

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION



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November 1, 1994

Andrew Holbrook, Terminal Environmental Manager
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GATX - CARSON TERMINAL, WASTE DISCHARGE REQUIREMENTS FOR CLOSURE OF THE SLOUGH (FILE NO. 83-30)

Our letter of October 3, 1994, transmitted revised tentative waste discharge requirements for closure of the surface impoundment referred to as the Slough.

Pursuant to Section 13263 of the California Code of Regulations, this Regional Board at a public hearing held on October 31, 1994, reviewed the tentative Order, considered all factors in the case, and adopted Order No. 94-111 and Monitoring and Reporting Program No. CI 7451 (copy attached) relative to the discharge. Please note that finding seven, requirements two and five, and provision six were modified between October 3, 1994, and the adoption of the Order. These modifications were minor in nature.

The "Monitoring and Reporting Program" requires you to implement the monitoring program and submit your first technical report under this program by the 15th, of the month following start-up of closure activities at the site. Please reference all technical and monitoring reports to our Compliance File number CI 7451. We would appreciate it if you would not combine other reports, such as progress or technical, with your monitoring reports but would submit each type of report as a separate document. All monitoring reports should be sent to the Regional Board, ATTN: Technical Support Unit.

If you have any questions regarding this matter, please contact Keith Elliott at (213) 266-7614.

J.E. ROSS, Unit Chief
Site Cleanup Unit

cc: See mailing list

Enclosures

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GATX Tank Storage Terminals
Page 2

MAILING LIST

cc: Mr. Archie Matthews, State Water Resources Control Board,
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South Coast Air Quality Management District
U. S. Army Corps of Engineers
Department of Interior, U. S. Fish and Wildlife Service
Department of Fish and Game, Region 5
Los Angeles County, Department of Public Works,
Waste Management Division
Los Angeles County, Fire Department - Health Hazardous
Materials Division
City of Carson, Department of Building and Safety
Mr. Chris Nagler, Department of Water Resources
Mr. Andrew Harvey, Science Applications International
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State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 94-111

WASTE DISCHARGE REQUIREMENTS
FOR
GATX TANK STORAGE TERMINALS CORPORATION
(CLOSURE OF A SURFACE IMPOUNDMENT)

(FILE NO. 83-30)

The California Regional Water Quality Control Board, Los Angeles Region, finds:

1. GATX Tank Storage Terminals Corporation (hereafter called the discharger) operates the Carson storage terminal at their 100 - acre site located at 2000 East Sepulveda Boulevard, Carson, Los Angeles County, California. The tank storage facility at the site was constructed in 1921 and operated as a small 10,000 barrel per day refinery from 1936 to 1958. In 1976 GATX purchased the site and has operated the terminal since that time.
2. The discharger has submitted a Report of Waste Discharge to this Regional Board for closure of the unlined earthen surface impoundment referred to as the Slough.
3. The discharger proposes to close the Slough according to the requirements set forth in the Surface Impoundment Closure Requirements, Section 2582(b)(2), Chapter 15, Title 23, California Code of Regulations. The cleanup of the deeper subsurface soil contamination beneath the Slough, caused by sources unrelated to the Slough, is deferred pending final cleanup of the ground water and underlying soils beneath the site.
4. Closure of the Slough includes the removal of any surficial semi-solid tars or liquid asphalt material evident in the Slough, backfilling the Slough, and installation of a cap. Any removed material will be incorporated into road mix at the site or recycled off-site at a permitted recycling facility). Following closure, construction is planned for either an engineered concrete-lined retention basin in the northern half of the Slough for storm water, or emergency fire water and petroleum product, and construction of two new 150,000 barrel above ground storage tanks on the southern half of the Slough or above ground tank construction over the entire Slough area.

5. The Slough is approximately 900 feet long, 180 feet wide and 16 feet deep, and occupies about eight acres in the southwestern portion of the terminal site. The Slough is a remnant of Watson Lakes, which were tidal lagoons and marshes that were drained and filled in the early 1900's. When the lake at the site was drained, the Slough remained as a depression that was eventually dammed at the northern and southern ends by development at the site. The Slough has been a natural basin for rain water runoff from the western portion of the terminal. This area includes above ground storage tanks and, in the past, contained truck loading racks.
6. Refinery filter material, consisting of crude and waste oils, was reported to have been placed in the Slough during the late 1930's and 1940's. In 1984, an unknown quantity of unleaded gasoline flowed into the Slough from a leak in a tank located about 150 feet from the southern perimeter of the Slough. Also, a former storm water drain pipe from the area near the Slough, including the road to the former truck loading racks 1A and 1B, is reported to have discharged directly into the northern edge of the Slough.
7. The proposed TPH soil cleanup levels detailed in the requirements section of this Order have been developed by staff from research conducted by the Western States Petroleum Association (WSPA). Staff have modified the application of these levels to reflect conservatism. The Technical Review Committee (TRC), formed to review soil cleanup criteria, is planning on recommending use of these levels in appropriate cases and we believe issuing this Order will allow a test case application at a real site. Since this Order applies to a smaller site cleanup within a larger area cleanup, staff believes this provides an excellent opportunity for collection of data to determine suitability of using levels higher than those previously used with little or no risk to the environment in an actual case.
8. Regional Board staff concluded on April 8, 1991, that GATX was in compliance with the cease discharge requirements of the Toxic Pits Cleanup Act (TPCA) for the Slough.
9. Cleanup and Abatement Order No. 90-152, dated November 6, 1990, directed the discharger to conduct subsurface investigations of their facility to assess, and remediate any soil and ground water pollution which may be present. To date, substantial progress has been made in completing this work. Item 12 of that Cleanup and Abatement Order provided for additional Orders to facilitate this cleanup.

10. Subsurface investigations to date have identified the following contaminants in soils underneath the Slough, in the four major soil types:

<u>Soil Layer or Matrix</u>	<u>Depth Range (Feet³)</u>	<u>Maximum Benzene (mg/kg)</u>	<u>Maximum PNA¹ (mg/kg⁴)</u>	<u>Maximum (TPH²) (mg/kg)</u>
Fill material	(0 - 5)	0.03	2,536	223,000
Clay layer	(0 - 20)	0.3	391	9,100
Silt below clay	(20 - 35)	4.8 ⁵	N/A ⁶	1,500
Sand/cap.fringe	(30 - 35)	100.0	N/A ⁶	FPH ⁷

These investigations indicated that the contaminants were primarily longer-chained aliphatics in the shallow soil overlying a clay material. This clay material is up to 20 feet thick underlying most of the existing Slough. The boring logs from monitoring well MW-21 at the southern end of the Slough indicate that the clay layer is about 14 feet in thickness, while the boring logs from the northern end of the Slough (B-1, B-2, B-10, and B-11) indicate the clay layer ranges from 9 to 20 feet in thickness. Since the Slough is part of a continuous back bay depositional environment that ranged from the Los Angeles Harbor through the Carson area, it is likely that the clay layer is continuous throughout this range and does not exist only under the limits of the current Slough.

11. The contaminants identified in the capillary fringe, tabulated above, are reported to be from the free product floating on the ground water. The free product is known to originate from sources unrelated to the Slough, both on-site and off-site.

¹ Polynuclear aromatic hydrocarbons using a fluorescence screening technique.

² Total petroleum hydrocarbon concentration using EPA Method 418.1 or EPA Method 8015 - Diesel.

³ Feet below the surface of the Slough bottom.

⁴ Concentration based on dried soil.

⁵ Boring B-3, Woodward-Clyde, 1991.

⁶ Not analyzed.

⁷ Free phase hydrocarbon.

In addition, subsurface investigations have identified contaminants, including benzene (up to 222 mg/kg), toluene (up to 1,300 mg/kg), xylene (up to 2,900 mg/kg), methylene chloride (up to 0.7 mg/kg), and 1,2-dichloroethane (up to 0.36 mg/kg), in soils within 50 feet of the Slough. This contamination was reported to be primarily from discharges that occurred during operation of the former truck loading racks and surface drainage identified in Finding 3, above. The adjacent soil and ground water contamination and the soils beneath the Slough that are above the capillary fringe will be remediated in the future according to Cleanup and Abatement Order No. 90-152, directing a site wide cleanup of site derived soil and ground water contamination.

12. Fate and transport computer modeling, using the one dimensional vadose zone Seasonal Soil Compartment Model (SESOIL) with conservative assumptions, indicated that benzene, octane, and octadecane in the Slough soils would migrate 15 feet, 7 inches, and 2×10^{-4} inches, respectively in 30 years. The initial concentrations were assumed to be: benzene (240 mg/kg) [also a conservative representation of PNAs], octane 500 mg/kg [representative of gasoline and diesel], and octadecane (220,000 mg/kg) [representative of the tar-like material]. These initial concentrations were assumed to be homogeneous throughout the entire first foot of soil. These volumes and/or concentrations are known to be higher than the actual conditions over most of the site. Additional conservative assumptions included, no cap, no active transformation process (biodegradation volatilization from the surface soils to the air, hydrolysis, surface run-off, and washload), and hydraulic loading based on surface recharge from the accumulation of storm water run-off in the Slough. The vertical profile was assumed to be: five feet of fill material, nine feet of clay material, seven feet of silt, and five feet of sand overlying the ground water. Further modeling predicted that benzene would migrate 18.75 feet down from the surface over a period of 99 years. Existing facility cleanup would be the final mechanism for dealing with this migration issue.
13. The Regional Board adopted a revised Water Quality Control Plan for the Los Angeles River Basin (4B) on June 3, 1991. The Plan contains water quality objectives for ground waters in the Coastal Plain of Los Angeles County where the GATX Carson Storage Terminal is located. The requirements contained in this Order, as they are met, will be in conformance with the goals of the Water Quality Control Plan.

14. Ground water in the Coastal Plain of Los Angeles County is beneficially used for municipal and domestic supply, agricultural supply, and industrial service and process supply. Ground water in the first aquifer underlying this site is typically low in yield and high in salinity. Ground water in the lower aquifers is usually of the best quality and quantity.
15. Ground water has been encountered beneath the terminal in two specific zones. A discontinuous shallow perched zone has been encountered at several locations within the site between 7 and 22 feet below ground surface (bgs). This perched zone was in the Slough area at 11 feet bgs and only identified shortly after a rain event and subsequently disappeared. A laterally continuous water table zone is located between 26 to 55 feet bgs and is believed to be the upper portion of the Gage Aquifer. Four basic aquifer units (Gage, Lynwood, Silverado, and Pico) are found beneath the site. These aquifers are thought to be separated by aquitards or aquicludes of varying thicknesses.
16. Free phase liquid hydrocarbon has previously been identified on the ground water underlying the Slough. Subsurface investigations at the site indicate that this ground water pollution originated from on-site and off-site sources other than the Slough. Remediation and monitoring of this pollution is addressed under Cleanup and Abatement Order No. 90-152.
17. This project involves an action taken for the protection of the environment and, as such, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, commencing with Section 21100) in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations.

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

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

IT IS HEREBY ORDERED that GATX Tank Storage Terminals Corporation, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. REQUIREMENTS

1. Any material handling shall be in such a manner as to prevent its reaching surface waters or water courses.
2. The discharger shall remove any semi-solid tars or liquid asphalt material evident in the Slough, to a depth of 10 feet below the bottom elevation of the Slough, plus select shallow areas determined by the Executive Officer below the 10 feet depth. This includes the removal of a sufficient area of surrounding soils required to ensure the structural integrity of the proposed surface impoundment and above ground tanks. The material removed may be incorporated into road mix at the site or recycled off-site, at a permitted recycling facility, as proposed. Solidified, weathered tars, and asphalt material may remain in the Slough. Any hydrocarbon contaminated soils removed from the upper 10 feet of the Slough and surrounding area, and planned for reuse on-site shall have concentrations less than the following cleanup levels:

<u>Constituent</u>	<u>Limit</u> <u>(mg/kg)</u>
Total Petroleum Hydrocarbons (EPA Method 8015)	
C ₄ - C ₁₂	1,000
C ₁₃ - C ₂₂	10,000
C ₂₃₊	15,000
Priority Pollutants	
Aromatic Volatile Organic Compounds	
Benzene	1.0 ⁸
Toluene	10 ⁸
Ethylbenzene	10 ⁸
Xylene	10 ⁸
Halogenated VOCs	
Chloroform	0.05
Tetrachloroethylene	0.05
1,2-dichloroethane	0.05
Methylene chloride	0.05

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Based on a fate and transport computer model conducted for the project and professional judgement.

<u>Constituent</u>	<u>Limit</u> <u>(mg/kg)</u>
Polynuclear Aromatic Hydrocarbons in the Toxic Characteristic Leaching Potential (TCLP) extract (mg/l).	Non-detect ⁹

The Slough can be backfilled using certified clean fill material, substantiated by analytical test data. All backfill material must also be compacted to 90% compaction, to ensure maximum protection of the cap required in Requirement 3, below.

3. Within 60 days of adoption of this Order the discharger shall submit, for approval by the Executive Officer, a plan for closure of the Slough in accordance with the requirements of Chapter 15, Title 23, California Code of Regulations (hereafter referred to as Chapter 15). The plan shall specify, in addition to a cap with a permeability of 1×10^{-6} cm/sec or less, all applicable sections of Chapter 15 (including, but not limited to Article 4, Article 8, and Article 9 - Section 2596 and Section 2597). In addition, this plan shall include the footprint of any proposed structures corresponding excavations surrounding the Slough necessary to protect the structural integrity of such structures.
4. Ground water monitoring well MW-21 and MW-28, located within the Slough may be abandoned according to the Department of Water Resources Bulletin 74-90 and revision 74-90 requirements, as proposed. These wells shall be replaced along the western property line of the site within 30 days of completion of backfilling of the Slough.
5. The current ground water monitoring program, required under cleanup and abatement Order No. 90-152, may be used to show compliance with Section 2550.8 of the Code of Regulations for this waste management unit.
6. Within 30 days of completing the closure of the Slough, in accordance with an approved closure plan, as required in Requirement 3, above, the discharger shall submit a report documenting the closure.

⁹ Non-detect in TCLP extract at the practical quantification limits of detection for each compound.

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI. 7451
FOR
GATX TANK STORAGE TERMINALS CORPORATION
(CLOSURE OF A SURFACE IMPOUNDMENT)

(FILE NO. 83-30)

The discharger shall implement this Monitoring and Reporting Program on the date of issuance of the Waste Discharge Requirements. The reports detailed in Order No. 94-111 (hereafter the Order) shall be submitted as required.

The first monthly monitoring report under this program is due on the 15th of the month following start-up of closure activities for the previous month.

I. GROUND WATER MONITORING

Ground water monitoring reports shall be submitted according to Cleanup and Abatement Order Number 90-152.

II. EXCAVATION MONITORING

A sampling grid shall be established for the Slough prior to backfilling. Sampling locations shall be located where representative soil samples can be obtained. Soil samples shall be collected and analyzed for the following Parameters:

<u>Parameter</u>	<u>Unit</u>	<u>Frequency</u>
Total Petroleum Hydrocarbons (EPA Method 8015-C ₄ to C ₂₈ Hydrocarbon Scan)	mg/kg	Once/900 sq. ft.
Priority Pollutants CAM metals and cyanide	mg/kg	Once/900 sq. ft.
Polynuclear Aromatic Hydrocarbons (EPA Method 8310 and TCLP extract using EPA Method 610)	mg/kg and mg/l	Once/900 sq. ft. ¹

¹ If the discharger submits the results of additional investigation for Polynuclear Aromatic Hydrocarbons (PNA) according to EPA Method 8310, which shows that no PNAs are present in this area, then the EPA Method 8310 analyses may be reduced to one sample per 5,000 square feet of excavated area, but no less than ten samples analyzed.

<u>Parameter</u>	<u>Unit</u>	<u>Frequency</u>
Volatile Organic Compounds (EPA Method 8240 or Methods 8010/8020)	µg/kg	Once/900 sq. ft. ²

III. BACKFILL SOIL CHARACTERIZATION

All backfill soil shall be tested, characterized and determined to be clean soils before it is discharged into the Slough. The discharger shall collect representative samples of this material and analyze it as follows:

<u>Parameter</u>	<u>Unit</u>	<u>Frequency</u>
Total Petroleum Hydrocarbons (TPH) [EPA Method 8015-Diesel and EPA Method 8015-Gasoline]	mg/kg	Once/5,000 CY
Polynuclear Aromatic Hydrocarbons	mg/kg	Once/5,000 CY
Priority Pollutants		
CAM Metals	mg/kg	Once/5,000 CY
Volatile Organic Compounds (EPA Method 8240 or Methods 8010/8020)	µg/kg	Once/5,000 CY

IV. GENERAL PROVISIONS FOR SAMPLING AND ANALYSIS

- A. All chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services, or approved by the Executive Officer. No changes shall be made in sampling points without prior approval of the Executive Officer.
- B. All verification sampling require 72 hours written and verbal notice to the Board in order for staff to participate in the sampling.

² If the discharger submits the results of additional investigation for halogenated VOCs in the northern quarter of the Slough, which shows they are not present in this area, then the EPA Method 8010 analyses may be reduced to one sample per 5,000 square feet of excavated area, but no less than ten samples analyzed. The EPA Method 8020 and EPA Method 8240 sampling frequency are to remain at one sample per 900 square feet of excavated area.

V. SPECIFIC REPORTING REQUIREMENTS

- A. The following technical reports shall be filed with the Regional Board:
1. A "Petroleum Hydrocarbon Contamination Removal Report", shall be submitted within 30 days of removal of contaminated soil for treatment. This report shall describe the facility name, and location where the contaminated soil is treated. The report shall include all data collected to date verifying that cleanup levels set by the Order have been met.
 2. A "Backfill Completion Report" shall be submitted within 30 days of completing backfill of the Slough, verifying that the backfilling and construction of the low permeability cap were completed according to the closure plan approved by the Executive Officer, according to Item 5 of the Order.
 3. A "Final Project Completion Report" shall be submitted within 30 days of completing construction of the retention basin. This report shall summarize all final verification sampling, summarize the final hydrocarbon contamination levels underlying the Slough, including laboratory analysis data, and indicate the quantity and the final disposition of any material removed from the Slough for treatment. A statement, signed by a responsible official of the discharger, shall be included stating that the closure was completed in accordance with the requirements and provisions of Order No. 94-111 and all other signed statements required by the Order shall also be included.
- B. All technical reports prepared for submittal to the Regional Board shall be signed by either a California registered Civil Engineer, a registered geologist, or certified engineering geologist.
- C. For every item where the requirements are not met the discharger shall submit a statement of the actions undertaken or proposed, together with a timetable, to bring the discharge back into full compliance with the requirements at the earliest time.
- D. In reporting the monitoring data, the discharger shall arrange the data in tabular form so that the data, the constituents, and the concentrations are readily discernible. The data shall

Monitoring and Reporting Program For
GATX Tank Storage Terminals Corporation
(Closure of a Surface Impoundment)

Order No. 94-111
CI No. 7451

be summarized to determine compliance with waste discharge requirements and, where applicable, shall include receiving ground water observations.

E. Monitoring reports submitted to the Regional Board shall be signed by:

1. In the case of a corporation, the principal executive officer, at least of the level of Vice President or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
2. In case of a partnership, a general partner;
3. In case of a sole proprietorship, the proprietor;
4. In the case of a municipal, state or public facility, either a principal executive officer, ranking elected official, or other duly authorized employee.

Each report shall contain the following completed declaration:

" I declare under penalty of perjury that the foregoing is true and correct.

Executed on the day of _____ at _____

_____ (Signature)

_____ (Title) "

Ordered by

Robert P. Ghirelli

ROBERT P. GHIRELLI, D.Env.
Executive Officer

Date: October 31, 1994

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION



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November 1, 1994

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**GATX - CARSON TERMINAL, WASTE DISCHARGE
THE SLOUGH (FILE NO. 83-30)**

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Pursuant to Section 13263 of the California Code of Regulations,
this Regional Board at a public hearing held on October 31, 1994,
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that finding seven, requirements two and five, and provision six
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The "Monitoring and Reporting Program" requires you to implement
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If you have any questions regarding this matter, please contact
Keith Elliott at (213) 266-7614.

J.E. ROSS, Unit Chief
Site Cleanup Unit

cc: See mailing list

Enclosures

*This appears
to be an
original;
even though
it's marked
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OF
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GATX Tank Storage Terminals
Page 2

MAILING LIST

cc: Mr. Archie Matthews, State Water Resources Control Board,
Division of Water Quality
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South Coast Air Quality Management District
U. S. Army Corps of Engineers
Department of Interior, U. S. Fish and Wildlife Service
Department of Fish and Game, Region 5
Los Angeles County, Department of Public Works,
Waste Management Division
Los Angeles County, Fire Department - Health Hazardous
Materials Division
City of Carson, Department of Building and Safety
Mr. Chris Nagler, Department of Water Resources
Mr. Andrew Harvey, Science Applications International
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