34	1.5	0.12 J	0.51 J	ND	ND	0.097 J	0.48 J
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	ND	ND	ND	ND	ND	ND	ND	ND	0.25	1.1	0.83	3.6	0.32	1.4	0.11 J	0.46 J	ND	ND	0.11 J	0.53 J
US EPA BASE	--	--	--	0.7 - 56	--	1.5	--	1.1 - 1.4	--	1.2 - 20	--	4.0 - 69	--	1.1 - 15	--	0.6 - 40	--	--	--	1.2 - 11
OR-OSHA 8-Hour TWA-PEL	$1.0x10^4$	$4.5x10^4$	$1.0x10^5$	--	$2.0x10^4$	--	$7.5x10^4$	$3.5x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	--	5000	$3.5x10^4$	--	--
NIOSH 8-Hour TWA-REL	$1.0x10^4$	$4.5x10^4$	--	--	45	--	--	--	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$1.0x10^5$	$4.35x10^5$	$5.0x10^4$	$2.15x10^5$	1000	7000	$2.5x10^4$	$1.25x10^5$
ACGIH 8-Hour TWA-TLV	$1.0x10^4$	--	$2.5x10^4$	--	--	--	$1.0x10^4$	--	$1.0x10^5$	--	$1.0x10^5$	--	$1.0x10^5$	--	$2.0x10^4$	--	1000	--	--	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	--	--	1.9	--	0.053	--	--	--	4,200	--	420	--	420	--	--	--	--	--	25
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	--	--	< 0.1 - 1.6	--	< 0.1 - 6.5	--	< 0.1 - 2.0	--	--	--	< 0.1 - 4.7	--	--	--
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	--	--	< 0.1 - 1.8	--	< 0.1 - 7.7	--	< 0.1 - 2.9	--	--	--	< 0.1 - 1.2	--	--	--

Notes:
ppbv: parts per billion-volume
ug/m^3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Survey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Administration
NIOSH: National Institute for Occupational Safety & Health
ACGIH: American Conference of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021039

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	1,2,4-Trimethylbenzene		1,3-Dichlorobenzene		1,4-Dichlorobenzene		alpha-Chlorotoluene		1,2-Dichlorobenzene		Methylene Chloride		1,2,4-Trichlorobenzene		Hexachlorobutadiene		1,3-Butadiene		Acetone	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station 1: In Office Building in the main office area, between offices	0.24	1.2	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	1.1	ND	ND	ND	ND	0.25 J	0.56 J	16	39
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	0.34	1.7	ND	ND	ND	ND	ND	ND	ND	ND	0.39	1.4	ND	ND	ND	ND	0.26 J	0.57 J	4.8	11
Station 3: In Control Room Building, in main room, west of west desk	0.34	1.7	ND	ND	0.12 J	0.69 J	ND	ND	ND	ND	0.38	1.3	ND	ND	ND	ND	0.32 J	0.72 J	11	27
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	0.30	1.5	ND	ND	ND	ND	ND	ND	ND	ND	0.44 J	1.5 J	ND	ND	ND	ND	ND	ND	5.0	12
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	0.27	1.3	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	1.2 J	ND	ND	ND	ND	0.24 J	0.53 J	11	27
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	0.30	1.5	ND	ND	ND	ND	ND	ND	ND	ND	0.35	1.2	ND	ND	ND	ND	0.23 J	0.51 J	5.4	13
US EPA BASE	--	1.2 - 93	--	--	--	1.2 - 46	--	--	--	1.7	--	1.7 - 29	--	--	--	--	--	--	--	12 - 240
OR-OSHA 8-Hour TWA-PEL	--	--	--	--	$7.5x10^4$	$4.5x10^5$	1000	5000	--	--	$2.5x10^4$	--	--	--	--	--	1000	2210	$1.0x10^6$	$2.4x10^6$
NIOSH 8-Hour TWA-REL	$2.5x10^4$	$1.25x10^5$	--	--	--	--	--	--	--	--	--	--	--	--	20	240	--	--	$2.5x10^5$	$5.9x10^5$
ACGIH 8-Hour TWA-TLV	--	--	--	--	$1.0x10^4$	--	1000	--	$2.5x10^4$	--	$5.0x10^4$	--	--	--	20	--	2000	--	$5.0x10^5$	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
ppbv: parts per billion-volume
ug/m^3: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
BASE: Building Assessment and Survey Evaluation
OR-OSHA: Oregon Occupational Safety & Health Administration
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ACGIH: American Conference of Governmental Industrial Hygienists
TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021040

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	Carbon Disulfide		2-Propanol		trans-1,2-Dichloroethene		2-Butanone (Methyl Ethyl Ketone)		Hexane		Tetrahydrofuran		Cyclohexane		1,4-Dioxane		Bromodichloro methane		4-Methyl-2-pentanone		2-Hexanone	
	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³	ppbv	ug/m³
Station 1: In Office Building in the main office area, between offices	0.18 J	0.55 J	2.8	7.0	ND	ND	1.2	3.7	0.75 J	2.6 J	0.34 J	1.0 J	0.35 J	1.2 J	ND	ND	ND	ND	0.10 J	0.42 J	0.094 J	0.38 J
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	0.33 J	1.0 J	1.3	3.3	ND	ND	0.68	2.0	0.59 J	2.1 J	0.36 J	1.1 J	0.22 J	0.74 J	ND	ND	ND	ND	ND	ND	ND	ND
Station 3: In Control Room Building, in main room, west of west desk	0.42 J	1.3 J	2.8	6.9	ND	ND	1.7	5.1	0.58 J	2.1 J	0.82	2.4	0.18 J	0.63 J	ND	ND	ND	ND	0.17 J	0.70 J	0.094 J	0.38 J
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	0.59 J	1.8 J	2.3	5.6	ND	ND	0.77 J	2.3 J	0.65 J	2.3 J	1.0 J	2.9 J	0.28 J	0.95 J	ND	ND	ND	ND	ND	ND	ND	ND
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	0.40 J	1.3 J	1.4	3.5	ND	ND	2.0	6.0	0.60 J	2.1 J	1.1	3.4	0.20 J	0.70 J	ND	ND	ND	ND	ND	ND	ND	ND
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	0.32 J	0.98 J	1.2	3.1	ND	ND	0.89	2.6	0.64 J	2.2 J	0.65 J	1.9 J	0.28 J	0.97 J	ND	ND	ND	ND	ND	ND	ND	ND
US EPA BASE	--	0.8 - 15	--	3.7 - 570	--	--	--	1.4 - 28	--	1.6 - 130	--	--	--	--	--	--	--	--	--	1.6 - 73	--	--
OR-OSHA 8-Hour TWA-PEL	$2.0x10^4$	--	$4.0x10^5$	$9.8x10^5$	--	--	$2.0x10^5$	$5.9x10^5$	$5.0x10^5$	$1.8x10^6$	$2.0x10^5$	$5.9x10^5$	$3.0x10^5$	$1.05x10^6$	$1.0x10^5$	$3.6x10^5$	--	--	$1.0x10^5$	$4.1x10^5$	$1.0x10^5$	$4.1x10^5$
NIOSH 8-Hour TWA-REL	--	--	$4.0x10^5$	$9.8x10^5$	--	--	$2.0x10^5$	$5.9x10^5$	$5.0x10^4$	$1.8x10^5$	$2.0x10^5$	$5.9x10^5$	$3.0x10^5$	$1.05x10^6$	--	--	--	--	$5.0x10^4$	$2.05x10^5$	$5.0x10^4$	$2.05x10^5$
ACGIH 8-Hour TWA-TLV	$1.0x10^4$	--	$2.0x10^5$	--	--	--	$2.0x10^5$	--	$5.0x10^4$	--	$5.0x10^4$	--	$1.0x10^5$	--	$2.0x10^4$	--	--	--	$5.0x10^4$	--	5000	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	--	--	--	--	290	--	--	--	--	--	--	--	--	--	3.7	--	--	--	--	--	--
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
ppbv: parts per billion-volume
ug/m³: micrograms per cubic meter
US EPA: United States Environmental Protection Agency
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TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
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TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021041

TABLE 1
Analytical Results
for the
Koppers Facility in Portland, Oregon
Clayton Project No.: 65-06108.00
March 30, 2006

Sample Location	Dibromochloromethane		Bromoform		4-Ethyltoluene		Ethanol		Methyl tert-butyl ether		Heptane		Cumene		Propylbenzene		Naphthalene	
	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3	ppbv	ug/m^3
Station 1: In Office Building in the main office area, between offices	ND	ND	ND	ND	0.20 J	0.98 J	83 E B	160 E B	ND	ND	0.38 J	1.5 J	ND	ND	0.046 J	0.22 J	1.6	8.2
Station 2: Outdoors, on roof of the Office Building, center, southeast side of HVAC unit	ND	ND	ND	ND	0.30 J	1.5 J	6.1 B	11 B	ND	ND	0.33 J	1.4 J	ND	ND	0.061 J	0.30 J	0.092 J	0.48 J
Station 3: In Control Room Building, in main room, west of west desk	ND	ND	ND	ND	0.28 J	1.4 J	12 B	24 B	ND	ND	0.32 J	1.3 J	ND	ND	0.060 J	0.29 J	5.8	30
Station 4: Outdoors, at grade, north of Pencil Pitch Storage Building, ~28 feet northeast of north corner of building	ND	ND	ND	ND	0.30 J	1.5 J	9.4	18	ND	ND	0.33 J	1.4 J	ND	ND	0.059 J	0.29 J	0.12 J	0.66 J
Station 5: Outdoors, at grade, north of the containment wall for the tank farm, ~65 feet west of tank	ND	ND	ND	ND	0.28 J	1.4 J	6.7	13	ND	ND	0.49 J	2.0 J	ND	ND	0.066 J	0.032 J	2.1	11
Station 6: Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance, by fence	ND	ND	ND	ND	0.29 J	1.4 J	4.5	8.4	ND	ND	0.30 J	1.2 J	ND	ND	0.060 J	0.30 J	0.83	4.3
US EPA BASE	--	--	--	--	--	1.2 - 11	--	1.5 - 300	--	2.6 - 19	--	2.1 - 36	--	--	--	--	--	2.2 - 410
OR-OSHA 8-Hour TWA-PEL	--	--	500	5000	--	--	$1.0x10^6$	$1.9x10^6$	--	--	$5.0x10^5$	$2.0x10^6$	$5.0x10^4$	$2.45x10^5$	--	--	$1.0x10^4$	$5.0x10^4$
NIOSH 8-Hour TWA-REL	--	--	500	5000	--	--	$1.0x10^6$	$1.9x10^6$	--	--	$8.5x10^4$	$3.5x10^5$	$5.0x10^4$	$2.45x10^5$	--	--	$1.0x10^4$	$5.0x10^4$
ACGIH 8-Hour TWA-TLV	--	--	500	--	--	--	$1.0x10^6$	--	$5.0x10^4$	--	$4.0x10^5$	--	$5.0x10^4$	--	--	--	$1.0x10^4$	--
DEQ RBDM, Remediation of Petroleum-Contaminated Sites	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	580	--	13
Portland Forest Heights Post Office (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0003 - 0.0086
Portland North Roselawn (1999-2003)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0003 - 0.0125

Notes:
ppbv: parts per billion-volume
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TWA: Time-Weighted Average
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
TLV: Threshold Limit Value
DEQ: Oregon Department of Environmental Quality
RBDM: Risk-Based Decision Making
ND: Not Detected
J: Estimated value
E: Exceeds instrument calibration range
B: Compound present in laboratory blank greater than reporting limit, background subtraction not performed
*: 10-hour TWA

Koppers021042

Table 2
Sample Conditions at
Koppers Inc. Site
Clayton Project No. 65-06003.00
March 30, 2006

Station	Location	Time On (AM)	Summa Vacuum (" Hg)	Time Off (PM)	Summa Vacuum (" Hg)	Ambient Conditions
1	Office Building, in the main office area, between offices	6:33	29.0	2:33	6.1	At 9:46 am, 74.3 °F, 29.93 " Hg. Neutral pressure to outside, air handler only recirculates air.
2	Outdoors, on roof of the Office Building, southeast side of HVAC unit	7:08	30.0	1:10	0.0	At 9:05 am, 63.4 °F, 29.93 " Hg. Wind from the southeast, calm to 0.2 mph.
3	Control Room Building, in main room	6:45	28.3	2:47	1.6	At 8:53 am, 63.5 °F, 29.95 " Hg. Neutral pressure to outside, one recirculating window air conditioners operating.
4	Outdoors, at grade, North of Pencil Pitch Storage Building	6:56	30.0	2:53	6.7	At 8:25 am, 54.3 °F, 29.94 " Hg. Winds calm
5	Outdoors, at grade, North of the containment wall for that tank farm	6:59	30.0	2:58	9.8	At 8:40 am, 52.3 °F, 29.94 " Hg. Winds calm At 1:23 pm, 60.9 °F, 29.87 " Hg. Wind from the southeast, calm to 6.7 mph.
6	Outdoors, at grade, southeast of Guard Shack at the Gasco Site entrance	6:14	30.0	2:14	5.8	At 8:15 am, 54.2 °F, 29.94 " Hg. Winds calm At 1:38 pm, 60.4 °F, 29.86 " Hg. Wind from the southeast calm to 4.9 mph.

Notes:
" Hg: inches of mercury pressure
°F: degrees Fahrenheit
mph: miles per hour, wind speed

APPENDIX

LABORATORY DATA SHEETS

AIR TOXICS LTD.

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Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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Hours 8:00 A.M to 6:00 P.M. Pacific

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0603708

Work Order Summary

CLIENT:	Mr. Scott Turkle Clayton Group Services 1500 NE Irving Street, Suite 440 Portland, OR 97232	**BILL TO:**	Mr. Scott Turkle Clayton Group Services 1500 NE Irving Street, Suite 440 Portland, OR 97232
PHONE:	971-244-1200	**P.O. #**	
FAX:	971-244-1209	**PROJECT #**	65-06108.00 Hahn-Koppers
DATE RECEIVED:	03/31/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	04/13/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	in Office Building	Modified TO-15	4.5 "Hg
02A	Roof of Office Bldg	Modified TO-15	0.0 "Hg
03A	Control Room	Modified TO-15	4.5 "Hg
04A	North of Pencil Pitch	Modified TO-15	5.0 "Hg
05A	North of wall, tankfarm	Modified TO-15	9.0 "Hg
06A	Gasco Guard Shack	Modified TO-15	5.0 "Hg
07A	Lab Blank	Modified TO-15	NA
07B	Lab Blank	Modified TO-15	NA
08A	CCV	Modified TO-15	NA
08B	CCV	Modified TO-15	NA
09A	LCS	Modified TO-15	NA
09B	LCS	Modified TO-15	NA

CERTIFIED BY: Linda J. Fruman DATE: 04/13/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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Koppers021046

LABORATORY NARRATIVE
Modified TO-15
Clayton Group Services
Workorder# 0603708

Six 6 Liter Summa Special (100% Certified) samples were received on March 31, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-15*	*ATL Modifications*
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	</= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

Receiving Notes

The Chain of Custody (COC) information for sample #9942, Roof of Office Bldg did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

All Quality Control Limit failures and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

The reported LCS for each daily batch has been derived from more than one analytical file.

As per project specific client request, the laboratory has reported estimated values for target compounds that are detected below the Reporting Limit but greater than the Method Detection Limit. Concentrations below the level at which the canister was certified (at the Reporting Limit) may be false positives.

Koppers021047

Ethanol was detected in the laboratory blank analyzed on April 6, 2006 at less than 5X the reporting limit. Associated samples that contained Ethanol were flagged as indicated.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Koppers021048

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: in Office Building

Lab ID#: 0603708-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.65	0.78	3.2
Chloromethane	0.16	0.80	0.33	1.6
Freon 11	0.16	0.45	0.89	2.5
Carbon Tetrachloride	0.16	0.095 J	0.99	0.60 J
Benzene	0.16	0.77	0.50	2.5
Toluene	0.16	39	0.60	150
Tetrachloroethene	0.16	3.8	1.1	26
Ethyl Benzene	0.16	2.0	0.69	8.5
m,p-Xylene	0.16	9.0	0.69	39
o-Xylene	0.16	2.8	0.69	12
1,3,5-Trimethylbenzene	0.16	0.071 J	0.78	0.35 J
1,2,4-Trimethylbenzene	0.16	0.24	0.78	1.2
Methylene Chloride	0.32	0.31 J	1.1	1.1
1,3-Butadiene	0.79	0.25 J	1.7	0.56 J
Acetone	0.79	16	1.9	39
Carbon Disulfide	0.79	0.18 J	2.5	0.55 J
2-Propanol	0.79	2.8	1.9	7.0
2-Butanone (Methyl Ethyl Ketone)	0.79	1.2	2.3	3.7
Hexane	0.79	0.75 J	2.8	2.6 J
Tetrahydrofuran	0.79	0.34 J	2.3	1.0 J
Cyclohexane	0.79	0.35 J	2.7	1.2 J
4-Methyl-2-pentanone	0.79	0.10 J	3.2	0.42 J
2-Hexanone	0.79	0.094 J	3.2	0.38 J
4-Ethyltoluene	0.79	0.20 J	3.9	0.98 J
Ethanol	0.79	83 E B	1.5	160 E B
Heptane	0.79	0.38 J	3.2	1.5 J
Propylbenzene	0.79	0.046 J	3.9	0.22 J
Naphthalene	0.79	1.6	4.1	8.2

Client Sample ID: Roof of Office Bldg

Lab ID#: 0603708-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.13	0.74	0.66	3.7
Chloromethane	0.13	0.74	0.28	1.5
Freon 11	0.13	0.37	0.75	2.1
Freon 113	0.13	0.13	1.0	0.97 J

Koppers021049

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: Roof of Office Bldg

Lab ID#: 0603708-02A

Benzene	0.13	0.90	0.43	2.9
Trichloroethene	0.13	0.068 J	0.72	0.37 J
Toluene	0.13	2.2	0.50	8.4
Ethyl Benzene	0.13	0.29	0.58	1.3
m,p-Xylene	0.13	0.90	0.58	3.9
o-Xylene	0.13	0.33	0.58	1.4
Styrene	0.13	0.12 J	0.57	0.50 J
1,3,5-Trimethylbenzene	0.13	0.11 J	0.66	0.54 J
1,2,4-Trimethylbenzene	0.13	0.34	0.66	1.7
Methylene Chloride	0.27	0.39	0.93	1.4
1,3-Butadiene	0.67	0.26 J	1.5	0.57 J
Acetone	0.67	4.8	1.6	11
Carbon Disulfide	0.67	0.33 J	2.1	1.0 J
2-Propanol	0.67	1.3	1.6	3.3
2-Butanone (Methyl Ethyl Ketone)	0.67	0.68	2.0	2.0
Hexane	0.67	0.59 J	2.4	2.1 J
Tetrahydrofuran	0.67	0.36 J	2.0	1.1 J
Cyclohexane	0.67	0.22 J	2.3	0.74 J
4-Ethyltoluene	0.67	0.30 J	3.3	1.5 J
Ethanol	0.67	6.1 B	1.3	11 B
Heptane	0.67	0.33 J	2.7	1.4 J
Propylbenzene	0.67	0.061 J	3.3	0.30 J
Naphthalene	0.67	0.092 J	3.5	0.48 J

Client Sample ID: Control Room

Lab ID#: 0603708-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.72	0.78	3.6
Chloromethane	0.16	0.88	0.33	1.8
Bromomethane	0.16	0.16	0.61	0.62
Freon 11	0.16	0.41	0.89	2.3
Carbon Tetrachloride	0.16	0.14 J	0.99	0.92 J
Benzene	0.16	1.1	0.50	3.4
Trichloroethene	0.16	0.088 J	0.85	0.48 J
Toluene	0.16	3.5	0.60	13
Ethyl Benzene	0.16	0.43	0.69	1.9
m,p-Xylene	0.16	1.4	0.69	5.9
o-Xylene	0.16	0.44	0.69	1.9

Koppers021050

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: Control Room

Lab ID#: 0603708-03A

Styrene	0.16	0.51	0.67	2.2
1,3,5-Trimethylbenzene	0.16	0.11 J	0.78	0.55 J
1,2,4-Trimethylbenzene	0.16	0.34	0.78	1.7
1,4-Dichlorobenzene	0.16	0.12 J	0.95	0.69 J
Methylene Chloride	0.32	0.38	1.1	1.3
1,3-Butadiene	0.79	0.32 J	1.7	0.72 J
Acetone	0.79	11	1.9	27
Carbon Disulfide	0.79	0.42 J	2.5	1.3 J
2-Propanol	0.79	2.8	1.9	6.9
2-Butanone (Methyl Ethyl Ketone)	0.79	1.7	2.3	5.1
Hexane	0.79	0.58 J	2.8	2.1 J
Tetrahydrofuran	0.79	0.82	2.3	2.4
Cyclohexane	0.79	0.18 J	2.7	0.63 J
4-Methyl-2-pentanone	0.79	0.17 J	3.2	0.70 J
2-Hexanone	0.79	0.094 J	3.2	0.38 J
4-Ethyltoluene	0.79	0.28 J	3.9	1.4 J
Ethanol	0.79	12 B	1.5	24 B
Heptane	0.79	0.32 J	3.2	1.3 J
Propylbenzene	0.79	0.060 J	3.9	0.29 J
Naphthalene	0.79	5.8	4.1	30

Client Sample ID: North of Pencil Pitch

Lab ID#: 0603708-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.23	0.81	1.1	4.0
Chloromethane	0.23	1.0	0.48	2.1
Freon 11	0.23	0.45	1.3	2.6
Carbon Tetrachloride	0.23	0.36	1.4	2.3
Benzene	0.23	0.97	0.74	3.1
Toluene	0.23	2.0	0.87	7.7
Tetrachloroethene	0.23	0.12 J	1.6	0.81 J
Ethyl Benzene	0.23	0.25	1.0	1.1
m,p-Xylene	0.23	0.90	1.0	3.9
o-Xylene	0.23	0.32	1.0	1.4
Styrene	0.23	0.13 J	0.99	0.54 J
1,3,5-Trimethylbenzene	0.23	0.11 J	1.1	0.55 J
1,2,4-Trimethylbenzene	0.23	0.30	1.1	1.5
Methylene Chloride	0.46	0.44 J	1.6	1.5 J

Koppers021051

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: North of Pencil Pitch

Lab ID#: 0603708-04A

Acetone	1.2	5.0	2.8	12
Carbon Disulfide	1.2	0.59 J	3.6	1.8 J
2-Propanol	1.2	2.3	2.8	5.6
2-Butanone (Methyl Ethyl Ketone)	1.2	0.77 J	3.4	2.3 J
Hexane	1.2	0.65 J	4.1	2.3 J
Tetrahydrofuran	1.2	1.0 J	3.4	2.9 J
Cyclohexane	1.2	0.28 J	4.0	0.95 J
4-Ethyltoluene	1.2	0.30 J	5.7	1.5 J
Ethanol	1.2	9.4	2.2	18
Heptane	1.2	0.33 J	4.8	1.4 J
Propylbenzene	1.2	0.059 J	5.7	0.29 J
Naphthalene	1.2	0.12 J	6.1	0.66 J

Client Sample ID: North of wall, tankfarm

Lab ID#: 0603708-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.19	0.67	0.94	3.3
Chloromethane	0.19	3.2	0.39	6.7
Bromomethane	0.19	0.14 J	0.74	0.53 J
Chloroethane	0.19	0.34	0.50	0.90
Freon 11	0.19	0.36	1.1	2.0
Benzene	0.19	1.1	0.61	3.6
Toluene	0.19	2.0	0.72	7.4
Ethyl Benzene	0.19	0.32	0.83	1.4
m,p-Xylene	0.19	0.86	0.83	3.7
o-Xylene	0.19	0.34	0.83	1.5
Styrene	0.19	0.12 J	0.81	0.51 J
1,3,5-Trimethylbenzene	0.19	0.097 J	0.94	0.48 J
1,2,4-Trimethylbenzene	0.19	0.27	0.94	1.3
Methylene Chloride	0.38	0.35 J	1.3	1.2 J
1,3-Butadiene	0.96	0.24 J	2.1	0.53 J
Acetone	0.96	11	2.3	27
Carbon Disulfide	0.96	0.40 J	3.0	1.3 J
2-Propanol	0.96	1.4	2.3	3.5
2-Butanone (Methyl Ethyl Ketone)	0.96	2.0	2.8	6.0
Hexane	0.96	0.60 J	3.4	2.1 J
Tetrahydrofuran	0.96	1.1	2.8	3.4
Cyclohexane	0.96	0.20 J	3.3	0.70 J

Koppers021052

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: North of wall, tankfarm

Lab ID#: 0603708-05A

4-Ethyltoluene	0.96	0.28 J	4.7	1.4 J
Ethanol	0.96	6.7	1.8	13
Heptane	0.96	0.49 J	3.9	2.0 J
Propylbenzene	0.96	0.066 J	4.7	0.32 J
Naphthalene	0.96	2.1	5.0	11

Client Sample ID: Gasco Guard Shack

Lab ID#: 0603708-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.68	0.80	3.4
Chloromethane	0.16	0.87	0.33	1.8
Freon 11	0.16	0.32	0.90	1.8
Freon 113	0.16	0.13 J	1.2	0.99 J
Carbon Tetrachloride	0.16	0.13 J	1.0	0.80 J
Benzene	0.16	0.87	0.51	2.8
Toluene	0.16	1.8	0.61	6.9
Ethyl Benzene	0.16	0.25	0.70	1.1
m,p-Xylene	0.16	0.83	0.70	3.6
o-Xylene	0.16	0.32	0.70	1.4
Styrene	0.16	0.11 J	0.68	0.46 J
1,3,5-Trimethylbenzene	0.16	0.11 J	0.79	0.53 J
1,2,4-Trimethylbenzene	0.16	0.30	0.79	1.5
Methylene Chloride	0.32	0.35	1.1	1.2
1,3-Butadiene	0.80	0.23 J	1.8	0.51 J
Acetone	0.80	5.4	1.9	13
Carbon Disulfide	0.80	0.32 J	2.5	0.98 J
2-Propanol	0.80	1.2	2.0	3.1
2-Butanone (Methyl Ethyl Ketone)	0.80	0.89	2.4	2.6
Hexane	0.80	0.64 J	2.8	2.2 J
Tetrahydrofuran	0.80	0.65 J	2.4	1.9 J
Cyclohexane	0.80	0.28 J	2.8	0.97 J
4-Ethyltoluene	0.80	0.29 J	4.0	1.4 J
Ethanol	0.80	4.5	1.5	8.4
Heptane	0.80	0.30 J	3.3	1.2 J
Propylbenzene	0.80	0.060 J	4.0	0.30 J
Naphthalene	0.80	0.83	4.2	4.3

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Client Sample ID: in Office Building

Lab ID#: 0603708-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040608	Date of Collection:	3/30/06
Dil. Factor:	1.58	Date of Analysis:	4/6/06 06:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.65	0.78	3.2
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.16	0.80	0.33	1.6
Vinyl Chloride	0.16	Not Detected	0.40	Not Detected
Bromomethane	0.16	Not Detected	0.61	Not Detected
Chloroethane	0.16	Not Detected	0.42	Not Detected
Freon 11	0.16	0.45	0.89	2.5
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.64	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Chloroform	0.16	Not Detected	0.77	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.86	Not Detected
Carbon Tetrachloride	0.16	0.095 J	0.99	0.60 J
Benzene	0.16	0.77	0.50	2.5
1,2-Dichloroethane	0.16	Not Detected	0.64	Not Detected
Trichloroethene	0.16	Not Detected	0.85	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.73	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
Toluene	0.16	39	0.60	150
trans-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.86	Not Detected
Tetrachloroethene	0.16	3.8	1.1	26
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.73	Not Detected
Ethyl Benzene	0.16	2.0	0.69	8.5
m,p-Xylene	0.16	9.0	0.69	39
o-Xylene	0.16	2.8	0.69	12
Styrene	0.16	Not Detected	0.67	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
1,3,5-Trimethylbenzene	0.16	0.071 J	0.78	0.35 J
1,2,4-Trimethylbenzene	0.16	0.24	0.78	1.2
1,3-Dichlorobenzene	0.16	Not Detected	0.95	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.95	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.82	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.95	Not Detected
Methylene Chloride	0.32	0.31 J	1.1	1.1
1,2,4-Trichlorobenzene	0.79	Not Detected	5.9	Not Detected
Hexachlorobutadiene	0.79	Not Detected	8.4	Not Detected
1,3-Butadiene	0.79	0.25 J	1.7	0.56 J

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: in Office Building

Lab ID#: 0603708-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040608	**Date of Collection:**	3/30/06
Dil. Factor:	1.58	**Date of Analysis:**	4/6/06 06:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.79	16	1.9	39
Carbon Disulfide	0.79	0.18 J	2.5	0.55 J
2-Propanol	0.79	2.8	1.9	7.0
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.79	1.2	2.3	3.7
Hexane	0.79	0.75 J	2.8	2.6 J
Tetrahydrofuran	0.79	0.34 J	2.3	1.0 J
Cyclohexane	0.79	0.35 J	2.7	1.2 J
1,4-Dioxane	0.79	Not Detected	2.8	Not Detected
Bromodichloromethane	0.79	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	0.79	0.10 J	3.2	0.42 J
2-Hexanone	0.79	0.094 J	3.2	0.38 J
Dibromochloromethane	0.79	Not Detected	6.7	Not Detected
Bromoform	0.79	Not Detected	8.2	Not Detected
4-Ethyltoluene	0.79	0.20 J	3.9	0.98 J
Ethanol	0.79	83 E B	1.5	160 E B
Methyl tert-butyl ether	0.79	Not Detected	2.8	Not Detected
Heptane	0.79	0.38 J	3.2	1.5 J
Cumene	0.79	Not Detected	3.9	Not Detected
Propylbenzene	0.79	0.046 J	3.9	0.22 J
Naphthalene	0.79	1.6	4.1	8.2

J = Estimated value.
E = Exceeds instrument calibration range.
B = Compound present in laboratory blank greater than reporting limit, background subtraction not performed.
Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	103	70-130

Koppers021055

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Roof of Office Bldg

Lab ID#: 0603708-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040609	Date of Collection: 3/30/06
Dil. Factor:	1.34	Date of Analysis: 4/6/06 07:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.13	0.74	0.66	3.7
Freon 114	0.13	Not Detected	0.94	Not Detected
Chloromethane	0.13	0.74	0.28	1.5
Vinyl Chloride	0.13	Not Detected	0.34	Not Detected
Bromomethane	0.13	Not Detected	0.52	Not Detected
Chloroethane	0.13	Not Detected	0.35	Not Detected
Freon 11	0.13	0.37	0.75	2.1
1,1-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Freon 113	0.13	0.13	1.0	0.97 J
1,1-Dichloroethane	0.13	Not Detected	0.54	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
Chloroform	0.13	Not Detected	0.65	Not Detected
1,1,1-Trichloroethane	0.13	Not Detected	0.73	Not Detected
Carbon Tetrachloride	0.13	Not Detected	0.84	Not Detected
Benzene	0.13	0.90	0.43	2.9
1,2-Dichloroethane	0.13	Not Detected	0.54	Not Detected
Trichloroethene	0.13	0.068 J	0.72	0.37 J
1,2-Dichloropropane	0.13	Not Detected	0.62	Not Detected
cis-1,3-Dichloropropene	0.13	Not Detected	0.61	Not Detected
Toluene	0.13	2.2	0.50	8.4
trans-1,3-Dichloropropene	0.13	Not Detected	0.61	Not Detected
1,1,2-Trichloroethane	0.13	Not Detected	0.73	Not Detected
Tetrachloroethene	0.13	Not Detected	0.91	Not Detected
1,2-Dibromoethane (EDB)	0.13	Not Detected	1.0	Not Detected
Chlorobenzene	0.13	Not Detected	0.62	Not Detected
Ethyl Benzene	0.13	0.29	0.58	1.3
m,p-Xylene	0.13	0.90	0.58	3.9
o-Xylene	0.13	0.33	0.58	1.4
Styrene	0.13	0.12 J	0.57	0.50 J
1,1,2,2-Tetrachloroethane	0.13	Not Detected	0.92	Not Detected
1,3,5-Trimethylbenzene	0.13	0.11 J	0.66	0.54 J
1,2,4-Trimethylbenzene	0.13	0.34	0.66	1.7
1,3-Dichlorobenzene	0.13	Not Detected	0.80	Not Detected
1,4-Dichlorobenzene	0.13	Not Detected	0.80	Not Detected
alpha-Chlorotoluene	0.13	Not Detected	0.69	Not Detected
1,2-Dichlorobenzene	0.13	Not Detected	0.80	Not Detected
Methylene Chloride	0.27	0.39	0.93	1.4
1,2,4-Trichlorobenzene	0.67	Not Detected	5.0	Not Detected
Hexachlorobutadiene	0.67	Not Detected	7.1	Not Detected
1,3-Butadiene	0.67	0.26 J	1.5	0.57 J

Koppers021056

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Roof of Office Bldg

Lab ID#: 0603708-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040609	Date of Collection:	3/30/06
Dil. Factor:	1.34	Date of Analysis:	4/6/06 07:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.67	4.8	1.6	11
Carbon Disulfide	0.67	0.33 J	2.1	1.0 J
2-Propanol	0.67	1.3	1.6	3.3
trans-1,2-Dichloroethene	0.67	Not Detected	2.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.67	0.68	2.0	2.0
Hexane	0.67	0.59 J	2.4	2.1 J
Tetrahydrofuran	0.67	0.36 J	2.0	1.1 J
Cyclohexane	0.67	0.22 J	2.3	0.74 J
1,4-Dioxane	0.67	Not Detected	2.4	Not Detected
Bromodichloromethane	0.67	Not Detected	4.5	Not Detected
4-Methyl-2-pentanone	0.67	Not Detected	2.7	Not Detected
2-Hexanone	0.67	Not Detected	2.7	Not Detected
Dibromochloromethane	0.67	Not Detected	5.7	Not Detected
Bromoform	0.67	Not Detected	6.9	Not Detected
4-Ethyltoluene	0.67	0.30 J	3.3	1.5 J
Ethanol	0.67	6.1 B	1.3	11 B
Methyl tert-butyl ether	0.67	Not Detected	2.4	Not Detected
Heptane	0.67	0.33 J	2.7	1.4 J
Cumene	0.67	Not Detected	3.3	Not Detected
Propylbenzene	0.67	0.061 J	3.3	0.30 J
Naphthalene	0.67	0.092 J	3.5	0.48 J

J = Estimated value.
B = Compound present in laboratory blank greater than reporting limit, background subtraction not performed.
Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	100	70-130

Koppers021057

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Control Room

Lab ID#: 0603708-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040610	Date of Collection: 3/30/06
Dil. Factor:	1.58	Date of Analysis: 4/6/06 09:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.72	0.78	3.6
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.16	0.88	0.33	1.8
Vinyl Chloride	0.16	Not Detected	0.40	Not Detected
Bromomethane	0.16	0.16	0.61	0.62
Chloroethane	0.16	Not Detected	0.42	Not Detected
Freon 11	0.16	0.41	0.89	2.3
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.64	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Chloroform	0.16	Not Detected	0.77	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.86	Not Detected
Carbon Tetrachloride	0.16	0.14 J	0.99	0.92 J
Benzene	0.16	1.1	0.50	3.4
1,2-Dichloroethane	0.16	Not Detected	0.64	Not Detected
Trichloroethene	0.16	0.088 J	0.85	0.48 J
1,2-Dichloropropane	0.16	Not Detected	0.73	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
Toluene	0.16	3.5	0.60	13
trans-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.86	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.73	Not Detected
Ethyl Benzene	0.16	0.43	0.69	1.9
m,p-Xylene	0.16	1.4	0.69	5.9
o-Xylene	0.16	0.44	0.69	1.9
Styrene	0.16	0.51	0.67	2.2
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
1,3,5-Trimethylbenzene	0.16	0.11 J	0.78	0.55 J
1,2,4-Trimethylbenzene	0.16	0.34	0.78	1.7
1,3-Dichlorobenzene	0.16	Not Detected	0.95	Not Detected
1,4-Dichlorobenzene	0.16	0.12 J	0.95	0.69 J
alpha-Chlorotoluene	0.16	Not Detected	0.82	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.95	Not Detected
Methylene Chloride	0.32	0.38	1.1	1.3
1,2,4-Trichlorobenzene	0.79	Not Detected	5.9	Not Detected
Hexachlorobutadiene	0.79	Not Detected	8.4	Not Detected
1,3-Butadiene	0.79	0.32 J	1.7	0.72 J

Koppers021058

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Control Room

Lab ID#: 0603708-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**g040610**	**Date of Collection:**	**3/30/06**
Dil. Factor:	**1.58**	**Date of Analysis:**	**4/6/06 09:25 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.79	11	1.9	27
Carbon Disulfide	0.79	0.42 J	2.5	1.3 J
2-Propanol	0.79	2.8	1.9	6.9
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.79	1.7	2.3	5.1
Hexane	0.79	0.58 J	2.8	2.1 J
Tetrahydrofuran	0.79	0.82	2.3	2.4
Cyclohexane	0.79	0.18 J	2.7	0.63 J
1,4-Dioxane	0.79	Not Detected	2.8	Not Detected
Bromodichloromethane	0.79	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	0.79	0.17 J	3.2	0.70 J
2-Hexanone	0.79	0.094 J	3.2	0.38 J
Dibromochloromethane	0.79	Not Detected	6.7	Not Detected
Bromoform	0.79	Not Detected	8.2	Not Detected
4-Ethyltoluene	0.79	0.28 J	3.9	1.4 J
Ethanol	0.79	12 B	1.5	24 B
Methyl tert-butyl ether	0.79	Not Detected	2.8	Not Detected
Heptane	0.79	0.32 J	3.2	1.3 J
Cumene	0.79	Not Detected	3.9	Not Detected
Propylbenzene	0.79	0.060 J	3.9	0.29 J
Naphthalene	0.79	5.8	4.1	30

J = Estimated value.
B = Compound present in laboratory blank greater than reporting limit, background subtraction not performed.
Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	105	70-130

Koppers021059

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: North of Pencil Pitch

Lab ID#: 0603708-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041009	Date of Collection: 3/30/06
Dil. Factor:	2.32	Date of Analysis: 4/10/06 05:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.23	0.81	1.1	4.0
Freon 114	0.23	Not Detected	1.6	Not Detected
Chloromethane	0.23	1.0	0.48	2.1
Vinyl Chloride	0.23	Not Detected	0.59	Not Detected
Bromomethane	0.23	Not Detected	0.90	Not Detected
Chloroethane	0.23	Not Detected	0.61	Not Detected
Freon 11	0.23	0.45	1.3	2.6
1,1-Dichloroethene	0.23	Not Detected	0.92	Not Detected
Freon 113	0.23	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.23	Not Detected	0.94	Not Detected
cis-1,2-Dichloroethene	0.23	Not Detected	0.92	Not Detected
Chloroform	0.23	Not Detected	1.1	Not Detected
1,1,1-Trichloroethane	0.23	Not Detected	1.3	Not Detected
Carbon Tetrachloride	0.23	0.36	1.4	2.3
Benzene	0.23	0.97	0.74	3.1
1,2-Dichloroethane	0.23	Not Detected	0.94	Not Detected
Trichloroethene	0.23	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.23	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
Toluene	0.23	2.0	0.87	7.7
trans-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
1,1,2-Trichloroethane	0.23	Not Detected	1.3	Not Detected
Tetrachloroethene	0.23	0.12 J	1.6	0.81 J
1,2-Dibromoethane (EDB)	0.23	Not Detected	1.8	Not Detected
Chlorobenzene	0.23	Not Detected	1.1	Not Detected
Ethyl Benzene	0.23	0.25	1.0	1.1
m,p-Xylene	0.23	0.90	1.0	3.9
o-Xylene	0.23	0.32	1.0	1.4
Styrene	0.23	0.13 J	0.99	0.54 J
1,1,2,2-Tetrachloroethane	0.23	Not Detected	1.6	Not Detected
1,3,5-Trimethylbenzene	0.23	0.11 J	1.1	0.55 J
1,2,4-Trimethylbenzene	0.23	0.30	1.1	1.5
1,3-Dichlorobenzene	0.23	Not Detected	1.4	Not Detected
1,4-Dichlorobenzene	0.23	Not Detected	1.4	Not Detected
alpha-Chlorotoluene	0.23	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.23	Not Detected	1.4	Not Detected
Methylene Chloride	0.46	0.44 J	1.6	1.5 J
1,2,4-Trichlorobenzene	1.2	Not Detected	8.6	Not Detected
Hexachlorobutadiene	1.2	Not Detected	12	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected

Koppers021060

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: North of Pencil Pitch

Lab ID#: 0603708-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041009	**Date of Collection:**	3/30/06
Dil. Factor:	2.32	**Date of Analysis:**	4/10/06 05:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	1.2	5.0	2.8	12
Carbon Disulfide	1.2	0.59 J	3.6	1.8 J
2-Propanol	1.2	2.3	2.8	5.6
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.2	0.77 J	3.4	2.3 J
Hexane	1.2	0.65 J	4.1	2.3 J
Tetrahydrofuran	1.2	1.0 J	3.4	2.9 J
Cyclohexane	1.2	0.28 J	4.0	0.95 J
1,4-Dioxane	1.2	Not Detected	4.2	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
2-Hexanone	1.2	Not Detected	4.8	Not Detected
Dibromochloromethane	1.2	Not Detected	9.9	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
4-Ethyltoluene	1.2	0.30 J	5.7	1.5 J
Ethanol	1.2	9.4	2.2	18
Methyl tert-butyl ether	1.2	Not Detected	4.2	Not Detected
Heptane	1.2	0.33 J	4.8	1.4 J
Cumene	1.2	Not Detected	5.7	Not Detected
Propylbenzene	1.2	0.059 J	5.7	0.29 J
Naphthalene	1.2	0.12 J	6.1	0.66 J

J = Estimated value.

Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	111	70-130

Koppers021061

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: North of wall, tankfarm

Lab ID#: 0603708-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041007	Date of Collection:	3/30/06
Dil. Factor:	1.91	Date of Analysis:	4/10/06 02:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.19	0.67	0.94	3.3
Freon 114	0.19	Not Detected	1.3	Not Detected
Chloromethane	0.19	3.2	0.39	6.7
Vinyl Chloride	0.19	Not Detected	0.49	Not Detected
Bromomethane	0.19	0.14 J	0.74	0.53 J
Chloroethane	0.19	0.34	0.50	0.90
Freon 11	0.19	0.36	1.1	2.0
1,1-Dichloroethene	0.19	Not Detected	0.76	Not Detected
Freon 113	0.19	Not Detected	1.5	Not Detected
1,1-Dichloroethane	0.19	Not Detected	0.77	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
Chloroform	0.19	Not Detected	0.93	Not Detected
1,1,1-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Carbon Tetrachloride	0.19	Not Detected	1.2	Not Detected
Benzene	0.19	1.1	0.61	3.6
1,2-Dichloroethane	0.19	Not Detected	0.77	Not Detected
Trichloroethene	0.19	Not Detected	1.0	Not Detected
1,2-Dichloropropane	0.19	Not Detected	0.88	Not Detected
cis-1,3-Dichloropropene	0.19	Not Detected	0.87	Not Detected
Toluene	0.19	2.0	0.72	7.4
trans-1,3-Dichloropropene	0.19	Not Detected	0.87	Not Detected
1,1,2-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Tetrachloroethene	0.19	Not Detected	1.3	Not Detected
1,2-Dibromoethane (EDB)	0.19	Not Detected	1.5	Not Detected
Chlorobenzene	0.19	Not Detected	0.88	Not Detected
Ethyl Benzene	0.19	0.32	0.83	1.4
m,p-Xylene	0.19	0.86	0.83	3.7
o-Xylene	0.19	0.34	0.83	1.5
Styrene	0.19	0.12 J	0.81	0.51 J
1,1,2,2-Tetrachloroethane	0.19	Not Detected	1.3	Not Detected
1,3,5-Trimethylbenzene	0.19	0.097 J	0.94	0.48 J
1,2,4-Trimethylbenzene	0.19	0.27	0.94	1.3
1,3-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,4-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
alpha-Chlorotoluene	0.19	Not Detected	0.99	Not Detected
1,2-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
Methylene Chloride	0.38	0.35 J	1.3	1.2 J
1,2,4-Trichlorobenzene	0.96	Not Detected	7.1	Not Detected
Hexachlorobutadiene	0.96	Not Detected	10	Not Detected
1,3-Butadiene	0.96	0.24 J	2.1	0.53 J

Koppers021062

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: North of wall, tankfarm

Lab ID#: 0603708-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041007	**Date of Collection:**	3/30/06
Dil. Factor:	1.91	**Date of Analysis:**	4/10/06 02:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.96	11	2.3	27
Carbon Disulfide	0.96	0.40 J	3.0	1.3 J
2-Propanol	0.96	1.4	2.3	3.5
trans-1,2-Dichloroethene	0.96	Not Detected	3.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.96	2.0	2.8	6.0
Hexane	0.96	0.60 J	3.4	2.1 J
Tetrahydrofuran	0.96	1.1	2.8	3.4
Cyclohexane	0.96	0.20 J	3.3	0.70 J
1,4-Dioxane	0.96	Not Detected	3.4	Not Detected
Bromodichloromethane	0.96	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	0.96	Not Detected	3.9	Not Detected
2-Hexanone	0.96	Not Detected	3.9	Not Detected
Dibromochloromethane	0.96	Not Detected	8.1	Not Detected
Bromoform	0.96	Not Detected	9.9	Not Detected
4-Ethyltoluene	0.96	0.28 J	4.7	1.4 J
Ethanol	0.96	6.7	1.8	13
Methyl tert-butyl ether	0.96	Not Detected	3.4	Not Detected
Heptane	0.96	0.49 J	3.9	2.0 J
Cumene	0.96	Not Detected	4.7	Not Detected
Propylbenzene	0.96	0.066 J	4.7	0.32 J
Naphthalene	0.96	2.1	5.0	11

J = Estimated value.

Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	115	70-130

Koppers021063

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Gasco Guard Shack

Lab ID#: 0603708-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041008	Date of Collection: 3/30/06
Dil. Factor:	1.61	Date of Analysis: 4/10/06 03:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.16	0.68	0.80	3.4
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.16	0.87	0.33	1.8
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
Bromomethane	0.16	Not Detected	0.62	Not Detected
Chloroethane	0.16	Not Detected	0.42	Not Detected
Freon 11	0.16	0.32	0.90	1.8
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Freon 113	0.16	0.13 J	1.2	0.99 J
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Chloroform	0.16	Not Detected	0.79	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Carbon Tetrachloride	0.16	0.13 J	1.0	0.80 J
Benzene	0.16	0.87	0.51	2.8
1,2-Dichloroethane	0.16	Not Detected	0.65	Not Detected
Trichloroethene	0.16	Not Detected	0.86	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.74	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
Toluene	0.16	1.8	0.61	6.9
trans-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	0.25	0.70	1.1
m,p-Xylene	0.16	0.83	0.70	3.6
o-Xylene	0.16	0.32	0.70	1.4
Styrene	0.16	0.11 J	0.68	0.46 J
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
1,3,5-Trimethylbenzene	0.16	0.11 J	0.79	0.53 J
1,2,4-Trimethylbenzene	0.16	0.30	0.79	1.5
1,3-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.83	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
Methylene Chloride	0.32	0.35	1.1	1.2
1,2,4-Trichlorobenzene	0.80	Not Detected	6.0	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.6	Not Detected
1,3-Butadiene	0.80	0.23 J	1.8	0.51 J

Koppers021064

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Gasco Guard Shack

Lab ID#: 0603708-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**g041008**	**Date of Collection:**	**3/30/06**
Dil. Factor:	**1.61**	**Date of Analysis:**	**4/10/06 03:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.80	5.4	1.9	13
Carbon Disulfide	0.80	0.32 J	2.5	0.98 J
2-Propanol	0.80	1.2	2.0	3.1
trans-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	0.89	2.4	2.6
Hexane	0.80	0.64 J	2.8	2.2 J
Tetrahydrofuran	0.80	0.65 J	2.4	1.9 J
Cyclohexane	0.80	0.28 J	2.8	0.97 J
1,4-Dioxane	0.80	Not Detected	2.9	Not Detected
Bromodichloromethane	0.80	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	0.80	Not Detected	3.3	Not Detected
2-Hexanone	0.80	Not Detected	3.3	Not Detected
Dibromochloromethane	0.80	Not Detected	6.8	Not Detected
Bromoform	0.80	Not Detected	8.3	Not Detected
4-Ethyltoluene	0.80	0.29 J	4.0	1.4 J
Ethanol	0.80	4.5	1.5	8.4
Methyl tert-butyl ether	0.80	Not Detected	2.9	Not Detected
Heptane	0.80	0.30 J	3.3	1.2 J
Cumene	0.80	Not Detected	4.0	Not Detected
Propylbenzene	0.80	0.060 J	4.0	0.30 J
Naphthalene	0.80	0.83	4.2	4.3

J = Estimated value.

Container Type: 6 Liter Summa Special (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	111	70-130

Koppers021065

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603708-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040607	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/6/06 05:24 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
Bromomethane	0.10	Not Detected	0.39	Not Detected
Chloroethane	0.10	Not Detected	0.26	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	0.041 J	0.49	0.20 J
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
1,2,4-Trichlorobenzene	0.50	0.044 J	3.7	0.32 J
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected

Koppers021066

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603708-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040607	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/6/06 05:24 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.50	0.22 J	1.2	0.51 J
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Propanol	0.50	0.17 J	1.2	0.41 J
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
1,4-Dioxane	0.50	Not Detected	1.8	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
Ethanol	0.50	0.60	0.94	1.1
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
Naphthalene	0.50	0.083 J	2.6	0.43 J

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	97	70-130

Koppers021067

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603708-07B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041006a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	4/10/06 11:42 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
Bromomethane	0.10	Not Detected	0.39	Not Detected
Chloroethane	0.10	Not Detected	0.26	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
Benzene	0.10	0.053 J	0.32	0.17 J
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected

Koppers021068

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603708-07B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041006a	**Date of Collection:**	NA
Dil. Factor:	1.00	**Date of Analysis:**	4/10/06 11:42 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	0.50	0.18 J	1.2	0.44 J
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Propanol	0.50	0.10 J	1.2	0.25 J
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
Tetrahydrofuran	0.50	0.17 J	1.5	0.51 J
Cyclohexane	0.50	Not Detected	1.7	Not Detected
1,4-Dioxane	0.50	Not Detected	1.8	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
Ethanol	0.50	0.18 J	0.94	0.35 J
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
Naphthalene	0.50	0.051 J	2.6	0.27 J

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	112	70-130

Koppers021069

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0603708-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040603	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/6/06 12:56 PM	

Compound	%Recovery
Freon 12	106
Freon 114	109
Chloromethane	101
Vinyl Chloride	106
Bromomethane	91
Chloroethane	98
Freon 11	104
1,1-Dichloroethene	103
Freon 113	110
1,1-Dichloroethane	116
cis-1,2-Dichloroethene	116
Chloroform	102
1,1,1-Trichloroethane	110
Carbon Tetrachloride	104
Benzene	92
1,2-Dichloroethane	103
Trichloroethene	102
1,2-Dichloropropane	97
cis-1,3-Dichloropropene	88
Toluene	93
trans-1,3-Dichloropropene	83
1,1,2-Trichloroethane	90
Tetrachloroethene	106
1,2-Dibromoethane (EDB)	94
Chlorobenzene	102
Ethyl Benzene	102
m,p-Xylene	103
o-Xylene	102
Styrene	102
1,1,2,2-Tetrachloroethane	102
1,3,5-Trimethylbenzene	102
1,2,4-Trimethylbenzene	99
1,3-Dichlorobenzene	105
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	82
1,2-Dichlorobenzene	103
Methylene Chloride	95
1,2,4-Trichlorobenzene	105
Hexachlorobutadiene	100
1,3-Butadiene	86

Koppers021070

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0603708-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040603	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/6/06 12:56 PM	

Compound	%Recovery
Acetone	105
Carbon Disulfide	104
2-Propanol	96
trans-1,2-Dichloroethene	111
2-Butanone (Methyl Ethyl Ketone)	100
Hexane	115
Tetrahydrofuran	105
Cyclohexane	111
1,4-Dioxane	90
Bromodichloromethane	89
4-Methyl-2-pentanone	86
2-Hexanone	80
Dibromochloromethane	95
Bromoform	110
4-Ethyltoluene	101
Ethanol	81
Methyl tert-butyl ether	75
Heptane	99
Cumene	104
Propylbenzene	102
Naphthalene	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	102	70-130

Koppers021071

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0603708-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041002	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/10/06 08:25 AM	

Compound	%Recovery
Freon 12	125
Freon 114	131 Q
Chloromethane	116
Vinyl Chloride	121
Bromomethane	118
Chloroethane	104
Freon 11	108
1,1-Dichloroethene	119
Freon 113	127
1,1-Dichloroethane	116
cis-1,2-Dichloroethene	123
Chloroform	106
1,1,1-Trichloroethane	116
Carbon Tetrachloride	121
Benzene	84
1,2-Dichloroethane	94
Trichloroethene	105
1,2-Dichloropropane	92
cis-1,3-Dichloropropene	91
Toluene	93
trans-1,3-Dichloropropene	80
1,1,2-Trichloroethane	77
Tetrachloroethene	102
1,2-Dibromoethane (EDB)	88
Chlorobenzene	104
Ethyl Benzene	103
m,p-Xylene	105
o-Xylene	107
Styrene	107
1,1,2,2-Tetrachloroethane	103
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	103
1,3-Dichlorobenzene	115
1,4-Dichlorobenzene	112
alpha-Chlorotoluene	90
1,2-Dichlorobenzene	111
Methylene Chloride	94
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	96
1,3-Butadiene	89

Koppers021072

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0603708-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041002	**Date of Collection: NA**	
Dil. Factor:	1.00	**Date of Analysis: 4/10/06 08:25 AM**	

Compound	%Recovery
Acetone	106
Carbon Disulfide	112
2-Propanol	111
trans-1,2-Dichloroethene	121
2-Butanone (Methyl Ethyl Ketone)	129
Hexane	116
Tetrahydrofuran	108
Cyclohexane	121
1,4-Dioxane	92
Bromodichloromethane	88
4-Methyl-2-pentanone	81
2-Hexanone	70
Dibromochloromethane	86
Bromoform	120
4-Ethyltoluene	106
Ethanol	89
Methyl tert-butyl ether	104
Heptane	81
Cumene	107
Propylbenzene	104
Naphthalene	91

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	115	70-130

Koppers021073

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603708-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g040605	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/6/06 02:41 PM	

Compound	%Recovery
Freon 12	110
Freon 114	110
Chloromethane	102
Vinyl Chloride	109
Bromomethane	112
Chloroethane	97
Freon 11	104
1,1-Dichloroethene	110
Freon 113	125
1,1-Dichloroethane	112
cis-1,2-Dichloroethene	113
Chloroform	89
1,1,1-Trichloroethane	108
Carbon Tetrachloride	108
Benzene	92
1,2-Dichloroethane	96
Trichloroethene	106
1,2-Dichloropropane	97
cis-1,3-Dichloropropene	83
Toluene	101
trans-1,3-Dichloropropene	83
1,1,2-Trichloroethane	95
Tetrachloroethene	103
1,2-Dibromoethane (EDB)	97
Chlorobenzene	101
Ethyl Benzene	106
m,p-Xylene	96
o-Xylene	87
Styrene	106
1,1,2,2-Tetrachloroethane	95
1,3,5-Trimethylbenzene	85
1,2,4-Trimethylbenzene	65 Q
1,3-Dichlorobenzene	97
1,4-Dichlorobenzene	92
alpha-Chlorotoluene	86
1,2-Dichlorobenzene	90
Methylene Chloride	100
1,2,4-Trichlorobenzene	67 Q
Hexachlorobutadiene	64 Q
1,3-Butadiene	95

Koppers021074

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603708-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**g040605**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/6/06 02:41 PM**	

Compound	%Recovery
Acetone	101
Carbon Disulfide	117
2-Propanol	102
trans-1,2-Dichloroethene	121
2-Butanone (Methyl Ethyl Ketone)	104
Hexane	115
Tetrahydrofuran	112
Cyclohexane	118
1,4-Dioxane	100
Bromodichloromethane	89
4-Methyl-2-pentanone	94
2-Hexanone	78
Dibromochloromethane	86
Bromoform	77
4-Ethyltoluene	106
Ethanol	84
Methyl tert-butyl ether	123
Heptane	92
Cumene	107
Propylbenzene	108
Naphthalene	82

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130

Koppers021075

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603708-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041004	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 4/10/06 09:29 AM	

Compound	%Recovery
Freon 12	112
Freon 114	119
Chloromethane	86
Vinyl Chloride	103
Bromomethane	92
Chloroethane	93
Freon 11	94
1,1-Dichloroethene	92
Freon 113	114
1,1-Dichloroethane	95
cis-1,2-Dichloroethene	120
Chloroform	97
1,1,1-Trichloroethane	92
Carbon Tetrachloride	97
Benzene	82
1,2-Dichloroethane	91
Trichloroethene	103
1,2-Dichloropropane	90
cis-1,3-Dichloropropene	76
Toluene	91
trans-1,3-Dichloropropene	78
1,1,2-Trichloroethane	77
Tetrachloroethene	101
1,2-Dibromoethane (EDB)	86
Chlorobenzene	102
Ethyl Benzene	106
m,p-Xylene	100
o-Xylene	93
Styrene	108
1,1,2,2-Tetrachloroethane	101
1,3,5-Trimethylbenzene	94
1,2,4-Trimethylbenzene	71
1,3-Dichlorobenzene	113
1,4-Dichlorobenzene	111
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	107
Methylene Chloride	84
1,2,4-Trichlorobenzene	83
Hexachlorobutadiene	72
1,3-Butadiene	89

Koppers021076

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603708-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	g041004	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis:	4/10/06 09:29 AM

Compound	%Recovery
Acetone	102
Carbon Disulfide	108
2-Propanol	98
trans-1,2-Dichloroethene	91
2-Butanone (Methyl Ethyl Ketone)	122
Hexane	110
Tetrahydrofuran	100
Cyclohexane	95
1,4-Dioxane	91
Bromodichloromethane	85
4-Methyl-2-pentanone	78
2-Hexanone	65
Dibromochloromethane	77
Bromoform	94
4-Ethyltoluene	116
Ethanol	77
Methyl tert-butyl ether	77
Heptane	78
Cumene	116
Propylbenzene	115
Naphthalene	94

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	118	70-130

Koppers021077

@ AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

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CHAIN-OF-CUSTODY RECORD

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Address: 1500 NE Irving St. Suite 440 City: Portland State: OR Zip: 97232
Phone: 971.244.1200 Fax: 971.244.1209
Collected by: (Signature) Scott Turkle

Project Info:
P.O. #:
Project #: 65-06108.00
Project Name: Hahn-Koppers

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by: DA
Date: 4/10/06
Pressurization Gas: (N2) He

Lab I.D.	Field Sample I.D. (Location)	Can#	Date	Time	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	#35267, in Office Building	1	3/30/06	480 min	Mod. TO-15 + Naphthalene Low Level	29.0	6.1	45" Hg	5.0
02A	#9942, Roof of Office Bldg	2		362 min		30.0	0.0	0.0" Hg	4.1
03A	#33922, Control Room	3		482 min		28.3	5.2	4.6" Hg	
04A	#9579, North of Pencil Pit	4		477 min		30.0	6.7	5.0" Hg	
05A	#9410, North of wall, tankfarm	5		479 min		30.0	9.8	9.0" Hg	
06A	#34436, Gasco Guardhouse	6	✓	480 min		30.0	5.8	5.0" Hg	✓

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Scott Turkle	3/30/06 3:50 PM	[illegible]	3/31/06 0900
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes: Please follow the Proposal & need ECVP data package.

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Customer Seals Intact?	Work Order #
	FedEx	790376617436 790376617458 790376617469	—	good	Yes / No / None	060308

Form 1283 rev.10

Koppers021078