

GW - 100

WORK PLANS

1994

RECEIVED

APR 08 1994

OIL CONSERVATION DIV.
SANTA FE

- OCO File Copy -

**CLOSURE PLAN
FOR THE COLLECTION SYSTEMS
AT THE
DOWELL SCHLUMBERGER INCORPORATED
FACILITY
FARMINGTON, NEW MEXICO**

March 28, 1994

Submitted To:

**New Mexico Oil Conservation District
P.O. Box 2088
Santa Fe, New Mexico 87504**

Submitted By:

**Dowell Schlumberger Incorporated
300 Schlumberger Drive
Sugarland, Texas 77478**

Prepared By:

**Western
Water
Consultants, Inc.** 

**611 Skyline Road
Laramie, Wyoming 82070**

**701 Antler Drive
Suite 233
Casper, WY 82601**

**1949 Sugarland Drive
Suite 134
Sheridan, WY 82801**

**1901 Energy Court
Suite 270
Gillette, WY 82716**

**Western
Water
Consultants, Inc.**

TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE	1
2.0 SITE DESCRIPTION	2
3.0 COLLECTION SYSTEMS	4
3.1 Truck Wash Bays and Separator System	4
3.2 Loading Dock and Collection Sump	4
4.0 PROPOSED CLOSURE ACTIVITIES	7
4.1 Wastewater and Sludge	7
4.2 Separators, Collection Sumps, and Loading Dock	9
4.3 Surrounding and Subsoil Excavation	9
4.4 Reclamation	11

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2-1 Site Plan	3
3-1 Truck Washbay and Oil/Water Separator	5
3-2 Loading Dock and Collection Sump	6

LIST OF TABLES

<u>Tables</u>	<u>Page</u>
4-1 Separator and Sump In-place Analysis, Dowell Schlumberger Incorporated, Farmington, New Mexico	8

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

Appendix A Laboratory Data Reports

1.0 PURPOSE

1.0 PURPOSE

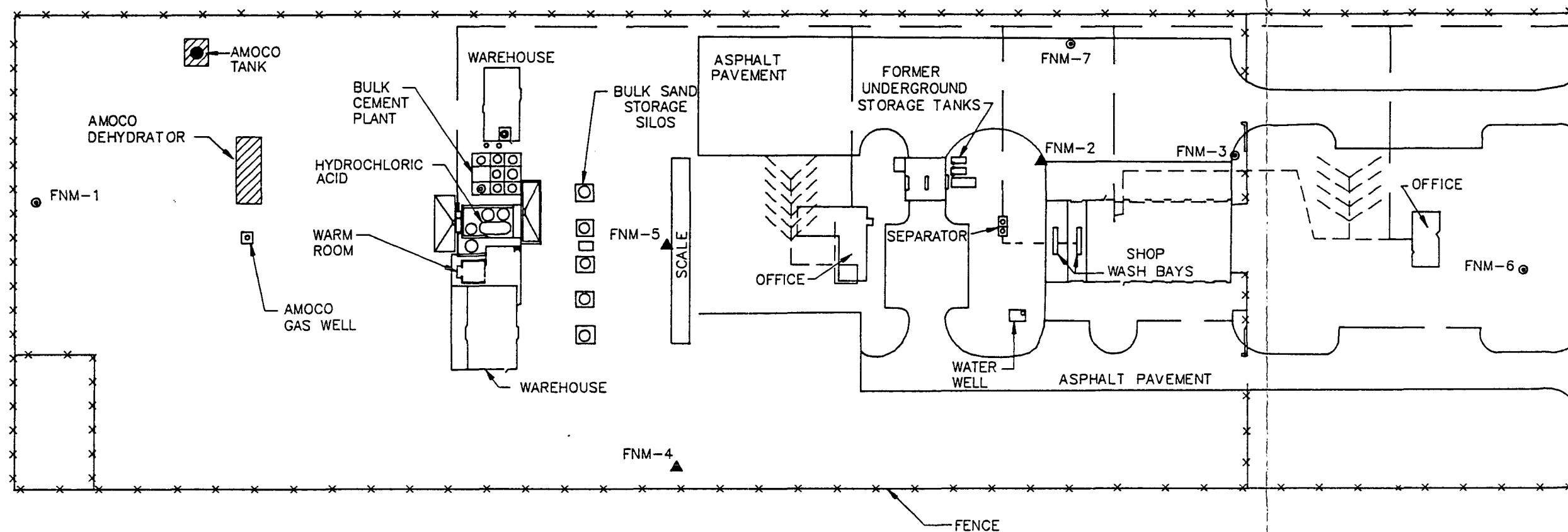
This closure plan is for the removal of two oil/water separator tanks, two truck wash bays with associated collection sumps, and a loading dock and collection sump at the Dowell Schlumberger Incorporated (Dowell) facility in Farmington, New Mexico.

2.0 SITE DESCRIPTION

2.0 SITE DESCRIPTION

The Dowell facility is located at 3106 Bloomington Highway in Farmington, New Mexico. A site plan of the facility is shown on Figure 2-1.

The Dowell facility provides services for oil and gas production wells. Services include well cementing, acidizing/stimulating and formation fracturing.



EXPLANATION

- FNM-1 MONITORING WELL LOCATION AND IDENTIFICATION
- FNM-4 ABANDONED MONITORING WELL (8/26/92)

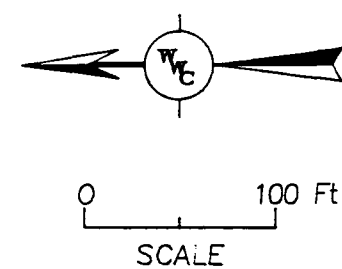


FIGURE 2-1

SITE PLAN

DOWELL SCHLUMBERGER FACILITY
FARMINGTON, NEW MEXICO

Western
Water
Consultants, Inc.

3.0 COLLECTION SYSTEMS

3.0 COLLECTION SYSTEMS

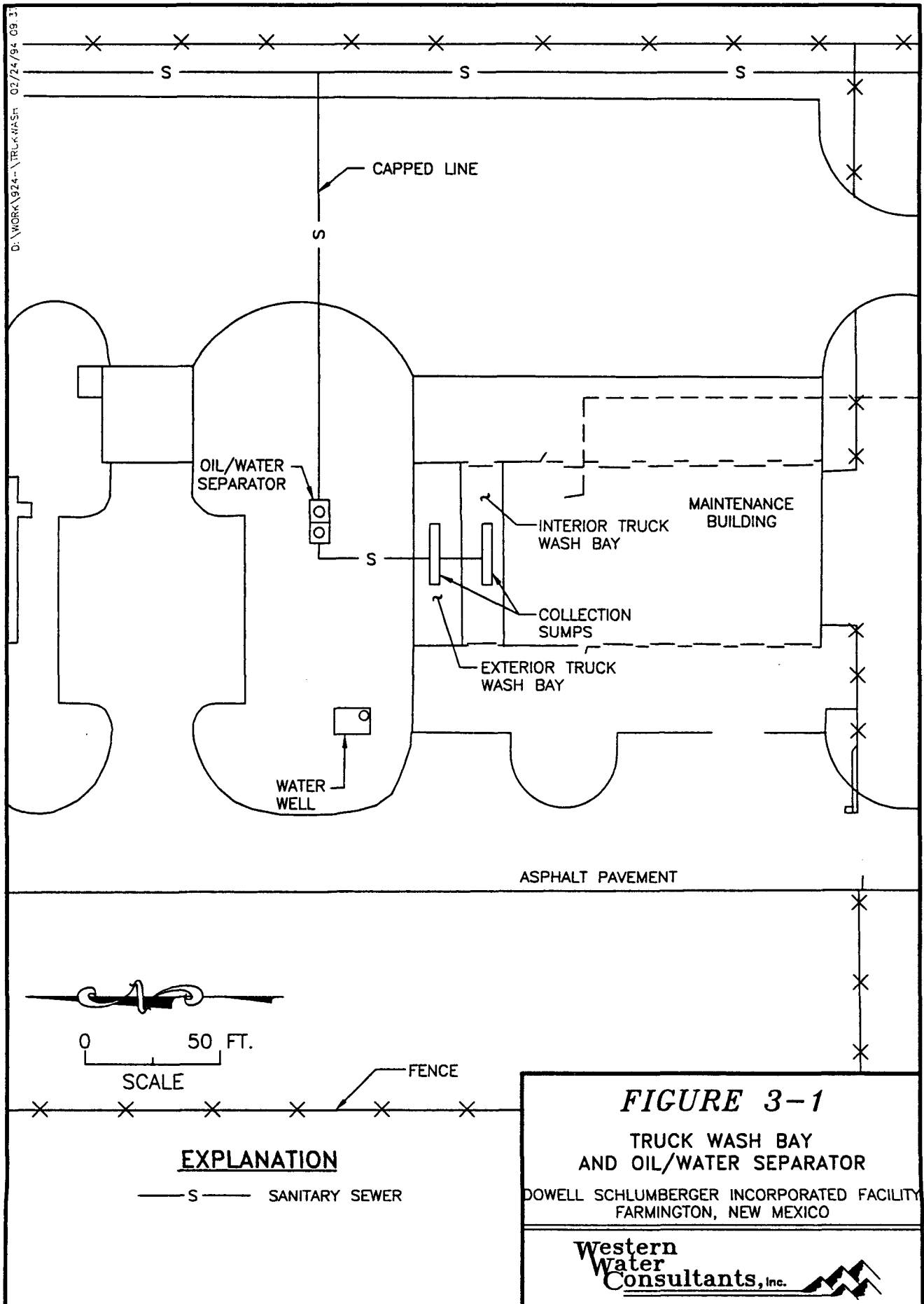
The following sections detail the collection systems at the Dowell, Farmington facility which will be closed under this plan.

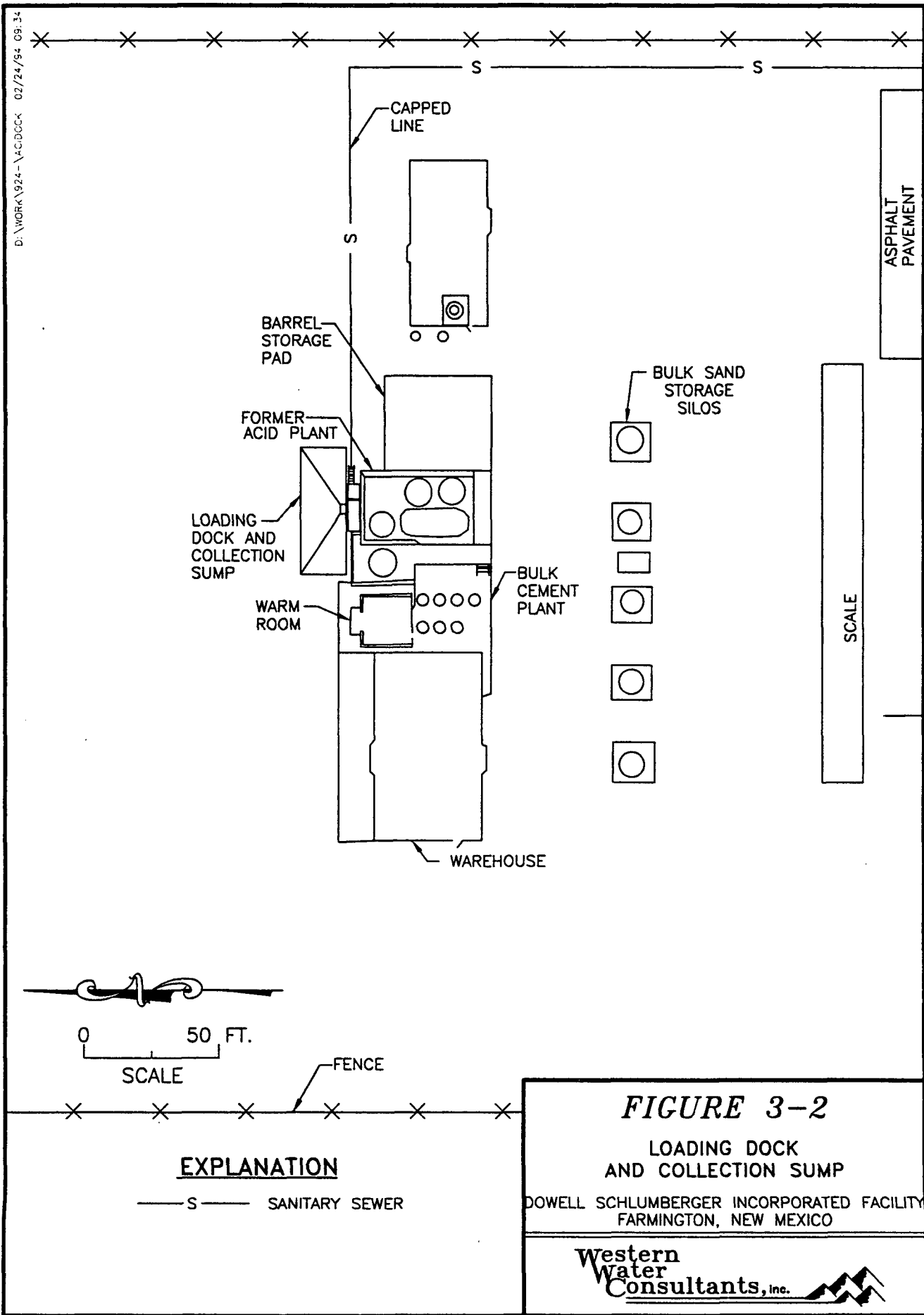
3.1 Truck Wash Bays and Separator System

The truck wash bays and oil/water separator system are located in the central portion of the facility (Figure 3-1). The system is comprised of two former truck wash bays, one inside the maintenance building and the other just north of the building. Neither bay is in use. The interior and exterior wash bay collection sumps are still intact and are connected to the separator tanks by a six-inch drain line (Figure 3-1). The line from the separator to the sanitary sewer line has been capped.

3.2 Loading Dock and Collection Sump

The loading dock and collection sump are located in the north central portion of the facility (Figure 3-2). The collection sump formerly received stormwater and incidental spills from the former acid plant. The collection sump is surrounded by a concrete pad (Figure 3-2). The entire acid plant has been out of service since May 1993.





4.0 PROPOSED CLOSURE ACTIVITIES

4.0 PROPOSED CLOSURE ACTIVITIES

Closure of the two systems will be in accordance with Discharge Plan GW-100 which was approved by the New Mexico Oil Conservation Division (NMOCD) August 1992. Both the truck wash bays and separator system as well as the loading dock collection sump will be subject to the following proposed closure activities.

4.1 Wastewater and Sludge

Composite samples of the wastewater and sludge remaining in the wash bay sumps and separator tanks system were collected by Western Water Consultants, Inc. (WWC) of Laramie, Wyoming on September 29, 1993. The samples were designated 924-sep-west and 924-sep-east.

Samples were sent to Cenref Laboratories of Brighton, Colorado for analysis by Toxicity Characteristic Leaching Procedure (TCLP) for volatile organics and metals. Total petroleum hydrocarbons (TPH), representing the diesel range, were also part of the analysis in anticipation of disposal requirements. Results of the analysis are illustrated on Table 4-1. The laboratory reports are contained in Appendix A. All analytical work confirmed that the sump and separator contents are non-hazardous. The loading dock collection sump is silted in, thus no samples were collected.

Wastewater in the collection sumps and separator at the time of closure will be evacuated and disposed at the Southwest Inc. Disposal facility of Blanco, New Mexico. Sludge in the collection sumps and separator will be evacuated and placed on plastic sheeting within a

Table 4-1: Separator and Sump In-place Analysis, Dowell Schlumberger Incorporated, Farmington, New Mexico.

TCLP Organics (mg/L)

Sample ID	Total Petroleum Hydrocarbon	Carbon Tetrachloride		Chloro-benzene		Chloroform		1,4-Dichloro-benzene		1,2-Dichloro-ethane		1,1-Dichloro-ethene		Methyl Ethyl Ketone		Tetrachloro-ethene		Trichloro-ethene		Vinyl Chloride	
		Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene	Benzene
TCLP limit	NA	0.5	0.5	0.5	100	6	7.5	0.5	0.7	200	0.7	0.5	0.2	0.2	0.2	0.7	0.5	0.5	0.2	0.2	0.2

AQUEOUS

924-sep-west	86	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.050)
924-sep-east	84	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.5)	ND(0.1)	ND(0.1)	ND(0.5)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.5)	ND(0.5)

SLUDGE

924-sep-west	25000	0.019	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.050)
924-sep-east	45000	0.02	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.050)

Inorganics (mg/L)

Sample ID	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	pH
TCLP limit	5	100	1	5	5	0.2	1	5	

AQUEOUS

924-sep-west	0.4	0.501	0.086	0.358	0.21	ND(0.0005)	ND(0.09)	ND(0.007)	
924-sep-east	0.5	0.682	0.135	0.623	0.23	ND(0.0005)	ND(0.09)	ND(0.007)	

SLUDGE

924-sep-west	ND(0.2)	1.12	0.019	ND(0.010)	ND(0.08)	ND(0.0005)	ND(0.09)	ND(0.007)	7.0
924-sep-east	0.2	0.92	0.023	ND(0.010)	0.09	ND(0.0005)	ND(0.09)	ND(0.007)	

Notes: TCLP - Toxicity Characteristic Leaching Procedure

ND - None detectable at the concentrations shown in parenthesis

temporary revetment constructed in the northern portion of the facility. This material will be incorporated with material described in Section 4.3 and characterized for disposal.

4.2 Separators, Collection Sumps, and Loading Dock

Once the wastewater and sludge are removed from the interior wash bay collection sump the integrity of the sump will be inspected. If no cracks or defects are noted, the sump will be filled with concrete and considered a "clean closure". If defects are noted, the interior wash bay sump will be removed and the area excavated similar to the closure activities described below for the other structures.

Excavation and removal from the ground of the separator and collection sumps will occur following the removal of the wastewater and sludge. The concrete pads of the exterior truck wash bay and loading dock will be lifted from the ground surface. The separator and concrete pieces will be cleaned onsite to remove debris adhering to them. Removed debris will be placed in the plastic lined temporary revetment. This material, also will be characterized for disposal by laboratory analysis as stated in the following section. Once clean, the separator tanks will be demolished. The tank and concrete pieces will be transported and disposed in the local landfill.

4.3 Surrounding and Subsoil Excavation

After removal of the separator, sumps, and slabs from the ground, the soils underlying and surrounding the excavations will be field-screened by headspace analysis with an

Environmental Instruments 580D Photoionization Detector to detect possible contaminants in the soil.

If no contaminants are detected in the soil headspace from the samples immediately beneath and surrounding the excavations, removal of the separator, collection sumps, and slabs will be considered "clean closure". The excavations will be backfilled with clean fill, imported from off-site.

If contaminants are detected in the soil headspace from the samples immediately beneath and/or surrounding the former separator and/or sumps, such soils will be removed. Removal activities will attempt to remove all contaminated soil but must be limited due to the presence of nearby structures. Removal activities will be limited to 5 feet surrounding the initial excavation of the tanks and sumps where possible and no greater than 5 feet below the tanks and sump bottoms. Less material will be removed if justified by field screening.

Excavated soils will be placed in the plastic lined temporary revetment. One composite sample will be collected from the soils pile for laboratory analysis to determine appropriate disposal. The soil sample will be composited from five samples collected from random locations within the interior of the pile. The composite sample will be analyzed by TCLP for volatile organic compounds and metals; TPH by modified method 8015 (diesel range).

Effectiveness of the excavations will be confirmed by laboratory analysis of composite soil samples from each of the excavations. The samples from each excavation will be collected from a minimum of five separate in-place locations in the excavations. The soil samples will be analyzed by TCLP for volatile organic compounds and metals; TPH by modified method

8015 (diesel range). If no contaminants are detected, the excavations will be considered "clean closures".

4.4 Reclamation

The excavations will be filled to the surrounding surface by importing clean fill. The fill will be emplaced in 6-inch lifts and compacted. An asphalt pad will be placed over the area of the former exterior wash bay and interior wash bay if needed. The loading dock and collection sump may be replaced as part of the construction of a new acid plant at the facility which will occur under a separate project. All plans and specifications for a new facility will be submitted to NMOCD for approval prior to beginning construction.

APPENDIX A

LABORATORY DATA REPORTS

695 North Seventh Street
Brighton, Colorado 80601-1559
Telephone 303 659-0497

Cenref Labs

Analytical Chemistry Laboratories

November 15, 1993

REPORTING:

Western Water Consultants
611 Skyline Road
Laramie, WY 82070

Attention: Scott Gustin

INVOICING:

Western Water Consultants
611 Skyline Road
Laramie, WY 82070

Attention: Scott Gustin

CENREF PROJECT NUMBER: PR932228A

DATE COMPLETED: November 15, 1993

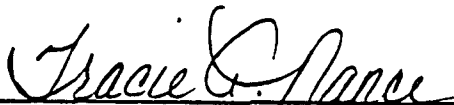
DATE RECEIVED: October 27, 1993

PROJECT DESCRIPTION:

2 water samples & 2 sludge samples for Western Water Consultants taken 9/29/93.
Project #924.

Enclosed is the laboratory report for the project described above. If you have any questions or if we can be of further assistance, please feel free to contact us. We appreciate your business and look forward to serving you again soon.

Respectfully,



Tracie A. Nance
Project Manager

CHAIN OF CUSTODY RECORD AND SAMPLING SHIPPING PAPERS

PROJECT NO. PROJECT NAME		CONTAINER TYPE		NO. OF CONTAINERS		REMARKS	
SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLE TYPE	1st Tier	2nd Tier
724-Sep-Est	9-28-93	1400	✓		water	1	2
724-Sep-Wet	9-28-93	1430	✓		water	1	2
724-Sep-Est Sludge	9-28-93	1400	✓		sludge	1	2
724-Sep-Wet Sludge	9-28-93	1430	✓		sludge	1	2
Analysis Requested: 1) TCLP 2) Volatile Organics 3) metals 4) TPH and SOD - Diesel range 5) pH Samples placed in cooler and ice immediately after collection							
Relinquished by: (signature)		Date / Time		Received by: (signature)		Date / Time	
Relinquished by: (signature)		Date / Time		Received by: (signature)		Date / Time	

DISTRIBUTION: White - ORIG. RETURN TO WWC

REMARKS: * Note TPH samples need preservative!!

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A

SAMPLE IDENTIFICATION

CROSS REFERENCE SHEET

CENREF SAMPLE NUMBER

CLIENT SAMPLE IDENTIFICATION

SAMPLE DATE

10731A

#924-sep-West

9/29/93

10732A

#924-sep-East

9/29/93

10733A

#924-sep-East-Sludge

9/29/93

10734A

#924-sep-West-Sludge

9/29/93

FINAL RESULTS

Client : Western Water Consultants
Project : PR932228A

COMPANY NAME: Western Water Consultants
CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10731A
SAMPLE IDENTIFICATION: #924-sep-West
DATE SAMPLED: 9/29/93
DATE/TIME ANALYZED: 10/13/93 @ 11:36

METHOD EPA 8240

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Benzene	71-43-2	10	BDL
Carbon Tetrachloride	56-23-5	10	BDL
Chlorobenzene	108-90-7	10	BDL
Chloroform	67-66-3	10	BDL
1,4-Dichlorobenzene	106-46-7	10	BDL
1,2-Dichloroethane	107-06-2	10	BDL
1,1-Dichloroethene	75-35-4	10	BDL
2-Butanone	78-93-3	50	BDL
Tetrachloroethene	127-18-4	10	BDL
Trichloroethene	79-01-6	10	BDL
Vinyl Chloride	75-01-4	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: Sample was diluted due to a high hydrocarbon content. No TCLP extraction performed because solid content was <0.5%. Analysis was reported as total concentration.

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10731A
SAMPLE IDENTIFICATION: #924-sep-West
DATE SAMPLED: 9/29/93
DATE EXTRACTED: 10/28/93
DATE/TIME ANALYZED: 11/2/93 @ 05:55

METHOD Mod. 8015

ANALYSIS

	<u>SDL</u> (mg/l)	<u>RESULT</u> (mg/l)
Total Extractable Hydrocarbons	1	86

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10731A
SAMPLE IDENTIFICATION: #924-sep-West
DATE SAMPLED: 9/29/93

<u>ANALYSIS</u>	<u>DATE/TIME</u> <u>EXTRACTED</u>	<u>DATE/TIME</u> <u>ANALYZED</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Arsenic	10-06/17:30	10-15/08:36	6010	mg/l	0.2	0.4
Barium	10-06/17:30	10-15/13:47	6010	mg/l	0.020	0.501
Cadmium	10-06/17:30	10-15/10:30	6010	mg/l	0.005	0.086
Chromium	10-06/17:30	10-15/02:32	6010	mg/l	0.010	0.358
Lead	10-06/17:30	10-15/01:25	6010	mg/l	0.08	0.21
Mercury	10-11/12:15	10-11/16:00	7470	mg/l	0.0005	BDL
Selenium	10-06/17:30	10-15/06:24	6010	mg/l	0.09	BDL
Silver	10-06/17:30	10-15/12:35	6010	mg/l	0.007	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: No TCLP extraction performed because solid content was <0.5%.
Analysis was reported as total concentration.

COMPANY NAME: Western Water Consultants
CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10732A
SAMPLE IDENTIFICATION: #924-sep-East
DATE SAMPLED: 9/29/93
DATE/TIME ANALYZED: 10/11/93 @ 17:51

METHOD EPA 8240

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Benzene	71-43-2	100	BDL
Carbon Tetrachloride	56-23-5	100	BDL
Chlorobenzene	108-90-7	100	BDL
Chloroform	67-66-3	100	BDL
1,4-Dichlorobenzene	106-46-7	100	BDL
1,2-Dichloroethane	107-06-2	100	BDL
1,1-Dichloroethene	75-35-4	100	BDL
2-Butanone	78-93-3	500	BDL
Tetrachloroethene	127-18-4	100	BDL
Trichloroethene	79-01-6	100	BDL
Vinyl Chloride	75-01-4	500	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: Sample was diluted due to high hydrocarbon content.
No TCLP extraction performed because solid content was <0.5%.
Analysis was reported as total concentration.

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A

CENREF SAMPLE NUMBER: 10732A

SAMPLE IDENTIFICATION: #924-sep-East

DATE SAMPLED: 9/29/93

DATE EXTRACTED: 10/28/93

DATE/TIME ANALYZED: 11/2/93 @ 09:15

METHOD Mod. 8015

ANALYSIS

	<u>SDL</u> (mg/l)	<u>RESULT</u> (mg/l)
Total Extractable Hydrocarbons	1	84

BDL = Below Sample Detection Limit

SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10732A
SAMPLE IDENTIFICATION: #924-sep-East
DATE SAMPLED: 9/29/93

<u>ANALYSIS</u>	<u>DATE/TIME</u> <u>EXTRACTED</u>	<u>DATE/TIME</u> <u>ANALYZED</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
Arsenic	10-06/17:30	10-15/08:36	6010	mg/l	0.2	0.5
Barium	10-06/17:30	10-15/13:47	6010	mg/l	0.020	0.682
Cadmium	10-06/17:30	10-15/10:30	6010	mg/l	0.005	0.135
Chromium	10-06/17:30	10-15/02:32	6010	mg/l	0.010	0.623
Lead	10-06/17:30	10-15/01:25	6010	mg/l	0.08	0.23
Mercury	10-11/12:15	10-11/16:00	7470	mg/l	0.0005	BDL
Selenium	10-06/17:30	10-15/06:24	6010	mg/l	0.09	BDL
Silver	10-06/17:30	10-15/12:35	6010	mg/l	0.007	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: No TCLP extraction performed because solid content was <0.5%.
Analysis was reported as total concentration.

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10733A
SAMPLE IDENTIFICATION: #924-sep-East-Sludge
DATE SAMPLED: 9/29/93
DATE/TIME ANALYZED: 11/10/93 @ 15:27

ZHE EXTRACTION
METHOD EPA 8240

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Benzene	71-43-2	10	20
Carbon Tetrachloride	56-23-5	10	BDL
Chlorobenzene	108-90-7	10	BDL
Chloroform	67-66-3	10	BDL
1,4-Dichlorobenzene	106-46-7	10	BDL
1,2-Dichloroethane	107-06-2	10	BDL
1,1-Dichloroethene	75-35-4	10	BDL
2-Butanone	78-93-3	50	BDL
Tetrachloroethene	127-18-4	10	BDL
Trichloroethene	79-01-6	10	BDL
Vinyl Chloride	75-01-4	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A

CENREF SAMPLE NUMBER: 10733A

SAMPLE IDENTIFICATION: #924-sep-East-Sludge

DATE SAMPLED: 9/29/93

DATE EXTRACTED: 10/5/93

DATE/TIME ANALYZED: 10/8/93 @ 18:34

METHOD Mod. 8015

<u>ANALYSIS</u>	<u>SDL</u> (mg/l)	<u>RESULT</u> (mg/l)
Total Extractable Hydrocarbons	1000	45000

BDL = Below Sample Detection Limit

SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10733A
SAMPLE IDENTIFICATION: #924-sep-East-Sludge
DATE SAMPLED: 9/29/93

<u>ANALYSIS</u>	<u>DATE/TIME</u> <u>EXTRACTED</u>	<u>DATE/TIME</u> <u>ANALYZED</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
TCLP Extraction			1311			
Arsenic	10-29/15:15	11-11/17:47	6010	mg/l	0.2	0.2
Barium	10-29/15:15	11-11/17:18	6010	mg/l	0.020	0.92
Cadmium	10-29/15:15	11-10/20:49	6010	mg/l	0.005	0.023
Chromium	10-29/15:15	11-11/16:42	6010	mg/l	0.010	BDL
Lead	10-29/15:15	11-10/22:52	6010	mg/l	0.08	0.09
Mercury	11-02/10:15	11-02/13:30	7470	mg/l	0.0005	BDL
Selenium	10-29/15:15	11-11/19:47	6010	mg/l	0.09	BDL
Silver	10-29/15:15	11-10/21:38	6010	mg/l	0.007	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants
CENREF PROJECT NUMBER: PR932228A
CENREF SAMPLE NUMBER: 10734A
SAMPLE IDENTIFICATION: #924-sep-West-Sludge
DATE SAMPLED: 9/29/93
DATE/TIME ANALYZED: 11/10/93 @ 16:08

ZHE EXTRACTION
METHOD EPA 8240

<u>ANALYSIS</u>	<u>CAS NO.</u>	<u>SDL</u> (ug/l)	<u>RESULT</u> (ug/l)
Benzene	71-43-2	10	19
Carbon Tetrachloride	56-23-5	10	BDL
Chlorobenzene	108-90-7	10	BDL
Chloroform	67-66-3	10	BDL
1,4-Dichlorobenzene	106-46-7	10	BDL
1,2-Dichloroethane	107-06-2	10	BDL
1,1-Dichloroethene	75-35-4	10	BDL
2-Butanone	78-93-3	50	BDL
Tetrachloroethene	127-18-4	10	BDL
Trichloroethene	79-01-6	10	BDL
Vinyl Chloride	75-01-4	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A

CENREF SAMPLE NUMBER: 10734A

SAMPLE IDENTIFICATION: #924-sep-West-Sludge

DATE SAMPLED: 9/29/93

DATE EXTRACTED: 10/29/93

DATE/TIME ANALYZED: 11/3/93 @ 04:50

METHOD Mod. 8015

ANALYSIS

	<u>SDL</u> (mg/l)	<u>RESULT</u> (mg/l)
Total Extractable Hydrocarbons	1000	25000

BDL = Below Sample Detection Limit

SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR932228A

CENREF SAMPLE NUMBER: 10734A

SAMPLE IDENTIFICATION: #924-sep-West-Sludge

DATE SAMPLED: 9/29/93

<u>ANALYSIS</u>	<u>DATE/TIME</u> <u>EXTRACTED</u>	<u>DATE/TIME</u> <u>ANALYZED</u>	<u>METHOD</u>	<u>UNITS</u>	<u>SDL</u>	<u>RESULT</u>
TCLP Extraction			1311			
Arsenic	10-29/15:15	11-11/17:47	6010	mg/l	0.2	BDL
Barium	10-29/15:15	11-11/17:18	6010	mg/l	0.020	1.12
Cadmium	10-29/15:15	11-10/20:49	6010	mg/l	0.005	0.019
Chromium	10-29/15:15	11-11/16:42	6010	mg/l	0.010	BDL
Lead	10-29/15:15	11-10/22:52	6010	mg/l	0.08	BDL
Mercury	11-02/10:15	11-02/13:30	7470	mg/l	0.0005	BDL
Selenium	10-29/15:15	11-11/19:47	6010	mg/l	0.09	BDL
Silver	10-29/15:15	11-10/21:38	6010	mg/l	0.007	BDL
pH	_____	_____	150.1	pH	—	7

BDL = Below Sample Detection Limit

SDL = Sample Detection Limit

COMMENTS: _____

CENREF QC DATA PACKAGE

Client : Western Water Consultants
Project : PR932228A

Cenref Labs
Total Extractable Hydrocarbon Spike Recovery Form

Project#: PR932228
Matrix: SOIL
Sample ID: LAB SPIKES

Compound	Amount Added (mg/KG)	Sample Conc.	Spike Conc.	% Rec.	Spike Dup Conc.	% Rec.	RPD
TEH	1000	0	900	90	900	90	0

Comments:

CENREF LABS
Method Blank Summary

Project #:PR932228

[illegible]

CENREF LABS
Water/Soil Surrogate Recovery

Project #: PR932228
Client : Western Water Consultants
Level (low/medium): Low

Sample	VOLATILE WATERS			VOLATILE SOILS		
	Toluene-d8	Bromofluoro-benzene	1,2-Dichloro-ethane-d4	Toluene-d8	Bromofluoro-benzene	1,2-Dichloro-ethane-d4
QC limits	88-110	86-115	76-114	81-117	74-121	70-121
VBLK1	100	90	100			
VBLK2	103	99	101			
10731	107	102	110			
10732	100	92	98			
10736	101	88	94			
10737	104	91	89			
10753	108	101	89			
10731MS	104	93	104			
10731MSD	101	98	105			

*-values outside of QC limits
VOA Waters: 0 out of 27 outside of QC limits
VOA Soils : out of outside of QC limits

Comments:

CENREF LABS

Water Matrix Spike Recoveries

Project #: PR932228

Client : Western Water Consultants

Fraction	Sample #	Compound	Spike Added (ug/L)	Sample Result	Conc. MS	% Rec.	Conc. MSD	% Rec.	RPD	QC Limits RPD Recovery
VOA	10731	1,1-Dichloroethene	500	0	500	100	510	102	2	14 61-145
		Trichloroethene	500	0	570	114	540	108	5	14 71-120
		Chlorobenzene	500	0	570	114	590	118	3	13 75-130
		Toluene	500	150	710	112	740	118	4	13 76-125
		Benzene	500	0	570	114	550	110	4	11 76-127

Soil Matrix Spike Recoveries

Level (low/medium):

Fraction	Sample #	Compound	Spike Added (ug/Kg)	Sample Result	Conc. MS	% Rec.	Conc. MSD	% Rec.	RPD	QC Limits RPD Recovery
VOA		1,1-Dichloroethene								22 59-172
		Trichloroethene								24 62-137
		Chlorobenzene								21 60-133
		Toluene								21 59-139
		Benzene								21 66-142

* Asterisked values are outside QC limits

Water RPD : 0 out of 5 outside QC limits Water Recovery: 0 out of 10 outside QC limits
 Soil RPD : out of out of outside QC limits Soil Recovery: out of out of outside QC limits

Comments:

Project #: PR932228
Client : Western Water Consultants

Client : Western Water Consultants

Comments:

CENREF LABS

Client : Western Water Consultants

Level (low/medium): Low

**values outside of QC limits		
VOA Waters:	0	out of 18 outside of QC limits
VOA Soils :		out of outside of QC limits

Comments:

CENREF LABS

Water Matrix Spike Recoveries

Project #: PR932228A

Client : Western Water Consultants

Fraction	Sample #	Compound	Spike Added (ug/L)	Sample Result	Conc. MS	% Rec.	Conc. MSD	% Rec.	RPD	QC Limits RPD Recovery
VOA	11601	1,1-Dichloroethene	500	0	440	88	460	92	4	61-145
		Trichloroethene	500	0	470	94	480	96	2	71-120
		Chlorobenzene	500	0	470	94	490	98	4	75-130
		Toluene	500	0	480	96	500	100	4	76-125
		Benzene	500	0	490	98	500	100	2	76-127

Soil Matrix Spike Recoveries

Level (low/medium):

Fraction	Sample #	Compound	Spike Added (ug/Kg)	Sample Result	Conc. MS	% Rec.	Conc. MSD	% Rec.	RPD	QC Limits RPD Recovery
VOA		1,1-Dichloroethene								22 59-172
		Trichloroethene								24 62-137
		Chlorobenzene								21 60-133
		Toluene								21 59-139
		Benzene								21 66-142

* Asterisked values are outside QC limits

Water RPD : 0 out of 5 outside QC limits Water Recovery: 0 out of 10 outside QC limits
 Soil RPD : out of out of outside QC limits Soil Recovery: out of out of outside QC limits

Comments: Shares QC with another industrial project.

Project #: PR932228A
Client : Western Water Consultants

Client : Western Water Consultants

Comments:

PROJECT NO.: PR932228

[illegible]

SDL = Sample Detection Limit

M qualifiers: P - ICP
A - Flame AA
F - Furnace AA
CV- Cold Vapor

C - Manual Spectrophotometric
T - Titrimetric
O - Other

Comments:

INOC#3

MATRIX: TCLP

CENREF LABS

INORGANIC QUALITY CONTROL DATA SUMMARY

MATRIX SPIKES / LCS SAMPLES

PROJECT NO.: PR932228

MATRIX: TCLP

UNITS: mg/L

[illegible]

Q qualifiers: N - Spiked sample recovery not within control limits. (75-125%)
* - RPD not within control limits. (0-20%)
D - Matrix spikes were diluted out.

Note: For the following a LCS/LCSD are routinely analyzed due to the variability of these in samples; Water - Ca, Mg, K, Na; Soil - Ca, Mg, K, Na, Al, Fe.

Comments: There appears to be a matrix interference present for mercury which is

illustrated by the poor but reproducible spike recoveries.

—INOC#1

PROJECT NO.: PR932228A

[illegible]

SDL = Sample Detection Limit

M qualifiers: P - ICP
A - Flame AA
F - Furnace AA
CV- Cold Vapor

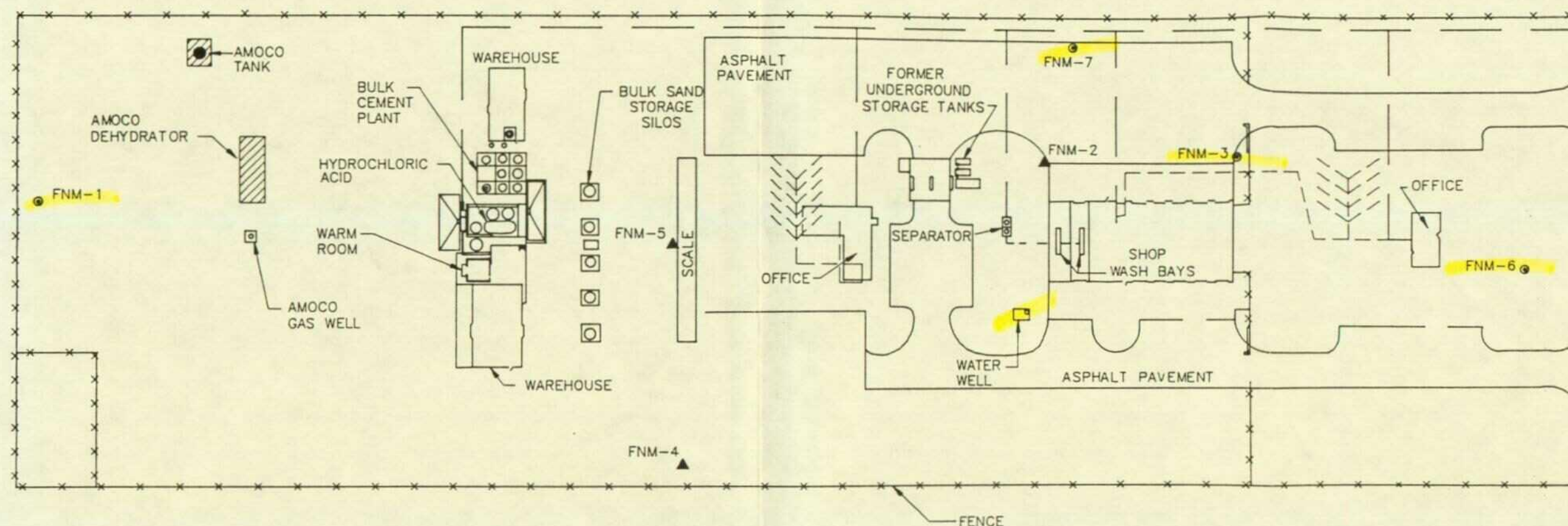
C - Manual Spectrophotometric
T - Titrimetric
O - Other

Comments:

INQC#3

INQC#1

D:\WORK\924\DSF2-1 01/06/93 15:14



EXPLANATION

- FNM-1 ● MONITORING WELL LOCATION AND IDENTIFICATION
FNM-4 ▲ ABANDONED MONITORING WELL (8/26/92)

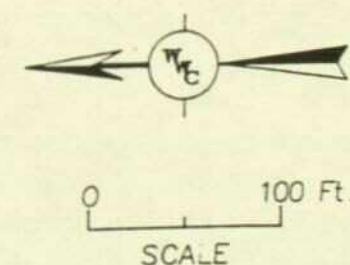


FIGURE 2-1
SITE PLAN
DOWELL SCHLUMBERGER FACILITY
FARMINGTON, NEW MEXICO
Western
Water
Consultants, Inc.