1R - 205

GENERAL CORRESPONDENCE

YEAR(S):

1994 → 1993

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

OIL CONSERVATION DIVISION
RECEIVED
'94 FEB 24 AM 8 39

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

To: Bill Olson-Hydrogeologist

From: Wayne Price-Environmental Engineer District I

Subject: C-103 forms & Phillips Pit Closures

Date: February 22, 1994

Dear Bill,

Please find enclosed C-103's per your request. Also I could not find any files or information on the Phillips Pit Closures.

Attachments-3

cc: Jerry Sexton

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal | Time 0930 hrs. | Date 2/21/94

Originating Party	Other Parties
Bill Olson - Environmental Bureau	Wayne Price - OCD Hobbs.

Subject

Phillips Vacuum Field Pit Closure Final Report

Discussion

Requested copy of Hobbs District approval of Phillips inital work plan

Requested OCD Santa Fe recieve copies of all future approvals (i.e. sundry notice approval) of environmental remediation projects for use in central database

Conclusions or Agreements

He will look for Phillips approval and send to me

Distribution

Signed Bill Olson

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal | Time 1545 hrs. | Date 5/19/93

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Jerry Sexton - OCD Hobbs

Subject

Phillips Vacuum Field Surface Impoundment Closure

Discussion

Told him that closure plan needs to define extent of contamination from these pits because they are over the Ogallala Aquifer. Also told him that a final closure report is needed to document the work performed and extent of contamination

Conclusions or Agreements

He will make sure these items are taken care of

Distribution
file

Signed Bill Olson

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

May 13, 1993

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, new Mexico 87504

Re: Pit Closures, Phillips Petroleum
Lea and Eddy Counties, New Mexico

Dear Bill:

By now you should have received the original request for approval of the pit closures for Phillips Petroleum Company in Lea and Eddy Counties, New Mexico. We inadvertently included the request for approval of our proposal for both areas in the same letter to Jerry Sexton in Hobbs. I have subsequently found out that Artesia District II office will have to approve the Eddy County pit closure. Therefore we have redirected each request to the appropriate district office and both requests will be coming to Santa Fe via each district.

I would appreciate any assistance you may be able to provide in gaining an approval of the closure of the pits. Phillips is ready to start operations as soon as approval has been granted. If there is anything I can do to assist you, please call me at your convenience at (915) 682-7404.

Thank you for your help in the past. You folks are always a pleasure to deal with on each occasion I have had to talk to you.

Sincerley,

Mitchell Ritter

MRR/amc
Enclosures

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

May 13, 1993

Mr. Jerry Sexton
District Supervisor
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Re: Phillips Petroleum Company, Vacuum Field, Surface Impoundment Closure

Dear Mr. Sexton:

On May 12, 1993 you were sent correspondence and enclosures concerning surface impoundment closures in the Vacuum and Cabin Lake fields of Lea and Eddy counties, respectively. It has come to my attention that the proposed pit closure in Eddy County is under the jurisdiction of the Artesia offices of the NMOCD and not your district. Therefore, I would like to apologize for the inclusion of the Eddy County pit closure request in your correspondence.

We have rewritten and redirected our proposal to the Artesia NMOCD office for their approval of the pit closure in Eddy County. Enclosed please find an amended and corrected proposal concerning six Vacuum Field pits. You will note the change from four to six pits as we have identified two additional pits we wish to close in the Buckeye area.

I apologize for any confusion. If you have any questions or comments, please contact me at your earliest convenience at (915) 682-7404.

Sincerely,

Mitchell Ritter

MRR/amc
Enclosures

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119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

May 13, 1993

Mr. Jerry Sexton
District Manager
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Re: Surface Impoundment Closure - Phillips Petroleum Company/Vacuum Field Lea County, New Mexico

Dear Mr. Sexton:

Pursuant to our telephone conversation the other day, I am writing in reference to your request for a proposal from Ritter Environmental & Geotechnical Services (REGS) to provide our services in connection with the proposed remedial activities on six unlined earthen pits in the Vacuum Field of Lea County, New Mexico.

As these pits are being decommissioned by the operator, Phillips Petroleum Company, it is their desire to adhere to the currently established guidelines for pit (surface impoundment) closure as published by the NMOCD in February 1993 and to address the closure of these pits in a safe and cost effective manner. As an alternative to transporting and landfilling of these wastes (where in only a transfer of the problem occurs) and to long term bioremedial activities that would involve many months and possibly years to accomplish the current remedial guidelines as set forth by the NMOCD, we (REGS) through currently developed solidification techniques propose to treat the waste materials on site by stabilization of the waste through solidification.

We are currently utilizing combinations or separate application of portland cement, kiln dust and or fly ash to bind the wastes into a hardened monolithic block of concrete type material. Solidification refers to treatment systems which are designed to improve the handling and physical characteristics of such wastes, to decrease the surface area across which the transfer or loss of the waste characteristics can occur and to limit the solubility of those waste characteristics. This treatment effectively limits the leachate process and prevents the materials from entering the subsurface soils and groundwater. Stabilization techniques, such as solidification, have benefits primarily in limiting the solubility of the waste or by detoxifying the waste contaminants, even though the physical characteristics of the waste may or may not appear to be changed. It is intended that the following

procedures will be followed in the performance of our services:

I. **Preliminary Site Evaluation** - Includes a visual inspection (and sampling) of each pit and the surrounding area to determine site specific conditions such as; nearby surface waters, streams, surface soil types and depths, proximity to groundwater supply wells, physical and chemical properties of the contents of each pit and the treatability of those contents.

II. **Treatment/Solidification** - After careful preparation of the site for safe operations the solidification process begins. Solidification begins with the physical addition of the appropriate product(s) in the correct proportions to the type of waste involved. Mechanical mixing methods are utilized to thoroughly blend the waste material and the appropriate solidifying agent(s) with correct proportions of water. At this time, a curing process is allowed to take place for a period of approximately 48 hours. Post treatment core samples will be taken from each pit to determine TCLP parameters for volatile organic compounds (VOC's) such as Benzene and Total BTEX.

III. **Site Reclamation** - After treatment, the site will be reclaimed by placing native soils over the treated area and recontouring the site back to the original grade (if possible).

I have included analytical results of two separate series of bench tests we have performed on actual pit material from the Vacuum field. These tests have generated very pleasing results, wherein we have solidified pit sludge and performed TCLP, BTEX, and TPH analyses on the solidified samples. As you can see, in each case the solidified material renders the levels of BTEX and TPH leachability to acceptable levels in accordance with the NMOCD guidelines.

The first series of analyses dated 4-19-93, report no. 80622 from Southwestern Laboratories revealed very low BTEX levels of treated materials ranging from non-detectable Ethylbenzene and Xylenes to a TPH of 111 to 782 mg/kg. This bench test was run on pit sludge from the Vacuum field samples

A second series of analyses was run and dated 5-3-93. The series labeled B-1 through B-5 are the Buckeye area pit samples from the Vacuum field. Here again the analytical results of the treated pit sludge are within current NMOCD guidelines.

In reference to analytical tests currently run we would like to suggest to the NMOCD an

alternative to testing the pit material after treatment. We have determined through past experience with the solidification process that the TCLP procedure and methodology currently being used for identification of elevated levels of toxic compounds may not be the most appropriate methods for the analysis of actual site conditions post treatment.

We would suggest the adoption of a seven (7) day leachate test in lieu of the TCLP analysis. The seven (7) day leachate test is a non-violent test in which actual sub surface conditions are simulated by submersing the sample to be tested in deionized water for a period of seven (7) days prior to analyses of the water. This test simulates actual saturated groundwater conditions at the site and relates to leachability as opposed to the violent tumbling action the samples are subjected to in the TCLP methodology. Also, approximately the 20 to 1 dilution factor utilized in the TCLP methodology is not utilized in the seven (7) day leachate method.

We have obtained the following results utilizing the seven (7) day leachate test on the same samples previously run for TCLP:

SAMPLE #	TPH mg/l	BENZENE mg/l	ETHLYBENZENE mg/l	TOLUENE mg/l	XYLENE mg/l
B2-2	7.1	.006	.022	.008	.015
B-3	4.0	<.004	<.004	<.004	<.006
B-4	2.8	<.004	.011	<.004	.008

The methodology for the seven (7) day leachate test is as follows and is a part of the accepted methodology utilized by the Texas Water Commission (TWC) for landfill evaluations:

7-Day Distilled Water Leachate Test

This test is intended only for dry, solid wastes, i.e., waste materials without any free liquids.

1. Place a 250 gm. (dry weight) representative sample of the waste material in a 1500 ml. Erlenmeyer flask.
2. Add 1 liter of deionized or distilled water into the flask and mechanically stir the material at a low speed for five (5) minutes.
3. Stopper the flask and allow to stand for seven (7) days.

4. At the end of the seven (7) days, filter the supernatant solution through a .45 micron filter, collecting the supernatant into a separate flask.
5. subject the filtered leachate to the appropriate analysis.

Although we feel the above methodology is more appropriate, we will provide TCLP analyses should the above methodology not be approved.

I have included photographs of pit solidification performed in Southeast Montana, northeast of Wyoming and southwest of Wyoming. These pits were solidified with appropriate state agency approval.

We have also included copies of two excerpts from the Superfund Innovative Technology Evaluation program (SITE) funded and directed by the EPA to evaluate new technologies. These excerpts, although not identical to our process, are similar and provide some insight into the feasibility of our work.

We are hereby requesting your approval to apply and utilize the above described technology in the treatment of the surface impoundments referenced at the beginning of this correspondence. Your response should be directed to me at the letterhead address.

Thank you for taking the time to review this proposal. Your comments and assistance will be greatly appreciated.

Sincerely,

Mitchell Ritter

MRR/bk
cc: Mr. Bill Olson/NMOCD - Santa Fe, New Mexico

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES
119 N. Colorado, Suite 201, Midland, Texas 79701
Bus: (915) 682-7404 • Metro: (915) 570-6007 • Fax: (915) 682-7440

May 12, 1993

Mr. Jerry Sexton
District Manager
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Re: Surface Impoundment Closure - Phillips Petroleum Company/Vacuum Field Lea County, New Mexico, Cabin Lake Field of Eddy County, New Mexico

Dear Mr. Sexton:

Pursuant to our telephone conversation the other day, I am writing in reference to your request for a proposal from Ritter Environmental & Geotechnical Services (REGS) to provide our services in connection with the proposed remedial activities on four unlined earthen pits in the Vacuum Field of Lea County and one unlined pit in the Cabin Lake field in Eddy County, New Mexico.

As these pits are being decommissioned by the operator, Phillips Petroleum Company, it is their desire to adhere to the currently established guidelines for pit (surface impoundment) closure as published by the NMOCD in February 1993 and to address the closure of these pits in a safe and cost effective manner. As an alternative to transporting and landfilling of these wastes (where in only a transfer of the problem occurs) and to long term bioremedial activities that would involve many months and possibly years to accomplish the current remedial guidelines as set forth by the NMOCD, we (REGS) through currently developed solidification techniques propose to treat the waste materials on site by stabilization of the waste through solidification.

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III. **Site Reclamation** - After treatment, the site will be reclaimed by placing native soils over the treated area and recontouring the site back to the original grade (if possible).

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A second series of analyses was run and dated 5-3-93. The series labeled J-1, J-2, and J-3 represent the James Pit in the Cabin Lake field. The series labeled B-1 through B-5

are the Buckeye area pit samples from the Vacuum field. Here again the analytical results of the treated pit sludge are within current NMOCD guidelines.

In reference to analytical tests currently run we would like to suggest to the NMOCD an alternative to testing the pit material after treatment. We have determined through past experience with the solidification process that the TCLP procedure and methodology currently being used for identification of elevated levels of toxic compounds may not be the most appropriate methods for the analysis of actual site conditions post treatment.

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SAMPLE #	TPH mg/l	BENZENE mg/l	ETHLYBENZENE mg/l	TOLUENE mg/l	XYLENE mg/l
J-3 (JAMES PIT)	2.2	<.004	<.004	<.004	<.004
B2-2	7.1	.006	.022	.008	.015
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B-4	2.8	<.004	.011	<.004	.008

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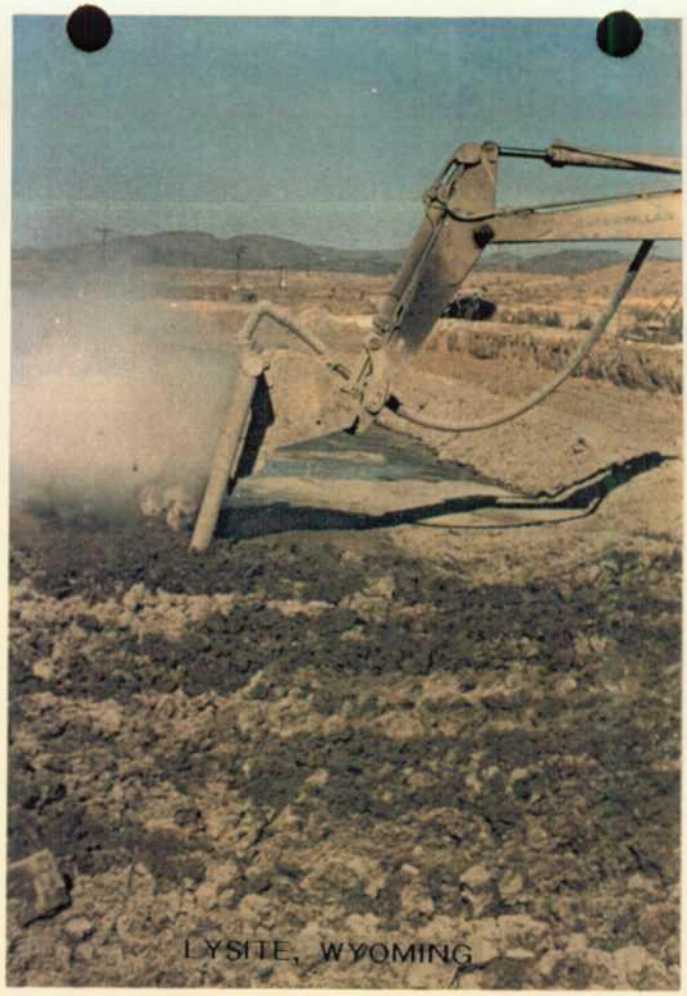
Sincerely,

Mitchell Ritter

MRR/bk
cc: Mr. Bill Olsom/NMOCD - Santa Fe, New Mexico


LYSITE, WYOMING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LABARGE, WYOMING

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Reacted Sludge Cake	**File No.**	6750100
Client	Ritter Environmental & Geotechnical Svs.	**Report No.**	80622
Delivered by	Mitch Ritter	**Report Date**	05-03-93
		Date Received	04-22-93

Identification Phillips Petroleum Co., Bench Test No. 2

REPORT OF ORGANICS ANALYSIS

Date of Extraction	04-30-93/05-01-93	**Extraction**	SW846,1311/ZHS
Date of BTEX Analysis	05-02-93	**Method**	SW846,5030/8020A
BTEX Analyst	A. Johnston	**MDL**	0.004 mg/kg
Date of Extraction	04-29-93	**Extraction**	SW846 1311
Date of TPH Analysis	04-30-93	**Method**	SW846,3550:EPA 418.1
TPH Analyst	S. Stovall	**MDL**	5.0 mg/kg

Sample Identification	Results, mg/L Benzene	Toluene	Ethylbenzene	Xylenes	Results, mg/kg TPH
J-1	—	—	—	—	669
J-2	*0.004	0.042	0.008	0.035	703
J-3	0.006	0.30	0.035	0.14	373
B-1	—	—	—	—	198
B-2-2	*0.004	0.62	0.019	0.036	647
B-3	—	—	—	—	448
B-4	*0.004	0.024	0.026	0.047	1344
B-5	—	—	—	—	353

*** Denotes "less than"**

Copies: Ritter Environmental & Geotechnical Services

NOTE: BTEX analysis was performed on the Zero Headspace extraction fluid. TPH analysis was performed on the Semi-Volatile extraction fluid.

Reviewed by

SOUTHWESTERN LABORATORIES

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on	Reacted Sludge Cake	File No.	6750100
Client	Ritter Environmental & Geotechnical Svs.	Report No.	80622
Delivered by	Mitch Ritter	Report Date	04-19-93
		Date Received	March, 1993

Identification: Phillips Petroleum Co., Pit No. 1, Vacuum Field
Sample of Tank Bottoms, Bench Test No. 1

CORRECTED COPY

REPORT OF ORGANICS ANALYSIS

Date of Extraction	4-13-93/4-14-93	Extraction	SW846,1311/ZHS
Date of BTEX Analysis	4-14-93/4-15-93	Method	SW846,5030/8020A
BTEX Analyst	L. Duty	MDL	0.004 mg/kg
Date of Extraction	4-13-93	Extraction	SW846 1311
Date of TPH Analysis	4-14-93	Method	SW846,3550:EPA 418.1
TPH Analyst	S. Stovall	MDL	5.0 mg/kg

Lab Number	Sample Identification	Results, mg/L Benzene	Toluene	Ethylbenzene	Xylenes	Results, mg/kg TPH
80622-1	Set 1	0.012	0.021	*0.004	0.006	111
80622-2	Set 3	0.020	0.23	*0.004	0.007	267
80622-3	Set 4	0.023	0.075	*0.004	0.004	493
80622-4	Set 6	0.017	0.007	*0.004	*0.004	782

NOTE: BTEX analysis was performed on the Zero Headspace extraction fluid.
TPH analysis was performed on the Semi-Volatile extraction fluid.

*Denotes "less than"

Copies: Ritter Environmental & Geotechnical Services

Reviewed by

SOUTHWESTERN LABORATORIES

United States
Environmental Protection
Agency

Office of Solid Waste and
Emergency Response
Washington, DC 20460

Office of Research and
Development
Washington DC 20460

Superfund

EPA/540/R-92/077 Nov. 1992

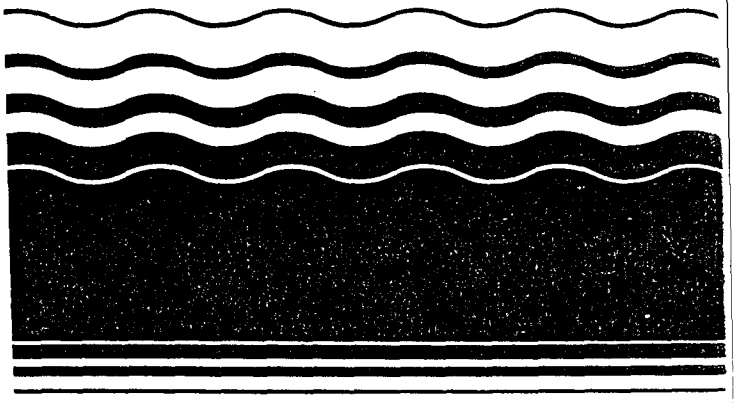
EPA

The Superfund Innovative Technology Evaluation Program:

Technology Profiles
Fifth Edition

SITE

SUPERFUND INNOVATIVE
TECHNOLOGY EVALUATION



WASTECH, INC.
(Solidification and Stabilization)

TECHNOLOGY DESCRIPTION:

This solidification and stabilization technology applies proprietary bonding agents to soils, sludge, and liquid wastes contaminated with organic and inorganic contaminants. The technology uses a reagent to chemically immobilize contaminants in wastes. The waste and reagent mixture is then mixed with pozzolanic, cementitious materials, which combine to form a stabilized matrix. Reagents are selected based on the characteristics of the waste to be treated. Treated material is a nonleaching, high-strength, stabilized end-product.

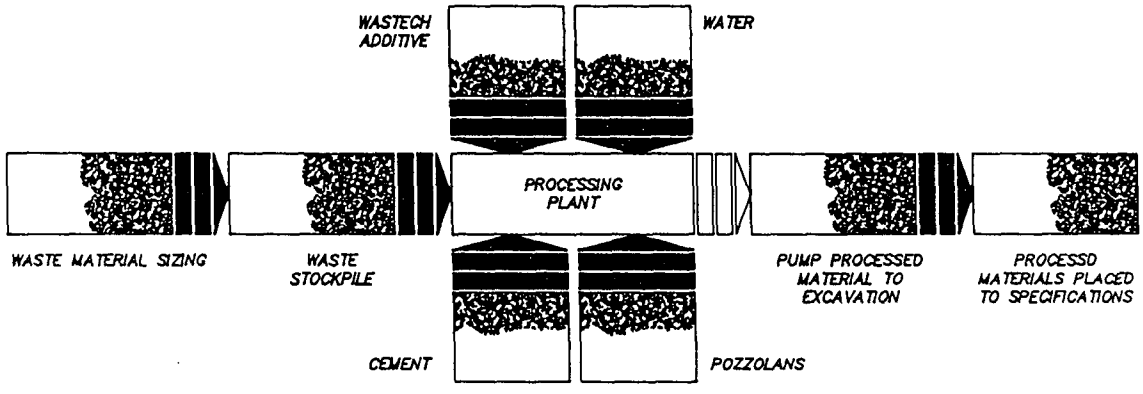
The process uses standard engineering and construction equipment. Because the type and dose of reagents depend on waste characteristics, treatability studies and site investigations must be conducted to determine the proper treatment formula.

Treatment usually begins with excavation of waste. Waste containing large pieces of debris must be pre-screened to remove the debris from the waste. The waste is then placed into a high shear mixer (see figure below), along with premeasured quantities of water and SuperSet®, WASTECH, Inc.'s (WASTECH) proprietary reagent.

Next, pozzolanic, cementitious materials are added to the waste-reagent mixture, stabilizing the waste and completing the treatment process. WASTECH's treatment technology does not generate by-products. The process may also be applied in situ.

WASTE APPLICABILITY:

WASTECH's technology can treat a wide variety of waste streams consisting of soils, sludges, and raw organic streams, such as lubricating oil, aromatic solvents, evaporator bottoms, chelating agents, and ion exchange resins, with contaminant concentrations ranging from parts per million levels to 40 percent by volume. The technology can also treat wastes generated by the petroleum, chemical, pesticide, and wood-preserving industries, as well as wastes generated



WASTECH Solidification and Stabilization Process

by many other chemical manufacturing and industrial processes. WASTECH's technology can also be applied to mixed wastes containing organic, inorganic, and radioactive contaminants.

STATUS:

The technology was accepted into the SITE Demonstration Program in spring 1989. A bench-scale evaluation of the process has been completed. A field demonstration at Robins Air Force Base in Warner Robins, Georgia, was completed in August 1991, where the WASTECH technology was used to treat high level organic and inorganic wastes at an industrial sludge pit. WASTECH is now conducting an abbreviated demonstration with a detailed mass balance evaluation, which should be completed in fall 1992. The technology is being commercially applied to treat hazardous wastes contaminated with various organics, inorganics, and mixed wastes.

FOR FURTHER INFORMATION:

EPA PROJECT MANAGER:
Terry Lyons
U.S. EPA
Risk Reduction Laboratory
26 West Martin Luther King Drive
Cincinnati, OH 45268
513-569-7589

TECHNOLOGY DEVELOPER CONTACT:
E. Benjamin Peacock
WASTECH, Inc.
P.O. Box 4638
114 Tulsa Road
Oak Ridge, TN 37830
615-483-6515
Fax: 615-483-4239

SOLIDITECH, INC.
(Solidification and Stabilization)

TECHNOLOGY DESCRIPTION:

This solidification and stabilization process immobilizes contaminants in soils and sludges by binding them in a concrete-like, leach-resistant matrix.

Contaminated waste materials are collected, screened to remove oversized material, and introduced to the batch mixer (see figure below). The waste material is then mixed with (1) water, (2) Urrichem -- a proprietary chemical reagent, (3) proprietary additives, and (4) pozzolanic material (fly ash), kiln dust, or cement. After it is thoroughly mixed, the treated waste is discharged from the mixer. Treated waste is a solidified mass with significant unconfined compressive strength, high stability, and a rigid texture similar to that of concrete.

WASTE APPLICABILITY:

This technology treats soils and sludges contaminated with organic compounds, metals, inorganic compounds, and oil and grease. Batch mixers of various capacities are available to treat different volumes of waste.

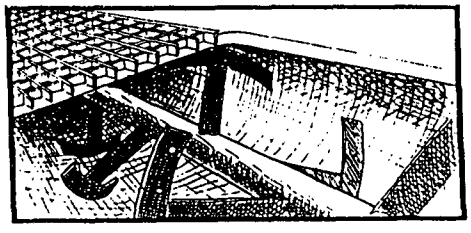
STATUS:

The process was demonstrated in December 1988 at the Imperial Oil Company/Champion Chemical Company Superfund site in Morganville, New Jersey. This location formerly contained both chemical processing and oil reclamation facilities. Wastes treated during the demonstration were soils, filter cake, and oily wastes from an old storage tank. These wastes were contaminated with petroleum hydrocarbons, polychlorinated biphenyls (PCB), other organic chemicals, and heavy metals.

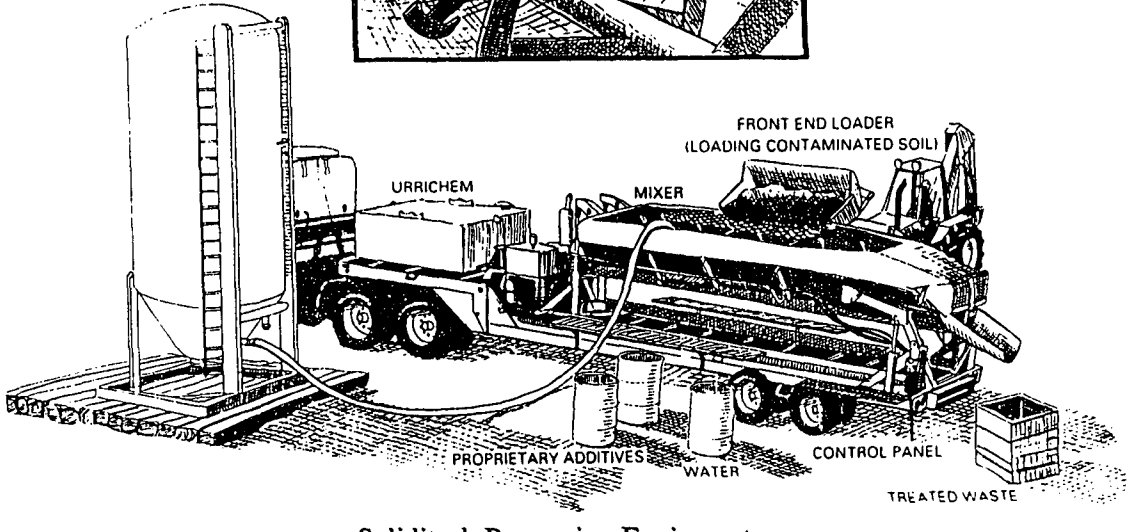
DEMONSTRATION RESULTS:

Key findings from the Soliditech demonstration are summarized below:

- Chemical analyses of extracts and leachates showed that heavy metals in the untreated waste were immobilized.



INTERNAL VIEW OF MIXER



Soliditech Processing Equipment

- The process solidified both solid and liquid wastes with high organic content (up to 17 percent), as well as oil and grease.
- Volatile organic compounds in the original waste were not detected in the treated waste.
- Physical test results of the solidified waste showed (1) unconfined compressive strengths ranging from 390 to 860 pounds per square inch (psi), (2) very little weight loss after 12 cycles of wet and dry and freeze and thaw durability tests, (3) low permeability of the treated waste, and (4) increased density after treatment.
- The solidified waste increased in volume by an average of 22 percent. Because of solidification, the bulk density of the waste material increased by about 35 percent.
- Semivolatile organic compounds (phenols) were detected in the treated waste and the Toxicity Characteristic Leaching Procedure (TCLP) extracts from the treated waste, but not in the untreated waste or its TCLP extracts. The presence of these compounds is believed to result from chemical reactions in the waste treatment mixture.
- Oil and grease content of the untreated waste ranged from 2.8 to 17.3 percent [28,000 to 173,000 parts per million (ppm)]. Oil and grease content of the TCLP extracts of the solidified waste ranged from 2.4 to 12 ppm.
- The pH of the solidified waste ranged from 11.7 to 12.0. The pH of the untreated waste ranged from 3.4 to 7.9.
- PCBs were not detected in any extracts or leachates of the treated waste.
- Visual observation of solidified waste revealed dark inclusions about 1 millimeter in diameter. Ongoing microstructural studies are expected to confirm that these inclusions are encapsulated wastes.

A Technology Evaluation Report was published in February 1990 in two volumes. Volume I (EPA/540/5-89/005) is the report; Volume II (EPA/540/5-89/005) contains supplemental data. An Applications Analysis Report was published in September 1990 (EPA/4540/A5-89/005).

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