RECEIVED

JAN 22 1995

DOE/NV-414
UC-700

OSTI

PRELIMINARY CHARACTERIZATION OF ABANDONED SEPTIC TANK SYSTEMS

VOLUME I

U. S. DEPARTMENT OF ENERGY

DECEMBER 1995

Reynolds Electrical & Engineering Co., Inc.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

DOE/NV--414
UC-700

PRELIMINARY CHARACTERIZATION OF
ABANDONED SEPTIC TANK SYSTEMS

VOLUME I

DECEMBER 1995

PREPARED FOR
U.S. DEPARTMENT OF ENERGY
ENVIRONMENTAL RESTORATION DIVISION

PREPARED BY
REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
ENVIRONMENTAL RESTORATION PROJECTS DEPARTMENT
ENVIRONMENTAL REMEDIATION SECTION

MASTER

This report has been reproduced from the best available copy. Available in paper copy and microfiche.

Number of pages in this report: 168 (without Appendices)

DOE and DOE contractors can obtain copies of this report from: Office of Scientific and Technical Information. P.O. Box 62, Oak Ridge, TN 37831, (615) 576-8401.

This report is publicly available from the Department of Commerce, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650.

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Figures	vi
Tables	vii
Appendices	viii
List of Abbreviations and Acronyms	ix
1.0 INTRODUCTION	1
1.1 Introduction	1
1.2 Purpose and Scope	1
1.3 Site Description	2
2.0 APPROACH	4
2.1 Introduction	4
2.2 Tortoise Habitat/Endangered Species Activities	4
2.3 Categorical Exclusion Determination	5
2.4 Cultural Resource Survey	5
3.0 FIELD ACTIVITIES	6
3.1 Tank Identification	6
3.2 Health and Safety and Site Clearance	6
3.3 Excavation Activities	6
3.3.1 Septic Tanks	6
3.3.2 Leachfields	7
3.4 Sampling Activities	7
3.4.1 Septic Tanks	7
3.4.2 Leachfields	8
3.4.3 Background Samples	8
3.5 Laboratory Analysis	9
3.6 Data Evaluation	11
3.7 Decontamination	12
3.8 Residuals Management	12
4.0 OBSERVATIONS, FINDINGS, SUMMARY AND RECOMMENDATIONS	14
4.1 Septic System A5TRA	14
4.1.1 Field Observations	14
4.1.2 Analytical Results	15
4.1.2.1 Inorganic Parameters	15
4.1.2.2 Volatile Organic Compounds	15
4.1.2.3 Semi-Volatile Organic Compounds	16
4.1.2.4 Total Petroleum Hydrocarbons (TPH)	16
4.1.2.5 Polychlorinated Biphenyls (PCBs)	16
4.1.2.6 Radioanalytical Data	16
4.1.3 Summary and Recommendations	16

4.2	Septic System A121	21
4.2.1	Field Observations	21
4.2.2	Analytical Results	21
4.2.2.1	Inorganic Parameters	21
4.2.2.2	Volatile Organic Compounds	21
4.2.2.3	Semi-Volatile Organic Compounds	22
4.2.2.4	Total Petroleum Hydrocarbons	22
4.2.2.5	Polychlorinated Biphenyls	22
4.2.2.6	Radioanalytical Data	22
4.2.3	Summary and Recommendations	22
4.3	Septic System A124 (West)	29
4.3.1	Field Observations	29
4.3.2	Analytical Results	29
4.3.2.1	Inorganic Parameters	29
4.3.2.2	Volatile Organic Compounds	30
4.3.2.3	Semi-Volatile Organic Compounds	30
4.3.2.4	Total Petroleum Hydrocarbons	31
4.3.2.5	Polychlorinated Biphenyls	31
4.3.2.6	Radioanalytical Data	32
4.3.3	Summary and Recommendations	32
4.4	Septic System A124 (East)	38
4.4.1	Field Observations	38
4.4.2	Analytical Results	38
4.4.2.1	Inorganic Parameters	38
4.4.2.2	Volatile Organic Compounds	38
4.4.2.3	Semi-Volatile Organic Compounds	39
4.4.2.4	Total Petroleum Hydrocarbons	39
4.4.2.5	Polychlorinated Biphenyls	39
4.4.2.6	Radioanalytical Data	40
4.4.3	Summary and Recommendations	40
4.5	Septic System A125	45
4.5.1	Field Observations	45
4.5.2	Analytical Parameters	45
4.5.2.1	Inorganic Parameters	45
4.5.2.2	Volatile Organic Compounds	48
4.5.2.3	Semi-volatile Organic Compounds	49
4.5.2.4	Total Petroleum Hydrocarbons	50
4.5.2.5	Polychlorinated Biphenyls	51
4.5.2.6	Radioanalytical Data	51
4.5.3	Summary and Recommendations	51
4.6	Septic System A15EPA	59
4.6.1	Field Observations	59
4.6.2	Analytical Results	59
4.6.2.1	Inorganic Parameters	59
4.6.2.2	Volatile Organic Compounds	60
4.6.2.3	Semi-Volatile Organic Compounds	61
4.6.2.4	Total Petroleum Hydrocarbons	61
4.6.2.5	Polychlorinated Biphenyls	61
4.6.2.6	Radioanalytical Data	61
4.6.3	Summary and Recommendations	61
4.7	Septic System A25BRE	66
4.7.1	Field Observations	66

4.7.2	Analytical Results	66
4.7.2.1	Inorganic Parameters	67
4.7.2.2	Volatile Organic Compounds	67
4.7.2.3	Semi-Volatile Organic Compounds	67
4.7.2.4	Total Petroleum Hydrocarbons	67
4.7.2.5	Polychlorinated Biphenyls	67
4.7.2.6	Radioanalytical Data	67
4.7.3	Summary and Recommendations	68
4.8	Septic System A25ETS	73
4.8.1	Field Observations	73
4.8.2	Analytical Results	73
4.8.2.1	Inorganic Parameters	73
4.8.2.2	Volatile Organic Compounds	74
4.8.2.3	Semi-Volatile Organic Compounds	74
4.8.2.4	Total Petroleum Hydrocarbons	74
4.8.2.5	Polychlorinated Biphenyls	75
4.8.2.6	Radioanalytical Data	75
4.8.3	Summary and Recommendations	75
4.9	Septic System A25J5	80
4.9.1	Field Observations	80
4.9.2	Background Analytical Results	80
4.9.3	Summary and Recommendations	81
4.10	Septic System A25PAN	86
4.10.1	Field Observations	86
4.10.2	Analytical Results	86
4.10.2.1	Inorganic Parameters	86
4.10.2.2	Volatile Organic Compounds	87
4.10.2.3	Semi-Volatile Organic Compounds	87
4.10.2.4	Total Petroleum Hydrocarbons	87
4.10.2.5	Polychlorinated Biphenyls	87
4.10.2.6	Radioanalytical Data	88
4.10.3	Summary and Recommendations	88
4.11	Septic System A25RAD	93
4.11.1	Field Observations	93
4.11.2	Analytical Results	93
4.11.2.1	Inorganic Parameters	93
4.11.2.2	Volatile Organic Compounds	94
4.11.2.3	Semi-Volatile Organic Compounds	94
4.11.2.4	Total Petroleum Hydrocarbons	94
4.11.2.5	Polychlorinated Biphenyls	95
4.11.2.6	Radioanalytical Data	95
4.11.3	Summary and Recommendations	95
4.12	Septic System A25RCPGA	100
4.12.1	Field Observations	100
4.12.2	Analytical Results	100
4.12.2.1	Inorganic Parameters	100
4.12.2.2	Volatile Organic Compounds	101
4.12.2.3	Semi-Volatile Organic Compounds	102
4.12.2.4	Total Petroleum Hydrocarbons	102
4.12.2.5	Polychlorinated Biphenyls	102
4.12.2.6	Radioanalytical Data	102
4.12.3	Summary and Recommendations	102

4.13	Septic System A25SS	108
4.13.1	Field Observations	108
4.13.2	Analytical Results	108
4.13.2.1	Inorganic Parameters	108
4.13.2.2	Volatile Organic Compounds	109
4.13.2.3	Semi-Volatile Organic Compounds	109
4.13.2.4	Total Petroleum Hydrocarbons	109
4.13.2.5	Polychlorinated Biphenyls	109
4.13.2.6	Radioanalytical Data	110
4.13.3	Summary and Recommendations	110
4.14	Septic System A25TCA	115
4.14.1	Field Observations	115
4.14.2	Analytical Results	115
4.14.2.1	Inorganic Parameters	115
4.14.2.2	Volatile Organic Compounds	116
4.14.2.3	Semi-Volatile Organic Compounds	116
4.14.2.4	Total Petroleum Hydrocarbons	116
4.14.2.5	Polychlorinated Biphenyls	116
4.14.2.6	Radioanalytical Data	117
4.14.3	Summary and Recommendations	117
4.15	Septic System A25TCC1	122
4.15.1	Field Observations	122
4.15.2	Analytical Results	122
4.15.2.1	Inorganic Parameters	122
4.15.2.2	Volatile Organic Compounds	123
4.15.2.3	Semi-Volatile Organic Compounds	123
4.15.2.4	Total Petroleum Hydrocarbons	123
4.15.2.5	Polychlorinated Biphenyls	123
4.15.2.6	Radioanalytical Data	124
4.15.3	Summary and Recommendations	124
4.16	Septic System A25TCC2	129
4.16.1	Field Observations	129
4.16.2	Analytical Results	129
4.16.2.1	Inorganic Parameters	129
4.16.2.2	Volatile Organic Compounds	130
4.16.2.3	Semi-Volatile Organic Compounds	131
4.16.2.4	Total Petroleum Hydrocarbons	131
4.16.2.5	Polychlorinated Biphenyls	131
4.16.2.6	Radioanalytical Data	131
4.16.3	Summary and Recommendations	131
4.17	Septic System A25TRA	136
4.17.1	Field Observations	136
4.17.2	Analytical Results	136
4.17.2.1	Inorganic Parameters	136
4.17.2.2	Volatile Organic Compounds	137
4.17.2.3	Semi-Volatile Organic Compounds	137
4.17.2.4	Total Petroleum Hydrocarbons	137
4.17.2.5	Polychlorinated Biphenyls	138
4.17.2.6	Radioanalytical Data	138
4.17.3	Summary and Recommendations	138
4.18	Septic System A253210	143
4.18.1	Field Observations	143

4.18.2	Analytical Results	143
4.18.2.1	Inorganic Parameters	143
4.18.2.2	Volatile Organic Compounds	144
4.18.2.3	Semi-Volatile Organic Compounds	144
4.18.2.4	Total Petroleum Hydrocarbons	144
4.18.2.5	Polychlorinated Biphenyls	144
4.18.2.6	Radioanalytical Data	145
4.18.3	Summary and Recommendations	145
4.19	Septic System A26CS	150
4.19.1	Field Observations	150
4.19.2	Analytical Results	150
4.19.2.1	Inorganic Parameters	150
4.19.2.2	Volatile Organic Compounds	151
4.19.2.3	Semi-Volatile Organic Compounds	151
4.19.2.4	Total Petroleum Hydrocarbons	152
4.19.2.5	Polychlorinated Biphenyls	152
4.19.2.6	Radioanalytical Data	152
4.19.3	Summary and Recommendations	152
4.20	Septic System A26HCF	157
4.20.1	Field Observations	157
4.20.2	Analytical Results	157
4.20.2.1	Inorganic Parameters	157
4.20.2.2	Volatile Organic Compounds	158
4.20.2.3	Semi-Volatile Organic Compounds	158
4.20.2.4	Total Petroleum Hydrocarbons	158
4.20.2.5	Polychlorinated Biphenyls	158
4.20.2.6	Radioanalytical Data	159
4.20.3	Summary and Recommendations	159
5.0	CONCLUSIONS AND RECOMMENDATIONS	164
5.1	Conclusions	164
5.2	Recommendations	164
6.0	REFERENCES	168

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Septic System Tank Locations.	3
2. Site Map - Septic Tank A5TRA.	17
3. Location of Septic Tanks A5TRA.	18
4. Site Map - Septic Tank A121	24
5. Location of Septic Tanks A121	25
6. Site Map - Septic Tank A124-West	33
7. Location of Septic Tank A124-West	34
8. Site Map - Septic Tank A124-East	41
9. Location of Septic Tank A124-East	42
10. Site Map - Septic Tank A125	53
11. Location of Septic Tank A125.	54
12. Site Map - Septic Tank A15EPA	62
13. Location of Septic Tank A15EPA.	63
14. Site Map - Septic Tank A25BRE	69
15. Location of Septic Tank A25BRE.	70
16. Site Map - Septic Tank A25ETS	76
17. Location of Septic Tank A25ETS.	77
18. Site Map - Septic Tank A25J5.	82
19. Location of Septic Tank A25J5	83
20. Site Map - Septic Tank A25PAN	89
21. Location of Septic Tank A25PAN.	90
22. Site Map - Septic Tank A25RAD	96
23. Location of Septic Tank A25RAD.	97
24. Site Map - Septic Tank A25RCPGA	104
25. Location of Septic Tank A25RCPGA.	105
26. Site Map - Septic Tank A25SS.	111
27. Location of Septic Tank A25SS	112
28. Site Map - Septic Tank A25TCA	118
29. Location of Septic Tank A25TCA.	119
30. Site Map - Septic Tank A25TCC1.	125
31. Location of Septic Tank A25TCC1	126
32. Site Map - Septic Tank A25TCC2.	132
33. Location of Septic Tank A25TCC2	133
34. Site Map - Septic Tank A25TRA	139
35. Location of Septic Tank A25TRA.	140
36. Site Map - Septic Tank A253210.	146
37. Location of Septic Tank A253210	147
38. Site Map - Septic Tank A26CS.	153
39. Location of Septic Tank A26CS	154
40. Site Map - Septic Tank A26HCF	160
41. Location of Septic Tank A26HCF.	161

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Sample Analytical Parameters.	10
2. Summary of Guidance Levels for Detected Parameters.	13
3A. Septic System A5TRA: Summary of Analytical Results.	19
3B. Septic System A5TRA: Summary of Radioanalytical Results	20
4A. Septic System A121: Summary of Analytical Results	26
4B. Septic System A121: Summary of Radioanalytical Results.	28
5A. Septic System A124-West: Summary of Analytical Results.	35
5B. Septic System A124-West: Summary of Radioanalytical Results	37
6A. Septic System A124-East: Summary of Analytical Results.	43
6B. Septic System A124-East: Summary of Radioanalytical Results :	44
7A. Septic System A125: Summary of Analytical Results	55
7B. Septic System A125: Summary of Radioanalytical Results.	57
8A. Septic System A15EPA: Summary of Analytical Results	64
8B. Septic System A15EPA: Summary of Radioanalytical Results.	65
9A. Septic System A25BRE: Summary of Analytical Results	71
9B. Septic System A25BRE: Summary of Radioanalytical Results.	72
10A. Septic System A25ETS: Summary of Analytical Results	78
10B. Septic System A25ETS: Summary of Radioanalytical Results.	79
11A. Septic System A25J5: Summary of Analytical Results.	84
11B. Septic System A25J5: Summary of Radioanalytical Results	85
12A. Septic System A25PAN: Summary of Analytical Results	91
12B. Septic System A25PAN: Summary of Radioanalytical Results.	92
13A. Septic System A25RAD: Summary of Analytical Results	98
13B. Septic System A25RAD: Summary of Radioanalytical Results.	99
14A. Septic System A25RCPGA: Summary of Analytical Results	106
14B. Septic System A25RCPGA: Summary of Radioanalytical Results.	107
15A. Septic System A25SS: Summary of Analytical Results.	113
15B. Septic System A25SS: Summary of Radioanalytical Results	114
16A. Septic System A25TCA: Summary of Analytical Results	120
16B. Septic System A25TCA: Summary of Radioanalytical Results.	121
17A. Septic System A25TCC1: Summary of Analytical Results.	127
17B. Septic System A25TCC1: Summary of Radioanalytical Results	128
18A. Septic System A25TCC2: Summary of Analytical Results.	134
18B. Septic System A25TCC2: Summary of Radioanalytical Results	135
19A. Septic System A25TRA: Summary of Analytical Results	141
19B. Septic System A25TRA: Summary of Radioanalytical Results.	142
20A. Septic System A253210: Summary of Analytical Results.	148
20B. Septic System A253210: Summary of Radioanalytical Results	149
21A. Septic System A26CS: Summary of Analytical Results.	155
21B. Septic System A26CS: Summary of Radioanalytical Results	156
22A. Septic System A26HCF: Summary of Analytical Results	162
22B. Septic System A26HCF: Summary of Radioanalytical Results.	163
23A. Summary of Septic System Preliminary Waste Characterization and Closure Authority	165
23B. Summary of Findings for Septic System Preliminary Waste Characterization.	167

APPENDICES

Appendix

- A. Nevada Division of Environmental Protection: Guidance Levels for Closure Letter.
- B. Field Notes
- C. Review of Radioanalytical Data
- D. Analytical Data Reports and Chain-of-Custody (Volume II)

ABBREVIATIONS AND ACRONYMS

CFR	Code of Federal Regulations
DOE	U. S. Department of Energy
EPA	U. S. Environmental Protection Agency
ERS	Environmental Remediation Section
IHT	Industrial Hygiene Technician
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NSHD	Nevada State Health Division
NTS	Nevada Test Site
ORERP	Offsite Radiation Exposure Review Project Study
PCB	Polychlorinated Biphenyl
pCi/l	picocuries per liter
pCi/g	picocuries per gram
ppm	part per million
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
REEC	Reynolds Electrical & Engineering Co., Inc.
semi-VOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
uCi/cc	microcuries per cubic centimeter
uCi/ml	microcuries per milliliter
VOC	volatile organic compound
WMD	Waste Management Department

EXECUTIVE SUMMARY

INTRODUCTION

This report documents the activities and findings of the Phase 1 Preliminary Characterization of Abandoned Septic Tank Systems. The characterization was completed by Reynolds Electrical and Engineering Co., Inc., (REEC) Environmental Restoration Projects Department, Environmental Remediation Section (ERS). This work was conducted on behalf of the U. S. Department of Energy (DOE) Environmental Restoration Division. The activities conducted are consistent with the Work Plan dated October 1992 (REEC, 1992). This preliminary characterization was performed to satisfy Tiger Team Finding SW/CF-3 (U.S. DOE, 1990).

PROJECT OBJECTIVE

The purpose of the preliminary characterization activity was to investigate the Tiger Team abandoned septic systems (tanks and associated leachfields) for the purpose of identifying waste streams for closure at a later date. The work performed was not to fully characterize or remediate the sites. The abandoned systems potentially received wastes or effluent from buildings which could have discharged non-domestic, petroleum hydrocarbons, hazardous, radioactive and/or mixed wastes. A total of 20 sites were investigated for the preliminary characterization of identified abandoned septic systems. Of the 20 sites, 19 were located and characterized through samples collected from each tank(s) and, where applicable, associated leachfields.

The abandoned septic tank systems are located in Areas 5, 12, 15, 25, and 26 on the Nevada Test Site (NTS). The sites investigated are as follows:

- A5TRA (Area 5 Former Trailer Camp)
- A121 (Area 12 - System 1)
- A124 West (Area 12 - System 4 West)
- A124 East (Area 12-System 4 East)
- A125 (Area 12 - System 5)
- A15EPA (Area 15 - EPA Research Farm)
- A25BRE (Area 25 - Bren Tower)
- A25ETS (Area 25 - Engine Test Stand)
- A25J5 (Area 25 - Warehouse J5)
- A25PAN (Area 25 - Pan Am Trailers)
- A25RAD (Area 25 - Rad Safe Trailers)
- A25RCPGA (Area 25 - Reactor Control Point Facility)

- A25SS (Area 25 - Security Station)
- A25TCA (Area 25 - Test Cell A)
- A25TCC1 (Area 25 - Test Cell C - System 1)
- A25TCC2 (Area 25 - Test Cell C - System 2)
- A25TRA (Area 25 - Trailer Park)
- A253210 (Area 25 - Test Cell C - Building 3210)
- A26CS (Area 26 - Check Station)
- A26HCF (Area 25 - Hot Critical Facility).

(Note: Based upon field observations, System A124 was characterized as two separate sites [east and west].)

FIELD ACTIVITIES

Field work was performed between June 1994 and March 1995. Work completed in 1994 (June to September) consisted of locating and sampling the septic tanks. This work included the additional sampling of sites in Areas 5 and 12 which had multiple tanks. DOE authorized this change of scope to sample and characterize 50 percent of the tanks at multiple tank system sites in August 1994. A total of 23 tanks were sampled during the period of June to September 1994. In addition, in September 1994, background soil were samples collected from each septic tank site which has an associated leachfield.

In December 1994, DOE authorized ERS to continue with the characterization of the Tiger Team abandoned septic systems. The work remaining for Fiscal Year 1995 (FY95) was to:

- identify and sample septic tanks not previously located (A253210 and A25J5);
- sample the remaining 50 percent of the tanks at multiple tank sites; and
- sample associated leachfields from each site (where applicable).

Septic Tank A253210 (Test Cell C Facility) was located and sampled on March 14, 1995. Septic Tank A25J5 was not located. The nine remaining septic tanks of the multiple tank sites in Areas 5 and 12 were sampled on March 27, 28 and April 3, 1995. Fourteen leachfield sites were located and sampled during the period of March 6 to March 15, 1995.

The tank systems consist of both steel and concrete tanks of various sizes and quantity, ranging in capacity from approximately 1,514 liters to 28,387 liters (400 gallons to 7,500 gallons). Some tanks were constructed with channel systems while others were more characteristic of holding tanks or settling tanks. Leachfields also varied in dimension, type of piping, and design.

Characterization was completed by collecting data to identify the type of waste (domestic, non-domestic, hazardous, radioactive, or mixed) present in each septic tank system. Once identified, the appropriate federal and state regulations were reviewed to determine the proper closure guidance.

In order to identify closure authority for the site, data was evaluated against standards provided by NDEP in a letter dated November 1, 1994. The standards were used to evaluate if the abandoned systems are to be closed under the authority of Nevada State Health Division (NSHD) or the Nevada Division of Environmental Protection (NDEP). Non-domestic waste (waste containing VOCs, semi-VOCs, metals, or PCBs at concentrations above NDEP guidance levels) are recommended to be closed under NDEP authority. Systems with hydrocarbons will be closed under NDEP authority as a "hydrocarbon containing tank" following the draft procedure found in Attachment 7 of the October 1992 Work Plan. In addition, systems with hazardous constituents exceeding Federal Action Levels or radioactive isotopes exceeding the DOE Offsite Radiation Exposure Review Project Study (ORERP) and the Environmental Protection Agency (EPA) Drinking Water Regulations will be closed under NDEP authority.

The general guidelines used for NDEP closure authority are:

- Process knowledge investigations indicate that an industrial discharge was introduced to the system during its operational life;
- A concentration of more than ten times the Nevada Drinking Water Standard (NDWS);
- A Resource Conservation and Recovery Act (RCRA) hazardous constituent greater than one-tenth its Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit; and
- A total petroleum hydrocarbon (TPH) concentration of 100 mg/l or mg/kg is detected.

For regulatory guidance where TCLP or NDWS were not applicable, the proposed 40 CFR Subpart S Regulation was referenced as a potential Action Level (U.S. EPA, 1990). A guideline of 100 mg/l was used for oil & grease concentrations in liquids. This is based upon the Waste Management Departments (WMD) permissible limit for disposal into the Area 23 Mercury Sewage Lagoon. Radioanalytical samples from each site were collected for analysis of gamma, tritium, and plutonium. Radioanalytical data was compared to ORERP and EPA guidelines.

CONCLUSIONS

Soils generated during field activities were placed back into the respective tank or leachfield excavation. Based upon the leachfield soil sample results (very low to not detectable concentrations), process knowledge was used to determine that the rinseate was acceptable to discharge into the Area 23

Sewage Lagoon. The rinseate was disposed into the Mercury Sewage Lagoon on July 17, 1995, with REECo WMD prior approval.

A total of 20 abandoned septic systems were investigated for preliminary characterization. Of the 20 sites, 19 were located and characterized through samples collected from each tank(s) and associated leachfields (where applicable). In addition, background soil samples were collected from sites where the septic tank had an associated leachfield.

A total of 33 tanks were sampled for the liquid and/or solid phases present. Fourteen leachfields were identified and sampled. Samples were evaluated to characterize the septic system as having domestic, non-domestic, elevated hydrocarbon concentrations (above NAC Action Level), hazardous, radioactive, or mixed waste.

RECOMMENDATIONS

Of the 33 tanks sampled, 11 contained domestic sewage constituents. The tanks can be closed under NSHD guidelines. The remaining 22 tanks contained material which was characterized as non-domestic, hazardous, hydrocarbon containing, or radioactive. The systems characterized did not contain mixed waste. Some of these 22 systems contain a combination of the described materials (ie. hazardous and hydrocarbon containing). It is recommended that these 22 systems be closed under a separate Work Plan per NDEP guidelines (NDEP, 1994). A summary of individual tank waste characterization and closure authority for each site is provided in Table 23A within the following report. A summary of findings for overall waste characterization is provided in Table ES1.

Concentrations exceeding Federal Action Levels and NDEP guidance levels were not detected in the leachfields sampled. However, additional sampling of leachfields is recommended to be conducted at sites where the septic tank contained hazardous, hydrocarbon, or Subpart S constituents exceeding Regulatory Action Levels. Additional characterization will verify if the septic tank discharged constituents with concentrations exceeding Action Levels into the associated leachfield.

TABLE ES1 - SUMMARY OF FINDINGS FOR SEPTIC SYSTEM PRELIMINARY WASTE CHARACTERIZATION

WASTE TYPE IDENTIFIED IN SEPTIC SYSTEMS INVESTIGATED ^A	NUMBER OF TANKS	ESTIMATED WASTE VOLUME ^B (GALLONS)
Domestic (can be closed)	11	30,550
Hazardous	2	14,500
Hazardous With Petroleum Hydrocarbons	2	
Petroleum Hydrocarbons	6	32,425
Petroleum Hydrocarbons & Non Domestic Waste ^C	4	
Non Domestic	6	17,550 ^D
Low Level Radioactive & Non Domestic Waste	2	100 ^D
Mixed Waste	0	0

^AWaste type consists of both liquid and/or solid phase.

^BEstimated waste volumes are from field observations only. Specific volumes were not gauged or measured.

^CNon domestic waste may likely be managed as a petroleum hydrocarbon waste if it meets landfill criteria and is solidified. Some waste may be treated using the Mercury Landfill Package Treatment Plant and discharged into the Mercury Sewage Lagoon.

^DIncludes an estimated quantity of dry solids within septic tank (as applicable).

Hazardous Waste - Compounds exceeding Federal Action Levels.

Hydrocarbon Waste - Total petroleum hydrocarbons (gasoline, diesel, or oil) exceeding State Action Levels.

Non Domestic Waste - VOCs, Semi-VOCs, Metals, or PCBs exceeding NDEP Guidance Levels.

Low Level Radioactive - Radioactive isotopes exceeding Department of Energy Offsite Radiation Exposure Review Project Study (ORERP) and the Environmental Protection Agency (EPA) Drinking Water Standards.

1.0 INTRODUCTION

1.1 INTRODUCTION

This report documents the activities and findings of the Phase 1 Preliminary Characterization of Abandoned Septic Tank Systems at the Nevada Test Site (NTS). The characterization was completed by Reynolds Electrical and Engineering Co., Inc., (REECo) Environmental Restoration Projects Department, Environmental Remediation Section (ERS). The activities conducted are consistent with the Work Plan dated October 1992 (REECo, 1992). This preliminary characterization was performed to satisfy Tiger Team Finding SW/CF-3 (U.S. DOE, 1990). Additional background information may be found in the Work Plan (REECo 1992)

1.2 PURPOSE AND SCOPE

The purpose of the preliminary characterization activity was to investigate 19 septic systems (tanks and associated leachfields) for the purpose of identifying waste streams and for closure at a later date. The purpose was not intended to fully characterize the entire site or remediate it. The septic systems investigated potentially received laboratory wastes or received effluent from buildings which could have discharged hazardous and/or radioactive wastes. Characterization was completed by collecting data to identify the type of waste present in each septic tank system. Once identified, the appropriate federal and state regulations were reviewed to determine the proper closure guidance.

The scope of work performed was to sample for evidence of:

- domestic sewage
- non-domestic sewage
- hydrocarbon compounds
- hazardous waste
- radioactive (primarily fission) materials
- mixed waste.

Septic systems determined to contain only domestic sewage are to be closed under the jurisdiction of the Nevada State Health Division (NSHD) (NDEP, 1994). Systems containing non-domestic sewage are to be closed under the jurisdiction of the Nevada Division of Environmental Protection (NDEP) regulations (Appendix A).

Septic systems containing non-domestic, hazardous, radioactive, or mixed waste will require additional site characterization and remedial actions which will require discussion in a separate Work Plan.

1.3 SITE DESCRIPTION

The septic tank systems area located in Areas 5, 12, 15, 25, and 26 on the Nevada Test Site (NTS) (Figure 1). The tank systems consist of both steel and concrete tanks of various sizes and quantity, ranging in capacity from approximately 1,514 liters to 28,387 liters (400 gallons to 7,500 gallons). Some tanks are constructed with channel systems while others were more characteristic of holding tanks or settling tanks. Leachfields also varied in dimension, type of piping, and design. The sites investigated are as follows:

- A5TRA (Area 5 Former Trailer Camp - Four Tanks)
- A121 (Area 12 - System 1 - Four Tanks)
- A124 West (Area 12 - System 4 West - Three Tanks)
- A124 East (Area 12-System 4 East - Two Tanks)
- A125 (Area 12 - System 5 - Six Tanks)
- A15EPA (Area 15 - EPA Research Farm - One Tank and Leachfield)
- A25BRE (Area 25 - Bren Tower - One Tank and Leachfield)
- A25ETS (Area 25 - Engine Test Stand - One Tank and Leachfield)
- A25J5 (Area 25 - Warehouse J5 - One Tank and Seepage Pit)
- A25PAN (Area 25 - Pan Am Trailers - One Tank and Leachfield)
- A25RAD (Area 25 - Rad Safe Trailers - One Tank and Leachfield)
- A25RCPGA (Area 25 - Reactor Control Point Facility - One Tank and Leachfield)
- A25SS (Area 25 - Security Station - One Tank and Leachfield)
- A25TCA (Area 25 - Test Cell A - One Tank and Leachfield)
- A25TCC1 (Area 25 - Test Cell C - System 1 - One Tank and Leachfield)
- A25TCC2 (Area 25 - Test Cell C - System 2 - One Tank and Leachfield)
- A25TRA (Area 25 - Trailer Park - One Tank and Leachfield)
- A253210 (Area 25 - Test Cell C - Building 3210 - One Tank and Leachfield)
- A26CS (Area 26 - Check Station - One Tank and Leachfield)
- A26HCF (Area 25 - Hot Critical Facility - One Tank and Leachfield).

(Note: Based upon field observations System A124 was characterized as two separate sites [east and west].)

RECO

TANK LOCATIONS

FIGURE 1
SEPTIC

EXPLANATION

- A25ETS APPROXIMATE LOCATION OF SEPTIC TANKS.

NEVADA TEST SITE

NO SCALE

2.0 APPROACH

2.1 INTRODUCTION

The approach used in this investigation was to locate and sample septic systems identified in the 1990 Tiger Team Report (U.S. DOE, 1990). Septic tanks were located through a search of engineering records, use of a metal detector (goldaking), and hand and backhoe excavation. Prior to the startup of any field activities, a Tortoise Habitat Endangered Species Investigation, Categorical Exclusion Determination, and Cultural Resource Survey was completed. Leachfield sample locations were identified by excavating down gradient of the distribution box (if present) and following the discharge line until the first perforations or leach tile was exposed.

Field work was performed between June 1994 and March 1995. Work completed between June and September 1994, consisted of locating and sampling the septic tanks. This work included the additional sampling of sites in Areas 5 and 12 which had multiple tanks. DOE authorized this change of scope to sample and characterize 50 percent of the tanks at multiple tank system sites. A total of 23 tanks were sampled during this period. In addition, in September 1994, background soil samples were collected from each septic tank site which has an associated leachfield.

In December 1994, DOE authorized ERS to continue with the characterization of the Tiger Team abandoned septic systems. The work remaining for Fiscal Year 1995 (FY95) was to: identify and sample septic tanks not previously located (A253210 and A25J5), sample the remaining 50 percent of the tanks at multiple tank system sites, and to sample associated leachfields from each site (where applicable).

Septic Tank A253210 (Test Cell C Facility) was located and sampled on March 14, 1995. Septic Tank A25J5 was not located. The nine remaining septic tanks of the multiple tank sites (Areas 5 and 12) were sampled on March 27, 28 and April 3, 1995. Fourteen leachfield sites were located and sampled during the period of March 6 to March 15, 1995.

2.2 TORTOISE HABITAT/ENDANGERED SPECIES ACTIVITIES

The site activities are covered in the NTS Biological Opinion (U.S. FWS, 1992). The terms and conditions of the opinion were adhered to during all construction activities. Prior to site activities, septic systems in Areas 5, 25, and 26 were cleared for signs of tortoise habitats. In addition, biologists were on site in these areas during heavy equipment operation. Sites in Areas 12 and 15 are located outside the desert tortoise habitat and therefore did not require special precautions.

2.3 CATEGORICAL EXCLUSION DETERMINATION

A Categorical Exclusion (CX) Determination for this project was prepared for the septic tank characterization (NV 92-048). The CX was approved and signed by DOE/NV on September 29, 1992.

2.4 CULTURAL RESOURCE SURVEY

The septic sites were investigated for archeological and historic activities. The sites investigated were disturbed in the past, therefore a cultural resource survey was not required. The investigation was conducted by DOE/NV on June 23, 1992, (REECo, 1992).

3.0 FIELD ACTIVITIES

3.1 TANK IDENTIFICATION

Prior to sampling each site, the septic system location had to be field verified. Of the nineteen sites listed in the Tiger Team Report, (DOE, 1990) six tanks were readily visible and accessible for sampling. The remainder of the sites were identified by completing one or all of the following for suspect site locations:

- extensive review of engineering drawings
- hand excavation and potholing
- goldaking
- backhoe excavation.

3.2 HEALTH, SAFETY AND SITE CLEARANCE

Prior to conducting field activities, a health and safety meeting occurred to discuss the scope of project activities and potential hazards. In addition, frequent tailgate meetings occurred in the field to brief new personnel and address changing conditions or concerns (changing weather, difficult terrain, etc.). Radiation Control Technicians (RCT) and industrial hygiene technicians (IHT) were onsite to prescreen and monitor all field activities.

Prior to the start of excavation activities, the septic tank and leachfield vicinity were cleared of underground utilities using goldaking and Metratch equipment. This equipment locates potential utilities or underground obstructions through magnetic or electronic readings on field instrumentation. In areas where potential phone lines could exist, WilTel (an NTS communications contractor) was contacted to clear the work area.

3.3 EXCAVATION ACTIVITIES

All excavation activities were observed by ERS staff. ERS staff directed the labor support and backhoe operator and made observations on, but not limited to, soil type, staining, odor, depth to top of tank and leach piping, tank dimensions and tank construction material (ie. concrete or steel). Observations were recorded in field notes which can be found in Appendix B. A RCT and IHT were onsite for all excavation activities.

3.3.1 SEPTIC TANKS

Excavation activities to expose the septic tanks occurred during the period of June 1994 to September 1994. Tanks were exposed using backhoe and hand

excavation to uncover the influent manway port for sampling access. Once the tank had been exposed, entry into the work zone was controlled by placing fencing around the open excavation. All septic tank excavations have been backfilled to surface grade and each site demarcated.

3.3.2 LEACHFIELDS

Excavation of the septic tanks associated leachfield (where applicable) occurred during the period of March 6 to March 15, 1995. During this period 15 leachfields were sampled. Limited backhoe excavation of the leachfields consisted of excavating immediately down gradient of the distribution box to expose the effluent discharge line. The discharge line was exposed until the first perforated pipe or leach tiles were observed. An RCT was onsite during all excavation activities and screened the soils using a Ludlum Pancake Meter. Excavated soils and gravel from the leach line vicinity were placed on plastic adjacent to the excavation. Upon completion of sample retrieval, the excavation was backfilled to surface grade with the excavated soil.

3.4 SAMPLING ACTIVITIES

Samples were kept in ice chests containing ice until delivery to the analytical laboratory at a temperature of approximately 4 degrees centigrade. All samples were scanned with a pancake meter for the presence of radioactive materials before samples were delivered to the analytical laboratory. All samples were labeled with the date, time, sampler initials, analysis to be performed, and sample number. Samples were managed under the REECO standard chain-of-custody procedure. Observations were recorded in a field notebook. Copies of the field notes can be found in Appendix B. Samples were analyzed for the parameters found in Table 1.

3.4.1 SEPTIC TANKS

Samples were retrieved from each of the abandoned septic tanks through the manhole opening. Sampling of the tank contents was completed without entering the tank. Samples were collected for each phase present (liquid and/or solid) using a new high-density polyethylene Nalgene^R sample dipper and placed into laboratory sample containers. In general, samples were identified by use of the numbering system nomenclature, A121-T2-L or A121-T-S, where:

A121 = Site designation

T = Tank sample identifier [2-sequential sample number for multiple tank sites].

L = Liquid identifier

S = Solid/sludge identifier

3.4.2 LEACHFIELDS

One soil sample was collected from each of the 14 leachfield sites. The first encountered leach tiles or tile perforations were exposed using backhoe equipment. The samples were collected approximately one foot below the leachfield gravel adjacent to the first leach tile or pipe perforations. Samples were collected from a decontaminated backhoe bucket using a decontaminated stainless steel trowel. The samples were collected and placed into laboratory quality sample containers and identified by use of the numbering system nomenclature, A25BRE-LF-1, where:

A25BRE = Site designation

LF = Leachfield sample identifier

1 = Sequential sample number

Field replicate samples were also collected for volatile headspace readings using a Thermo Environmental Instruments, Inc., Organic Vapor Monitor (OVM) Model 580B. Samples were placed into a clean Ziplock[®] baggie and allowed to volatilize for approximately 30 minutes at which time the headspace was analyzed. Observations and headspace readings were recorded in the field notebook.

3.4.3 BACKGROUND SOIL SAMPLES

Background soil samples were collected from tank systems with associated leachfields. The samples were collected to compare local background soil conditions and chemical concentrations to those identified in the leachfield soils. The samples were collected within 100 feet from the tank site at a depth of approximately 0.46 meters (1.5 feet) below surface grade. This depth is a variance from the Work Plan recommended sample depth of 0.15 meters (six inches). Upon review of site conditions and surface disturbance, it was determined that a sample from 0.46 meters (1.5 feet) below surface grade would be more representative of native background conditions for each site.

Sample locations were hand excavated. Samples were collected using a decontaminated stainless steel trowel. The samples were placed into laboratory sample containers and identified by use of the numbering system nomenclature, A25BRE-BG, where:

A25BRE = Site designation

BG = Background sample identifier

The location of the background sample was identified in the field and documented in the field logbook with other site observations.

3.5 LABORATORY ANALYSIS

Soil samples were analyzed for the parameters in Table 1. A wide range of parameters were analyzed due to the known or suspected activities of each site. REECo Analytical Services Department (ASD), located in Mercury, Nevada, analyzed samples submitted prior to September 31, 1994. Data Chem Laboratories, located in Salt Lake City, Utah, performed subsequent sample analysis services with the exception of radioanalytical data which continues to be analyzed by ASD.

A suitable amount of sample was provided to the laboratory for one matrix spike and matrix spike duplicate for each sample batch. One trip blank (water sample) was analyzed for VOC analysis from each sample batch. The analytical data was reviewed by the ASD Laboratory and ERS staff. The data review included but was not limited to; parameters analyzed; surrogate spike percent recoveries; matrix spike/duplicate results including percent recoveries and relative percent difference; and compliance with holding times.

TABLE 1 - SAMPLE ANALYTICAL PARAMETERS

PARAMETER	ANALYTICAL METHOD
Volatiles	SW 846, 8240/8260
TCLP ^a Volatiles	SW 846, 1311, 8240/8260
Semi-Volatiles	SW 846, 8270
TCLP Semi-volatiles ^b	SW 846, 1311, 8270
TPH (Full Scan) ^c	SW 846, 8015 Modified
Total Metals	SW 6010/7470
TCLP Metals	SW 846, 1311, 6010/7470
Oil & Grease	Standard Methods, 15th Ed. 503E/413.2
pH	SW 846, 9040/9045
PCBs ^d	SW 846, 8080
Gamma	REEC Co Counting and Instrumentation Procedure
Tritium	Tritium Quantification
Plutonium	Plutonium Quantification

a - Toxicity Characteristic Leaching Procedure

b - Semi-Volatile Compounds

c - Total Petroleum Hydrocarbons - Gas, Diesel, Oil

d - Polychlorinated Biphenyl Compounds

3.6 DATA EVALUATION

Upon receipt of laboratory analytical data, ERS staff reviewed each package using an Analytical Data Checklist. The checklist is used to review the following (at a minimum and is not limited to): holding times, correct analyses performed, laboratory quality assurance procedures, reported blank contaminants, and any difficulties encountered by the laboratory.

Data was evaluated against standards provided by NDEP in a letter dated November 1, 1994, (Appendix A). The standards were used to evaluate if the abandoned systems should be closed under NSHD or NDEP authority. Non-domestic waste (waste containing VOCs, semi-VOCs, metals, or PCBs at concentrations above NDEP guidance levels) will be closed under NDEP guidelines. Systems with hydrocarbons will be closed under NDEP guidelines as a "hydrocarbon containing tank" following the draft procedure found in Attachment 7 of the October 1992 Work Plan. In addition, systems with hazardous constituents exceeding Federal Action Levels or radioactive isotopes exceeding the DOE Offsite Radiation Exposure Review Project Study (ORERP) and the Environmental Protection Agency (EPA) Drinking Water Regulations will be closed under NDEP.

Systems with non-domestic, hazardous, or radioactive waste will be closed under a separate Work Plan. Systems which contain domestic waste that does not exceed NDEP guidance levels may be closed under the direction of the NSHD. The general guidelines used are provided below and are detailed in Table 2.

- Process knowledge investigations indicate that an industrial discharge was introduced to the system during its operational life;
- A concentration of more than ten times the Nevada Drinking Water Standard (NDWS);
- A Resource Conservation and Recovery Act (RCRA) hazardous constituent greater than one-tenth its TCLP regulatory limit; and
- A TPH concentration of 100 mg/l (or mg/kg) is detected.

For regulatory guidance where TCLP (40 CFR 261) or NDWS were not applicable, the proposed 40 CFR Subpart S Regulation was referenced as a potential Action Level (U.S. EPA, 1990). A guideline of 100 mg/l was used for oil & grease concentrations in liquids. This is based upon the Waste Management Departments (WMD) permissible limit for disposal into the Area 23 Mercury Sewage Lagoon.

Radioanalytical samples from each site were collected for analysis of gamma, tritium, and plutonium. Radioanalytical data was compared to ORERP and EPA guidelines. The ASD memorandums summarizing the review of radioanalytical data are provided in Attachment C.

Analytical data packets are provided in Appendix D (Volume II). Due to the volume of data, packets are provided in numerical order by ACS Packet Number. Specific packets associated with each sample analysis are identified in the Summary of Analytical Data Table prepared for each site.

3.7 DECONTAMINATION

The backhoe bucket was decontaminated using high pressure water or steam prior to each sampling activity. The backhoe bucket was decontaminated by carefully placing, but not touching, the bucket partially inside of a 55-gallon Department of Transportation (DOT) drum. Sampling tools were cleaned with phosphate free laboratory detergent and rinsed with distilled water between sampling. All sampling equipment was decontaminated prior to use.

3.8 RESIDUALS MANAGEMENT

Rinseate generated during the leachfield sampling investigation was collected and placed in new, clean 55-gallon DOT drums. Residuals were stored and tracked using the NTS Brady Label System. One drum was used for each leachfield site. Rinseate was stored until leachfield sample analyses could be reviewed.

TABLE 2 - SUMMARY OF GUIDANCE LEVELS FOR DETECTED PARAMETERS

PARAMETER	FEDERAL ACTION LEVEL ^A (MG/L)	STATE OF NEVADA DRINKING WATER STANDARDS (MG/L)	NDEP GUIDANCE LEVEL FOR CLOSURE AUTHORITY ^B (MG/L)
<u>TCLP Metals</u>			
Arsenic	5.0	0.05	0.5
Barium	100.0	1.0	10.0
Cadmium	1.0	0.010	0.1
Chromium	5.0	0.05	0.5
Lead	5.0	0.05	0.5
Mercury	0.2	0.002	0.02
pH	<2 or >12 UNITS	6.5-8.5 UNITS	--
<u>TCLP Volatiles</u>			
Benzene	0.5	0.005	0.05
Chlorobenzene	100.0	--	10.0
1,4-Dichlorobenzene	7.5	--	0.75
1,2-Dichloroethane	0.5	0.005	0.05
1,1-Dichloroethylene	0.7	0.007	0.07
Methyl Ethyl Ketone	200.0	--	20.0
Tetrachloroethylene	0.7	--	0.07
Trichloroethylene	0.5	0.005	0.05
Vinyl Chloride	0.2	0.002	0.02
<u>TCLP SEMI-VOLATILES</u>			
M,P-Cresol	200.0	--	20.0
1,4-Dichlorobenzene	7.5	--	0.75
Total Petroleum Hydrocarbons ^C	--	--	100
PCBs ^D	10.0	--	--

^A FEDERAL ACTION LEVELS: U. S. EPA, TCLP 40 CFR 261.24 Hazardous Waste Management System, Identification and Listing of Hazardous Waste: Toxicity Characteristic: As of July 1, 1994.

^B NDEP GUIDANCE LEVEL: Nevada Division of Environmental Protection - levels based upon concentrations ten times the TCLP value or one-tenth the State Drinking Water Value (NDEP, 1994).

^C TOTAL PETROLEUM HYDROCARBONS: Nevada Administrative Code 459.9973 TPH Action Level of 100 ppm. Data reported in mg/l or mg/kg.

^D POLYCHLORINATED BIPHENYLS: U. S. EPA 40 CFR 761.125, Requirements for PCB Spill Cleanup. Data reported in mg/l or mg/kg.

Note: 1,4-dichlorobenzene is reported as a VOC for "total" chemical analysis and as a Semi-VOC for TCLP chemical analysis.

4.0 OBSERVATIONS, FINDINGS, SUMMARY AND RECOMMENDATIONS

A large amount of data was collected for each septic tank and associated leachfield. To assist the reader, all field and analytical information for each site is provided in individual sections. The end of each section includes a summary with recommendations. This format will make closure of domestic septic systems, or the additional site characterization and remediation of non-domestic systems easier to accomplish since all of the information can be found in one location.

4.1 SEPTIC SYSTEM A5TRA (AREA 5 FORMER TRAILER CAMP)

4.1.1 FIELD OBSERVATIONS

Septic System A5TRA is a multiple tank site located in Area 5 and is associated with an abandoned and removed trailer camp (Figure 2). The system consists of four steel holding tanks, each with a capacity of approximately 28,390 liters (7,500 gallons) (Figure 3). Access to the south (influent) tank end was obtained by hand excavation and removing multiple nuts and bolts from the man way access.

The tanks contained predominantly clear liquid. Small amounts of gravel and rock were noted on the tank bottom below the manway but was not uniform throughout the tank. In addition, there was an insufficient quantity of this material in the tanks to sample. It is estimated that each tank contains 13,630 liters (3,600 gallons) of liquid. One liquid sample was obtained from each of the four tanks (A5TRA-T-L, A5TRA-T2-L, A5TRA-T3-L, A5TRA-T4-L). Tank samples were collected on July 27, 1994, September 1, 1994, and April 3, 1995. Stale musty odors were noted from the tank samples.

Although there is no associated leachfield with the tank system, each tank has a clay effluent discharge pipe which drains toward an arroyo (Figure 4). One soil sample was collected below the effluent pipe of Tank Number 2 (A5TRA-EP-1). The soil sample collected beneath the effluent pipe was collected approximately one foot below ground surface on September 7, 1994.

One background sample was collected (A5TRA-BG) approximately 18 meters (60 feet) south east of the tank cluster. The soil was dry, grayish brown in color, and consisted of silt with gravel. No staining or odors were noted. The background sample was collected September 7, 1994. Laboratory analytical results are summarized in Table 3A.

4.1.2 ANALYTICAL RESULTS

4.1.2.1 INORGANIC PARAMETERS

Septic Tanks

Barium was detected in two of the tank liquid samples at 0.0094 mg/l (A5TRA-T2-L) and 0.017 mg/l (A5TRA-T-L). These concentrations are below the TCLP Action Level of 100 mg/l and the NDEP guidance level of 10 mg/l.

The pH of all four tank samples ranged from 8.0 units to 8.42 units. This range is non hazardous under 40 CFR 261.22 (corrosivity) and within the NDWS standards.

Oil and grease was detected in tank Sample A5TRA-T-L at a concentration of 0.1 mg/l. Regulatory Action Levels have not been established for oil and grease, however, the Area 23 Sewage Lagoon has a 100 mg/l disposal acceptance limit.

Effluent Discharge Pipe Area - Soil Sample

Barium was detected at 0.45 mg/l (TCLP). This result correlates with background concentrations for the area and is below the TCLP Action Level of 100 mg/l and the NDEP guidance level of 10 mg/l.

The pH of the sample was 7.66 units which correlates with background values for the area. This value is not hazardous under 40 CFR 261.11 (corrosivity). Although the corrosivity characteristic refers to liquids, it is used here to provide an indication of the pH waste characteristic for soils.

Background Soil Sample

Barium was detected at 0.46 mg/l (TCLP). This result is below the TCLP Action Level of 100 mg/l and the NDEP guidance level of 10 mg/l.

The pH of the sample was 7.61 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids, it is used here to provide an indication of the pH waste characteristic for soils.

4.1.2.2 VOLATILE ORGANIC COMPOUNDS

Volatile Organic Compounds (VOCs) were not detected above laboratory detection limits in each of the liquid tank samples, the soil sample taken below the effluent discharge pipe, or in the background soil sample collected.

4.1.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

Septic Tanks

Di-n-butylphthalate and di-n-octylphthalate were detected in Sample A5TRA-T2-L (liquid) at concentrations of 0.015 mg/l and 0.013 mg/l, respectively. These analytes were also detected in the associated blank which indicates a probable laboratory contaminant. The concentration of di-n-butylphthalate is below the proposed 40 CFR Subpart S Regulatory Level of 4 mg/l for water. A Regulatory Action Level has not been established for di-n-octylphthalate.

Effluent Discharge Pipe Area - Soil Sample

Semi-VOCs were not detected above laboratory detection limits in soil Sample A5TRA-EP.

Background Soil Sample

Semi-VOCs were not detected above laboratory detection limits in soil Sample A5TRA-BG.

4.1.2.4 TOTAL PETROLEUM HYDROCARBONS

Total Petroleum Hydrocarbons (TPH) as gasoline, diesel or oil were not detected above laboratory detection limits in each of the tanks contents, below the effluent discharge pipe, or the background soil sample collected.

4.1.2.5 POLYCHLORINATED BIPHENYLS

Polychlorinated Biphenyls (PCBs) were not detected above laboratory detection limits in each of the liquid tank samples, below the effluent discharge pipe, or the background sample collected.

4.1.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. Analytical results did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 3B.

4.1.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels or NDEP guidance levels were not exceeded in the liquid samples collected from the four septic tanks, in soils below the effluent discharge pipe, or in the background soil sample collected. Based upon the laboratory analytical results, the tanks are recommended to be closed as a domestic sewage system under NSHD guidelines.

FIGURE 2
SITE MAP - SEPTIC TANKS A5TRA

SOURCE: USGS MERCURY, NEV. 7.5' QUADRANGLE, 1961

REEC0

FIGURE 3

LOCATION OF SEPTIC TANKS A5TRA

TABLE 3A - SEPTIC SYSTEM A5TRA: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL ETALS (mg/l)	TCLP ^E			pH ^F	PCBS ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METAL (mg/l)			
A5TRA-T-L	<5.0	<0.5	<0.5	ND	ND	Ba 0.017	NA	NA	NA	8.42	<0.0005	0.1
A5TRA-T2-L	<5.0	<0.5	<0.5	ND	Di-n-butylphthalate 0.015 (B) Di-n-octylphthalate 0.013 (B)	Ba 0.0094	NA	NA	NA	8.13	<0.0005	<0.1
SBLK0907A (Method Blank)	NA	NA	NA	NA	Di-n-butylphthalate 0.014 Di-n-octylphthalate 0.013	NA	NA	NA	NA	NA	NA	NA
A5TRA-T3-L	<1.0	<0.1	<0.1	ND	ND	ND	NA	NA	NA	8.00	<0.001	0.1
A5TRA-T4-L	<1.0	<0.1	<0.1	ND	ND	ND	NA	NA	NA	8.00	<0.001	<0.1
A5TRA-EP	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.45	7.66	<0.167	<10.0
A5TRA-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.46	7.61	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-07-068: A5TRA-T-L: TPH, VOCs, Semi-VOCs, Metals, pH, PCB, Oil & Grease, Radioanalytical

94-09-003: A5TRA-T2-L: Metals, pH

94-09-004: A5TRA-T2-L: VOCs, Semi-VOCs

94-09-005: A5TRA-T2-L: TPH, PCBs

94-09-006: A5TRA-T2-L: Oil & Grease, Radioanalytical

94-09-014: A5TRA-EP: Oil & Grease

A5TRA-BG: Oil & Grease

94-09-019: A5TRA-EP: TCLP-Metals, pH, Radioanalytical

A5TRA-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A5TRA-EP: TCLP:VOCs, Semi-VOCs

A5TRA-BG: TCLP:VOCs, Semi-VOCs

94-09-021: A5TRA-EP: TPH, PCBs

A5TRA-BG: TPH, PCBs

95-04-004: A5TRA-T3-L: VOCs, Semi-VOCs, Metals

A5TRA-T4-L: VOCs, Semi-VOCs, Metals

95-04-005: A5TRA-T3-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A5TRA-T4-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 3B - SEPTIC SYSTEM A5TRA: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A5TRA-T-L	Not Detected	NA	NA	3.07E-07	uCi/cc	Pu-238	-4.62E-12	uCi/cc
						Pu-239	Not Detected	NA
A5TRA-T2-L	Not Detected	NA	NA	1.93E-07	uCi/mL	Pu-238	-3.39E-12	uCi/mL
						Pu-239	4.84E-13	uCi/mL
A5TRA-T3-L	Not Detected	NA	NA	1.87E-08	uCi/cc	Pu-238	-3.06E-12	uCi/cc
						Pu-239	-3.99E-12	uCi/cc
A5TRA-T4-L	Not Detected	NA	NA	-2.99E-07	uCi/cc	Pu-238	-3.17E-12	uCi/cc
						Pu-239	-4.14E-12	uCi/cc
A5TRA-EP	Ac-228	3.63E-01	pCi/g	1.14E+00	pCi/g	Pu-238	5.40E-03	pCi/g
	Bi-214	3.10E+00	pCi/g			Pu-239	1.08E-02	pCi/g
	K-40	4.10E+00	pCi/g					
	Pb-212	3.33E-01	pCi/g					
	Pb-214	4.64E+00	pCi/g					
	Tl-208	1.09E-01	pCi/g					
A5TRA-BG	Ac-228	3.18E-01	pCi/g	5.14E-01	pCi/g	Pu-238	Not Detected	NA
	Bi-212	5.75E-01	pCi/g			Pu-239	2.79E-02	pCi/g
	Bi-214	2.66E+00	pCi/g					
	Cs-137	2.00E-02	pCi/g					
	K-40	2.57E+00	pCi/g					
	Pb-212	3.60E-01	pCi/g					
	Pb-214	3.28E+00	pCi/g					
	Tl-208	1.07E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

NA = Not Applicable

4.2 SEPTIC SYSTEM A121 (AREA 12-SYSTEM 1)

4.2.1 FIELD OBSERVATIONS

Septic System A121 is a multiple tank site located within the Area 12 Camp (Figure 4). The system serviced numerous facilities and consists of four approximately 28,390 liter (7,500 gallon) capacity steel holding tanks (Figure 5). Manways to the influent tank ends were readily accessible for sampling. Each of the tanks contained approximately 14,000 liters (3,700 gallons), consisting of approximately 0.76 meters (2.5 feet) of liquid and 0.46 meters (1.5 feet) of sludge. Liquid and sludge samples were obtained from each of the four tanks (A121-T-L/S, A121-T2-L/S, A121-T3-L/S, A121-T4-L/S). Tank samples were collected on August 17, 1994, August 31, 1994, and April 3, 1995.

The liquid was pale yellow and the sludge was dark brown to black in color. Moderate septage odors were noted. A leachfield is not associated with this system, therefore a background soil sample was not collected. Laboratory analytical results are summarized in Table 4A.

4.2.2 ANALYTICAL RESULTS

4.2.2.1 INORGANIC PARAMETERS

Barium was detected in both the liquid (total) and sludge (TCLP) samples at concentrations ranging from 0.016 mg/l to 1.7 mg/l. These concentrations are below the TCLP Action Level of 100 mg/l and the NDEP guidance level of 10 mg/l.

The pH ranged from 6.85 units to 8.3 units. This range is not hazardous under 40 CFR 261.22 (corrosivity) and is within NDWS guidelines.

Oil and grease was detected at concentrations ranging from 0.27 mg/l (liquid) to 3,400 mg/l (sludge). Regulatory Action Levels have not been established for oil & grease, however, the REECO WMD uses a guideline of 100 mg/l for disposal acceptance of liquids into the Area 23 Sewage Lagoon.

4.2.2.2 VOLATILE ORGANIC COMPOUNDS

TCLP methyl ethyl ketone was detected in sludge samples A121-T3-S and A121-T4-S at concentrations of 0.014 mg/l and 0.020 mg/l, respectively. TCLP trichloroethylene was detected in the same two sludge samples at concentrations of 0.025 mg/l and 0.00079 mg/l, respectively. TCLP chlorobenzene was also detected in sludge sample A121-T3-S at a concentration of 0.0015 mg/l. Detected concentrations of methyl ethyl ketone, trichloroethylene, and chlorobenzene do not exceed TCLP Action Levels of 200 mg/l, 0.5 mg/l, and 100 mg/l, respectively. In addition, concentrations were below the NDEP guidance levels of 20 mg/l, 0.05 mg/l and 10.0 mg/l, respectively.

Acetone was detected in liquid Sample A121-T-L at a concentration of 0.017 mg/l and was reanalyzed and reported at 0.023 mg/l. Acetone was also detected

in the associated trip blank at a concentration of 0.110 mg/l. The blank sample was reanalyzed and acetone was not detected which indicates that acetone is present in Sample A121-T-L.

4.2.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP 1,4-dichlorobenzene was detected in sludge samples from each tank. Sample A121-T-S contained a concentration of 41 mg/l which exceeds the TCLP Action Level (7.5 mg/l) and NDEP guidance level (0.75 mg/l). Sample A121-T2-S contained a concentration of 3.9 mg/l which is below the TCLP Action Level (7.5 mg/l) but exceeds the NDEP guidance level (0.75 mg/l). Samples A121-T3-S and A121-T4-S contained 1,4-dichlorobenzene at concentrations of 0.051 mg/l and 0.018 mg/l, respectively, which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

4.2.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as diesel was detected in sludge samples A121-T3-S and A121-T4-S at concentrations of 630 mg/kg and 170 mg/kg, respectively. TPH as gasoline was detected in the same two samples at concentrations of 2.7 mg/kg and 18 mg/kg, respectively.

TPH as oil was detected in all four sludge samples at concentrations ranging from 480 mg/kg to 2,100 mg/kg. The 100 mg/kg TPH Regulatory Action Level for soils (Nevada Administrative Code [NAC] 459.9921 through 459.999) was exceeded in the sludge samples from all four tanks.

4.2.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the four sludge samples collected at concentrations ranging from 0.190 mg/kg to 0.248 mg/kg. These values are below the Federal Action Level of 10 mg/kg as found in 40 CFR Part 761.125.

4.2.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. Analytical results did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 4B.

4.2.3 SUMMARY AND RECOMMENDATIONS

A121-T

Acetone was detected in the liquid sample collected. The TCLP Action Level for 1,4-dichlorobenzene was exceeded in the sludge sample collected. The TPH NAC Action Level was also exceeded in the sludge sample. Based upon the analytical results, the tank contents are considered hazardous and will

require closure under a separate Work Plan. Closure authority will be under NDEP guidelines.

A121-T2

The TPH Action Level exceeded in sludge Sample A121-T2-S. The NDEP guidance level for 1,4-dichlorobenzene was also exceeded in the sludge sample collected. Based upon the analytical results, the tank contents will require closure under a separate Work Plan. Closure authority will be under NDEP guidelines.

A121-T3 and A121-T4

The sludge contents of Tanks A121-T3, and A121-T4 contain TPH concentrations exceeding the TPH Action Level. Other existing or proposed regulatory levels were not exceeded. Based upon these results the tanks can be closed as "hydrocarbon containing tanks" following the draft procedure found in Attachment 7 of the October 1992 Work Plan. Closure authority will be under NDEP guidelines.

REEC Co

FIGURE 4

SITE MAP - SEPTIC TANKS A121

SOURCE: USGS RAINIER MESA, NEV. 7.5' QUADRANGLE, 1986

FIGURE 5
LOCATION OF SEPTIC TANKS A121

TABLE 4A - SEPTIC SYSTEM A121: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS (mg/l)	TCLP ^E			pH ^F	PCBS ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METAL (mg/l)			
A121-T-L	<5.0	<0.5	<0.5	Acetone 0.017 Acetone 0.023 (RE)	ND	Ba 0.033	NA	NA	NA	8.18	<0.0005	0.3
4TAP0817- (Trip Blank)	NA	NA	NA	Acetone 0.110 Acetone ND (RE)	NA	NA	NA	NA	NA	NA	NA	NA
A121-T-S	<5.0	<10.0	1,270	NA	NA	NA	ND	1,4-Dichlorobenzene 19(E) 1,4-Dichlorobenzene 41(D)	Ba 1.7	7.01	0.248*	3,400
A121-T2-L	<5.0	<0.5	<0.5	ND	ND	Ba 0.016	NA	NA	NA	8.15	<0.0005	0.27
A121-T2-S	<5.0	<10.0	1,220	NA	NA	NA	ND	1,4-Dichlorobenzene 0.33(E) 1,4-Dichlorobenzene 3.9(D)	Ba 1.0	6.85	0.239*	1,200
A121-T3-L	<1.0	<0.1	<0.1	ND	ND	ND	NA	NA	NA	8.00	<0.001	<0.1
A121-T3-S	2.7	630	2,100	NA	NA	NA	Chlorobenzene 0.0015 Methyl Ethyl Ketone 0.014 Trichloroethylene 0.025	1,4-Dichlorobenzene 0.051	Ba 0.46	7.40	0.210*	2.2
A121-T4-L	<1.0	<0.1	<0.1	ND	ND	ND	NA	NA	NA	8.30	<0.001	<0.1
A121-T4-S	18	170	480	NA	NA	NA	Methyl Ethyl Ketone 0.020 Trichloroethylene 0.00079	1,4-Dichlorobenzene 0.018	Ba 0.61	7.10	0.190*	3.8

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBS: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(RE): Sample reanalyzed for a specific analyte.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A121-T-L: VOCs, Semi-VOCs, Radioanalytical
A121-T-S: TCLP:VOCs,Semi-VOCs, Radioanalytical

94-08-064: A121-T-L: TPH, PCBs
A121-T-S: TPH, PCBs

94-08-065: A121-T-L: Metals, pH
A121-T-S: TCLP-Metals, pH

94-08-066: A121-T-L: Oil & Grease
A121-T-S: Oil & Grease

94-09-003: A121-T2-L: Metals, pH
A121-T2-S: TCLP-Metals, pH

94-09-004: A121-T2-L: VOCs, Semi-VOCs
A121-T2-S: TCLP:VOCs,Semi-VOCs

94-09-005: A121-T2-L: TPH, PCBs
A121-T2-S: TPH, PCBs

94-09-006: A121-T2-L: Oil & Grease, Radioanalytical
A121-T2-L: Oil & Grease, Radioanalytical

95-04-004: A121-T3-L: VOCs, Semi-VOCs, Metals
A121-T3-S: TCLP:VOCs,Semi-VOCs,Metals
A121-T4-L: VOCs, Semi-VOCs, Metals
A121-T4-S: TCLP:VOCs,Semi-VOCs,Metals

95-04-005: A121-T3-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical
A121-T3-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical
A121-T4-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical
A121-T4-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 4B - SEPTIC SYSTEM A121: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A121-T-L	Not Detected	NA	NA	3.38E-07	uCi/mL	Pu-238	6.76E-12	uCi/mL
						Pu-239	Not Detected	NA
A121-T-S	Ac-228	3.26E-07	uCi/g	2.88E-06	uCi/g	Pu-238	Not Detected	NA
	Bi-212	5.44E-07	uCi/g			Pu-239	1.28E-08	uCi/g
	Bi-214	5.60E-07	uCi/g					
	Cs-137	2.45E-07	uCi/g					
	K-40	5.08E-06	uCi/g					
	Pb-212	4.40E-07	uCi/g					
	Pb-214	6.95E-07	uCi/g					
	Tl-208	1.08E-07	uCi/g					
A121-T2-L	Bi-214	8.90E+02	pCi/L	3.35E-07	uCi/g	Pu-238	-4.50E-12	uCi/g
	K-40	2.09E+02	pCi/L			Pu-239	-1.67E-13	uCi/g
	Pb-212	2.94E+02	pCi/L					
A121-T2-S	Ac-228	1.35E-01	pCi/g	4.64E+00	pCi/g	Pu-238	Not Detected	NA
	Bi-212	2.45E-01	pCi/g			Pu-239	6.21E-03	pCi/g
	Bi-214	6.33E-01	pCi/g					
	Cs-137	3.67E-01	pCi/g					
	K-40	1.42E+00	pCi/g					
	Pb-212	8.89E-02	pCi/g					
	Pb-214	3.31E-01	pCi/g					
	Tl-208	3.03E-02	pCi/g					
A121-T3-L	Not Detected	NA	NA	-6.23E-09	uCi/cc	Pu-238	1.07E-12	uCi/cc
						Pu-239	2.58E-13	uCi/cc
A121-T3-S	Cs-137	6.51E-01	pCi/g	7.51E-08	uCi/cc	Pu-238	8.57E-10	uCi/cc
	K-40	1.07E+00	pCi/g			Pu-239	1.00E-07	uCi/cc
	Pb-212	1.98E-01	pCi/g					
A121-T4-L	Not Detected	NA	NA	6.04E-07	uCi/cc	Pu-238	-2.87E-12	uCi/cc
						Pu-239	2.77E-13	uCi/cc
A121-T4-S	Cs-137	7.62E-01	pCi/g	2.13E-07	uCi/cc	Pu-238	2.08E-09	uCi/cc
	K-40	2.52E+00	pCi/g			Pu-239	5.40E-08	uCi/cc
	Pb-212	3.41E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.3 SEPTIC SYSTEM A124 WEST (AREA 12-SYSTEM 4 WEST)

4.3.1 FIELD OBSERVATIONS

Septic System A124 is a multiple tank site located within the Area 12 camp and previously served multiple facilities in the camp (Figure 6). The tank system was exposed using backhoe equipment. The system was identified in REEC's October 1992 Work Plan as one site consisting of two multiple tank clusters (Figure 7). Based upon review of as-built drawings and field observations it is apparent that the system is comprised of two individual holding tank clusters. Therefore, the west cluster (consisting of three tanks) and the east cluster (consisting of two tanks) were sampled and reviewed independently of each other.

In addition, as-built drawings indicated that four tanks were located in the western cluster. Extensive field excavation exposed only three tanks. Based upon the position and configuration of the located tanks, it appears that one tank may have been removed to facilitate installation of the nearby sewer line, or that the tank was never installed (Figure 7). A leachfield is not associated with this system, therefore a background soil sample was not collected.

The three tanks are identified as A124-TW, A124-T2, and A124-T3. Each tank has a capacity of approximately 28,390 liters (7,500 gallons) and is constructed of steel. Approximately 18,925 liters (5,000 gallons) of liquid and sludge remain in each tank. Tanks A124-TW and A124-T3 have a buoyant solid cover of rootlet vegetation over the liquid and sludge. The liquid and sludge samples were collected by pushing through this material. The rootlet covering was approximately 10 centimeters (cm) (four inches) to 15 cm (six inches) thick over approximately 0.9 meters (three feet) of liquid above 0.46 meters (1.5 feet) of sludge.

Liquid samples collected were relatively clear with little or slight odor. The sludge was dark brown to black in color with a moderate to strong septic odor. Tank A124-T3 contained trash debris such as foil and rubber particulates. Laboratory analytical results are summarized in Table 5A.

4.3.2 ANALYTICAL RESULTS

4.3.2.1 INORGANIC COMPOUNDS

Barium was detected in the liquid and sludge samples from each tank at concentrations ranging from 0.036 mg/l (total) to 0.29 mg/l (TCLP). Mercury was detected in one liquid sample (A124-T3-L) at 0.00032 mg/l (total). The barium and mercury concentrations are below the TCLP Action Levels of 100 mg/l and 0.2 mg/l, respectively. In addition, the concentrations do not exceed NDEP guidance levels of 10 mg/l and 0.02 mg/l, respectively.

The pH ranged from 4.42 units (A124-T2-L) to 7.44 units. This range is not hazardous under 40 CFR 261.22 (corrosivity), however, the pH value of 4.42 is below the NDWS level.

Oil and grease was detected at concentrations ranging from 0.25 mg/l to 3,900 mg/l. Regulatory Action Levels have not been established for oil & grease, however, the REECo WMD uses a guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

4.3.2.2 VOLATILE ORGANIC COMPOUNDS

A124-TW

Tank sample A124-TW-L (liquid) contained acetone (0.16 mg/l) and toluene (0.037 mg/l) at concentrations below Proposed Subpart S concentrations of 4.0 mg/l and 10.0 mg/l for water, respectively. Acetone was also detected in the laboratory blank at 0.110 mg/l, however, when the blank sample was reanalyzed acetone was not detected. The tank liquid also contained 1,4-dichlorobenzene (0.47 mg/l) below the TCLP Action Level of 7.5 mg/l and the NDEP guidance level of 0.75 mg/l. 1,2-dichlorobenzene (0.006 mg/l) was also detected, however, there is no specific guidance level for 1,2-dichlorobenzene at this time.

Sample A124-TW-S (sludge) contained TCLP trichloroethene at 0.05 mg/l which is below the TCLP Action Level of 0.5 mg/l. However, this concentration is at the NDEP guidance level of 0.05 mg/l.

A124-T2

VOCs were not detected above laboratory detection limits in the liquid or sludge sample of Tank A124-T2.

A124-T3

Chlorobenzene and toluene were detected in the liquid sample (A124-T3-L) at concentrations of 0.00066 mg/l and 0.00064 mg/l, respectively. The chlorobenzene concentration is below the TCLP Action Level of 100 mg/l and below the NDEP guidance level of 10 mg/l. The toluene concentration is below the Proposed Subpart S concentration of 4.0 mg/l for water.

The sludge sample (A124-T3-S) contained chlorobenzene (0.0021 mg/l), methyl ethyl ketone (0.0082 mg/l), and tetrachloroethylene (0.00061 mg/l) at TCLP concentrations below the TCLP Action Levels of 100 mg/l, 20 mg/l and 0.07 mg/l, respectively. The concentrations were also below the NDEP guidance levels of 10.0 mg/l, 20.0 mg/l and 0.07 mg/l, respectively.

4.3.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

A124-TW

Tank sample A124-TW-L contained 1,4-dichlorobenzene at a concentration of 0.21 mg/l, which is below the TCLP Action Level of 7.5 mg/l and the NDEP guidance level of 0.75 mg/l. The liquid sample also contained 4-chloroaniline (0.017 mg/l) for which there is no current guidance level.

The sludge sample (A124-TW-S) contained TCLP 1,4-dichlorobenzene at 160 mg/l which exceeds the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). The sample also contained 2-methylphenol (0.48 mg/l) and 4-methylphenol (3.5 mg/l). At this time there are no available or proposed regulatory levels for 2-methylphenol or 4-methylphenol.

A124-T2

Semi-VOCs were not detected above laboratory detection limits in the liquid or sludge sample of Tank A124-T2.

A124-T3

Tank sample A124-T3-L (liquid) contained 1,4-dichlorobenzene at a concentration of 0.250 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). Bis(2-ethylhexyl)phthalate was detected at a concentration of 0.0039 mg/l, which exceeds the proposed 40 CFR Subpart S action level of 0.003 mg/l for water. The liquid sample also contained 4-chloroaniline (0.0039), and 2-methylnaphthalene (0.0044 mg/l). At this time there are no available or proposed regulatory levels for 4-chloroaniline and 2-methyl-naphthalene.

The sludge sample (A124-T3-S) contained TCLP 1,4-dichlorobenzene (2.5 mg/l) at concentrations below the Federal Action Level (7.5 mg/l) but in excess of the NDEP guidance level (0.75 mg/l).

4.3.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as oil was detected in the liquid and sludge samples from Tank A124-TW at concentrations of 4,550 mg/l and 907 mg/kg, respectively. These concentrations exceed the TPH Action Level of 100 mg/l.

TPH as diesel and oil was detected in the sludge sample from Tank A124-T2 at concentrations of 254 mg/kg and 1,030 mg/kg, respectively. These concentrations exceed the TPH Action Level of 100 mg/kg.

TPH as diesel, gas, and oil was detected in the liquid and sludge samples from Tank A124-T3. Liquid concentrations were below the TPH Action Level, however, diesel, gas, and oil in the sludge sample exceeded the Action Level at concentrations of 1,400 mg/kg, 130 mg/kg and 1,300 mg/kg, respectively.

4.3.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the three sludge samples collected at concentrations ranging from 0.082 mg/kg to 0.451 mg/kg. These values are below the Federal Action Level of 10 mg/kg.

4.3.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. Analytical results did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 5B.

4.3.3 SUMMARY AND RECOMMENDATIONS

A124-TW

Federal Action Levels were exceeded in the sludge sample for Semi-VOCs (1,4-dichlorobenzene). The TPH Action Level was also exceeded in the liquid and sludge samples collected. The contents are considered hazardous and will require closure under a separate work plan. Closure authority for this tank site will be under NDEP guidelines.

A124-T2

The NDEP guidance level for TPH were exceeded in the sludge sample for TPH as diesel and oil. Oil and grease sludge concentrations also exceeded the REECo WMD sewage lagoon acceptance concentration of 100 mg/l. In addition, the liquid pH value was greater than the allowable range of the NDWS limits. With NDEP concurrence, the contents may be closed as a "hydrocarbon containing tank" (REECo, 1992). Closure authority for this tank site will be under NDEP guidelines.

A124-T3

The liquid sample contained bis(2-ethylhexyl)phthalate (0.0039 mg/l) exceeding the proposed 40 CFR Subpart S Action Level of 0.003 mg/l for water. NDEP guidance should be obtained for determining whether this concentration is within acceptable levels prior to conducting any closure activities.

The sludge within the tank contains TPH as diesel, gas, and oil concentrations which exceed the TPH Action Level.

Based upon the NDEP classification guidance of the bis(2-ethylhexyl)phthalate, the tank contents may be considered hazardous. If deemed below regulatory concern the tank can be closed as a "hydrocarbon containing tank" following the draft procedure found in Attachment 7 of the October 1992 Work Plan. Closure authority for this tank site will be under NDEP guidelines.

REEC Co

FIGURE 6 **SITE MAP - SEPTIC TANKS A124WEST**

SOURCE: USGS RAINIER MESA, NEV. 7.5' QUADRANGLE, 1986

TABLE 5A - SEPTIC SYSTEM A124-WEST: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METAL (mg/l)			
A124-TW-L	<5.0	<0.5	4,550	Acetone 0.033 Acetone 0.16 (D) 1,4-Dichlorobenzene 0.47 (E) 1,4-Dichlorobenzene 0.45 (D) Toluene 0.037 1,2-Dichlorobenzene 0.006	1,4-Dichlorobenzene .19 (E) 4-Chloroaniline .017 1,4-Dichlorobenzene .21 (D)	Ba 0.065	NA	NA	NA	6.97	<0.0005	30
94TAP0817-1 (Trip Blank)	NA	NA	NA	Acetone 0.110 Acetone ND (RE)	NA	NA	NA	NA	NA	NA	NA	NA
A124-TW-	<5.0	<10.0	907	NA	NA	NA	Trichloroethene 0.05 1,4-Dichlorobenzene 46 (E) 1,4-Dichlorobenzene 160 (D) 4-Methylphenol 3.5 (E) 2-Methylphenol 0.48	NA	Ba 0.087	7.05	0.125*	3,900
A124-T2-L	<5.0	<0.5	<0.5	ND	ND	Ba <0.0060	NA	NA	NA	4.42	<0.0005	0.25
A124-T2-S	<5.0	254	1,030	NA	NA	As <0.14 Ba 0.29	ND	ND	NA	7.44	0.451*	3,200
A124-T3-L	0.16	0.39	6.4	Toluene 0.00064 Chlorobenzene 0.00066	1,4-Dichlorobenzene 0.250 1,2-Dichlorobenzene 0.0087 4-Chloroaniline 0.0039 2-Methylnaphthalene 0.0044 Bisphthalate (2-ethylhexyl) 0.0039	Ba 0.036 Hg 0.00032	NA	NA	NA	6.70	<0.001	3.1
A124-T3-S	130	1,400	1,300	NA	NA	NA	Chlorobenzene 0.0021 Methyl Ethyl Ketone 0.0082 Tetrachloro- ethylene 0.00061 (B)	1,4-Dichlorobenzene 2.5	Ba 0.21	6.90	0.082*	2.3
TB-54311- (Method Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.00096	NA	NA	NA	NA	NA

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).^F pH: Analyzed using U.S. EPA Method 1010.

^g PCBS: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^h Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

(RE): Sample reanalyzed for a specific analyte.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A124-TW-L: VOCs, Semi-VOCs, Radioanalytical

A124-TW-S: TCLP:VOCs, Semi-VOCs, Radioanalytical

94-08-064: A124-TW-L: TPH, PCBs

A124-TW-S: TPH, PCBs

94-08-065: A124-TW-L: Metals, pH

A124-TW-S: TCLP-Metals, pH

94-08-066: A124-TW-L: Oil & Grease

A124-TW-S: Oil & Grease

94-09-003: A124-T2-L: Metals, pH

A124-T2-S: TCLP-Metals, pH

94-09-004: A124-T2-L: VOCs, Semi-VOCs

A124-T2-S: TCLP:VOCs, Semi-VOCs

94-09-005: A124-T2-L: TPH, PCBs

A124-T2-S: TPH, PCBs

94-09-006: A124-T2-L: Oil & Grease, Radioanalytical

A124-T2-S: Oil & Grease, Radioanalytical

95-04-004: A124-T3-L: VOCs, Semi-VOCs, Metals

A124-T3-S: TCLP:VOCs, Semi-VOCs, Metals

95-04-005: A124-T3-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A124-T3-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 5B - SEPTIC SYSTEM 124WEST: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A124-TW-L	Not Detected	NA	NA	1.18E-07	uCi/mL	Pu-238	Not Detected	NA
						Pu-239	4.68E-12	uCi/mL
A124-TW-S	Ac-228	9.57E-07	uCi/g	2.34E-06	uCi/g	Pu-238	2.19E-09	uCi/g
	Bi-212	1.17E-07	uCi/g			Pu-239	2.19E-09	uCi/g
	Bi-214	1.70E-06	uCi/g					
	Cs-137	1.91E-07	uCi/g					
	K-40	1.52E-05	uCi/g					
	Pb-212	1.28E-06	uCi/g					
	Pb-214	2.40E-06	uCi/g					
	Tl-208	3.09E-07	uCi/g					
A124-T2-L	Ac-228	9.55E+01	pCi/L	5.17E-07	uCi/mL	Pu-238	-4.63E-12	uCi/mL
						Pu-239	-4.63E-12	uCi/mL
A124-T2-S	Bi-214	3.11E-01	pCi/g	4.37E+01	pCi/g	Pu-238	6.97E-03	pCi/g
	Cs-137	3.79E-01	pCi/g			Pu-239	6.97E-03	pCi/g
	K-40	1.21E+00	pCi/g					
	Pb-212	1.37E-01	pCi/g					
A124-T3-L	Not Detected	NA	NA	3.49E-07	uCi/cc	Pu-238	8.12E-12	uCi/cc
						Pu-239	3.93E-11	uCi/cc
A124-T3-S	Ac-228	1.41E+00	pCi/g	-2.94E-07	uCi/cc	Pu-238	1.82E-09	uCi/cc
	Bi-212	1.19E+00	pCi/g			Pu-239	1.63E-08	uCi/cc
	Bi-214	8.29E-01	pCi/g					
	Cs-137	7.43E-01	pCi/g					
	K-40	1.64E+01	pCi/g					
	Pb-212	1.52E+00	pCi/g					
	Pb-214	1.57E+00	pCi/g					
	Tl-208	3.75E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.4 SEPTIC SYSTEM A124 EAST (AREA 12-SYSTEM 4 EAST)

4.4.1 FIELD OBSERVATIONS

Septic System A124 is a multiple tank system located in the Area 12 camp. The system previously served the housing facilities (Figure 8). The tank system was exposed using backhoe equipment and hand excavation. The system consists of two tanks which were identified in REEC's October 1992 Work Plan as part of one tank system A124. As discussed previously in Section 4.3, the tanks were reviewed independently of each other since they apparently serviced separate facilities. A leachfield is not associated with this system, therefore a background soil sample was not collected.

The two tanks were identified as A124-TE and A124-TE2 (Figure 9). The tanks are approximately 28,390 liter (7,500 gallon) capacity steel holding tanks. Approximately 18,925 liters (5,000 gallons) of septage remain in each tank. Tank A124-TE contains only liquid with rootlet vegetation on the interior sidewalls. Tank A124-TE2 contains liquid and approximately 0.46 meters (1.5 feet) of sludge.

Liquid samples collected were relatively clear with little or slight septage odor. The sludge in Tank A124-TE2 was dark brown to black in color with strong septage odor. Laboratory analytical results are summarized in Table 6A.

4.4.2 ANALYTICAL RESULTS

4.4.2.1 INORGANIC COMPOUNDS

Barium was detected at concentrations ranging from 0.017 mg/l (total) to 0.74 mg/l (TCLP). These concentrations do not exceed the TCLP Action Level of 100 mg/l or the NDEP guidance level of 10 mg/l.

The pH ranged from 6.86 units to 7.4 units. This range is within the NDWS guidance level and is not hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected at concentrations ranging from 0.67 mg/l to 7.4 mg/l. Regulatory Action Levels have not been established for oil & grease, however, the REEC's WMD uses a guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

4.4.2.2 VOLATILE ORGANIC COMPOUNDS

A124-TE

1,4-dichlorobenzene was detected in the liquid sample at a concentration of 0.008 mg/l, however, when reanalyzed 1,4-dichlorobenzene was not detected.

A124-TE2

Tank sample A124-TE2-L (liquid) contained trichloroethene at a concentration of 0.150 mg/l which is less than the Federal Action Level of 0.5 mg/l but greater than the NDEP guidance level of 0.05 mg/l. Toluene was detected at a concentration of 0.0041 mg/l which is below the proposed 40 CFR Subpart S guidance level of 4.0 mg/l for water. Total 1,2-dichloroethene was detected at a concentration of 0.063 mg/l (total). There are no existing or proposed guidance levels for waste characterization of total 1,2-dichloroethene at this time.

The sludge from the same tank (Sample A124-TE2-S) contained TCLP chlorobenzene (0.00053 mg/l), 1,1-dichloroethylene (0.0040 mg/l), methyl ethyl ketone (0.16 mg/l), tetrachloroethylene (0.0013 mg/l), and vinyl chloride (0.0023 mg/l) at concentrations below TCLP Action Levels of 100 mg/l, 0.7 mg/l, 200 mg/l, 0.7 mg/l, 0.7 mg/l, respectively. In addition, concentrations were below the NDEP guidance levels of 10.0 mg/l, 0.07 mg/l, 20.0 mg/l, 0.07 mg/l, and 0.02 mg/l, respectively.

However, the sludge sample contained trichloroethylene at a TCLP concentration of 13 mg/l which exceeds the Federal Action Level of 0.5 mg/l and the NDEP guidance level of 0.05 mg/l.

4.4.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

The liquid and sludge sample (A124-TE2-L and A124-TE2-S) contained 1,4-dichlorobenzene at concentrations of 0.230 mg/l (total) and 0.18 mg/l (TCLP), respectively. These concentrations are below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level of 0.75 mg/l. In addition, the sludge sample contained TCLP m,p-cresol at a concentration of 0.36 mg/l which is below the TCLP Action Level (200 mg/l) and the NDEP guidance level (20 mg/l).

4.4.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as diesel and oil was detected in liquid sample A124-TE2-L at 0.24 mg/l and 0.38 mg/l, respectively. The sludge sample from the same tank contained TPH as diesel, gas, and oil at concentrations of 4,700 mg/kg, 300 mg/kg and 4,900 mg/kg, respectively. The sludge sample concentrations exceed the TPH Action Level of 100 mg/kg.

4.4.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected at a concentration of 0.720 mg/kg in sludge Sample A124-TE2-S. This value is below the Federal Action Level of 10 mg/kg.

4.4.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. Analytical results did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 6B.

4.4.3 SUMMARY AND RECOMMENDATIONS

A124-TE-L

TCLP Action Levels or NDEP guidance levels were not exceeded in the liquid sample collected from this tank. This tank can be closed under NSHD guidelines.

A124-TE2-L/S

Federal Action Levels were exceeded in the sludge sample for trichloroethylene. In addition, TPH concentrations exceeded Action Levels. The contents are considered hazardous and will require closure under a separate Work Plan. Closure authority for this tank will be under NDEP guidelines.

REEC Co

FIGURE 8 SITE MAP - SEPTIC TANKS A124EAST

SOURCE: USGS RAINIER MESA, NEV. 7.5' QUADRANGLE, 1986

EXPLANATION

* SAMPLING LOCATION

APPROX. SCALE

FIGURE 9

LOCATION OF SEPTIC TANKS A124EAST

TABLE 6A - SEPTIC SYSTEM A124-EAST: SUMMARY OF SOIL ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBS ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A124-TE-L	<5.0	<0.5	<0.5	1,4-Dichlorobenzene 0.008 ND (RE)	ND	Ba 0.017	NA	NA	NA	6.86	<0.0005	0.67
A124-TE2-L	<1.0	0.24	0.38	Total- 1,2-Dichloroethene 0.063 Trichloroethene 0.150 Toluene 0.0041	1,4-Dichloro benzene 0.230	ND	NA	NA	NA	7.40	<0.001	<0.1
A124-TE2-S	300	4,700	4,900	NA	NA	NA	Chlorobenzene 0.00053 1,1-Dichloroethylene 0.0040 Methyl Ethyl Ketone 0.16 Tetrachloro- ethylene 0.0013 (B) Trichloroethylene 13 (D) Vinyl Chloride 0.0023	m,p-Cresol 0.36 1,4-Dichloro benzene 0.18	Ba 0.74	7.00	0.720*	7.4
TB-54311-1 (Method Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.00096	NA	NA	NA	NA	NA

TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

pH: Analyzed using U.S. EPA Method 1010.

PCBS: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

Oil & Grease: Analyzed using U.S. EPA Method 503E.

B): Analyte is found in the associated blank as well as in the sample.

D): Identifies all compounds identified in an analysis at a secondary dilution factor.

RE): Sample reanalyzed for that specific analyte.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

mg/l or mg/kg: Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil). (Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

34-08-063: A124-TE-L: VOCs, Semi-VOCs, Radioanalytical

34-08-064: A124-TE-L: TPH, PCBs

34-08-065: A124-TE-L: Metals, pH

34-09-006: A124-TE-L: Oil & Grease

95-04-004: A124-TE2-L: VOCs, Semi-VOCs, Metals

A124-TE2-S: TCLP: VOCs, Semi-VOCs, Metals

95-04-005: A124-TE2-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A124-TE2-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 6B - SEPTIC SYSTEM A124EAST: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A124-TE-L	Not Detected	NA	NA	2.93E-07	uCi/mL	Pu-238	Not Detected	NA
						Pu-239	4.68E-12	uCi/mL
A124-TE2-L	Not Detected	NA	NA	3.74E-08	uCi/cc	Pu-238	-2.72E-12	uCi/cc
						Pu-239	2.62E-13	uCi/cc
A124-TE2-S	Bi-214	5.15E-01	pCi/g	-1.19E-07	uCi/cc	Pu-238	2.19E-08	uCi/cc
	Cs-137	3.23E+00	pCi/g			Pu-239	9.31E-07	uCi/cc
	K-40	2.12E+00	pCi/g					
	Pb-212	4.49E-01	pCi/g					
	Pb-214	4.81E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

NA = Not Applicable

4.5 SEPTIC SYSTEM A125 (AREA 12-SYSTEM 5)

4.5.1 FIELD OBSERVATIONS

Septic System A125 is a multiple tank system located in the Area 12 Camp. It previously served numerous facilities in the Camp (Figure 10). The tanks were exposed using backhoe equipment and hand excavation. The system consists of six tanks (A125-T, T2, T3, T4, T5 and T6). Each tank has an approximate capacity of 23,387 liters (7,500 gallons) (Figure 11). The tanks are constructed of steel and have approximately 13,247 liters to 18,925 liters (3,500 to 5,000 gallons) of septage in each tank. The first and second tank sampled (A125-T, A125-T2) contained only liquid with approximately six inches of solid on the bottom. The solid was not sampled due to the small amount present and the likelihood that it consisted predominantly of soil which had fallen in through the manway during tank exposure. The solid was also localized only around the manway area and was not consistent across the tank bottoms. Solid/sludge samples were collected from the remaining four tanks with a maximum thickness of approximately 0.30 meters (one foot).

Liquid samples were relatively clear with no or little odor. The sludge sample collected from Tank A125-T3 was black with olive green and yellow particulate matter and had a slight septage odor. Sludge samples from the remaining three tanks were more similar of soil which had fallen through the manway but were at thicknesses sufficient for sampling. Tank samples were collected on August 17, 1994, August 31, 1994, March 27, 1995, and March 28, 1995. Laboratory analytical results are summarized in Table 7A. A leachfield is not associated with this system, therefore, a background soil sample was not collected.

4.5.2 ANALYTICAL COMPOUNDS

4.5.2.1 INORGANIC COMPOUNDS

A125-T-L (Liquid)

The pH was 8.12 units which is within the NDWS guidance levels and is not hazardous under 40 CFR 261.22 (corrosivity).

A125-T2-L (Liquid)

Barium was detected in the liquid sample at 0.0088 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH was 6.84 units which is within the NDWS guidance levels and is not hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected at a concentration of 0.16 mg/l. Regulatory Action Levels have not been established for oil and grease, however, the REEC

WMD uses a guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

A125-T3-L (Liquid)

Barium was detected at a concentration of <0.0060 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the liquid sample was 7.93 units which is within the NDWS guidance levels and is not hazardous under 40 CFR 261.22 (corrosivity).

A125-T3-S (Sludge)

TCLP barium was detected at 0.46 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

Oil and grease was detected in the sludge sample at a concentration of 1,400 mg/l which exceeds the REECO WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

A125-T4-L (Liquid)

Barium was detected at a reported TCLP concentration of 0.082 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l). The pH of the liquid sample was 7.80 units which is not hazardous under 40 CFR 261.22 (corrosivity) and is within the NDWS guidance levels.

A125-T4-S (Sludge)

Barium was detected at a TCLP concentration of 0.19 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). Barium and chromium were detected in the sludge sample at "total" concentrations of 57 mg/kg and 12 mg/kg, respectively. Although these concentrations exceed guidance levels, they represent a "total" concentration and should not be considered hazardous since they were not representative of the TCLP analysis results.

Oil and grease was detected in the sludge sample at a concentration of 250 mg/kg which exceeds the REECO WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

A125-T5-L (Liquid)

Barium was detected at a total concentration of 0.073 mg/l and a reported TCLP concentration of 0.21 mg/l, which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). The pH of the sample was 7.70 units which is not hazardous under 40 CFR 261.22 (corrosivity), and is within the NDWS guidance level.

A125-T5-S (Sludge)

Barium was detected at a TCLP concentration of 0.16 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). Barium, chromium, and mercury were detected in the sludge sample at "total" concentrations of 67 mg/kg, 2.1 mg/kg, and 0.069 mg/kg, respectively. These

concentrations do not exceed TCLP Action Levels of 100 mg/l, 5 mg/l and 0.2 mg/l, respectively. In addition, although these concentrations exceed NDEP guidance levels, they represent a "total" concentration and should not be considered hazardous since they were not representative of the TCLP analysis results.

The pH of the sludge sample was 7.00 units which is not hazardous under 40 CFR 261.22 (corrosivity) and is within the NDWS guidance level.

Oil and grease was detected in the sludge sample at a concentration of 100 mg/kg which at the REECO WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

A125-T6-L (Liquid)

Barium was detected at a reported TCLP concentration of 0.21 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l). Mercury was detected in the liquid sample at a total concentration of 0.0001 mg/l which is below the TCLP Action Level (0.2 mg/l) and the NDEP guidance level (0.02 mg/l).

The pH of the liquid sample was 7.80 units which is not hazardous under 40 CFR 261.22 (corrosivity) and is within the NDWS guidance level.

Oil and grease was detected in the liquid sample at a concentration of 0.4 mg/l which is below the REECO WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

A125-T6-S (Sludge)

Barium was detected at TCLP concentrations of 0.21 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). Barium, chromium, and mercury were detected in the sludge sample at "total" concentrations of 110 mg/kg, 1.1 mg/kg, and 0.076 mg/kg, respectively. Although the barium concentration exceeds the TCLP Action Level (100 mg/l) and the chromium and mercury concentrations exceed NDEP guidance levels (0.5 mg/l and 0.02 mg/l) they represent a "total" concentration and should not be considered hazardous since they were not representative of the TCLP analysis results.

The pH of the sludge sample was 7.50 units which is not hazardous under 40 CFR 261.22 (corrosivity) and is within the NDWS guidance level.

Oil and grease was detected in the sludge sample at a concentration of 50 mg/kg which is below the REECO WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

4.5.2.2 VOLATILE ORGANIC COMPOUNDS

A125-T-L (Liquid)

VOCs were not detected above laboratory detection limits.

A125-T2- (Liquid)

1,4-dichlorobenzene was detected at a concentration of 0.018 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

A125-T3-L (Liquid)

1,4-dichlorobenzene was detected in the liquid sample at a concentration of 0.039 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

A125-T3-S (Sludge)

TCLP 1,4-dichlorobenzene was detected in the sludge sample at a concentration of 1.30 mg/l. The sludge concentration is below the TCLP Action Level (7.5 mg/l) but exceeds the NDEP guidance level (0.75 mg/l).

A125-T4-L (Liquid)

Acetone was detected in the liquid sample at a concentration of 0.0045 mg/l. Acetone was detected in the associated trip blank (0.0081 mg/l) which indicates that acetone was potentially introduced into the sample during transport, storage, or analysis.

A125-T4-S (Sludge)

Dichloromethane was detected in the sludge sample at a total concentration of 0.0043 mg/l which is below the proposed Subpart S guidance level of 90 mg/kg for soil (solid). TCLP methyl ethyl ketone was detected in the sludge sample at a concentration of 0.0045 mg/l which is below the TCLP Action Level of 200 mg/l and the NDEP guidance level (20.0 mg/l).

A125-T5-L (Liquid)

VOCs were not detected above laboratory detection limits in the liquid sample.

A125-T5-S (Sludge)

Acetone was detected in the sludge sample at a "total" concentration of 0.031 mg/l. Acetone was not detected in the TCLP results. Dichloromethane (methylene chloride) was detected at a concentration of 0.00054 mg/l which is below the proposed Subpart S guidance level of 90 mg/kg for soil (solid).

Chlorobenzene was detected at a concentration of 0.0022 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l). TCLP

tetrachloroethylene was detected at a concentration of 0.00046 mg/l which is below TCLP Action Level (0.7 mg/l) the NDEP guidance level (0.07 mg/l). In addition, tetrachloroethylene was detected in the associated method blank (0.000591 mg/l).

A125-T6-L (Liquid)

Trichloroethene was detected at a concentration of 0.00032 mg/l which is below the TCLP Action Level (0.5 mg/l) and the NDEP guidance level (0.05 mg/l).

A125-T6-S (Sludge)

Benzene was detected in the sludge samples at concentrations of 0.0038 mg/l (total) and 0.00081 mg/l (TCLP), respectively, which is below the TCLP Action Level (0.5 mg/l) and the NDEP guidance level (0.05 mg/l). Chlorobenzene was detected in the sludge samples at concentrations of 0.120 mg/l (total) and 0.029 mg/l (TCLP) which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l). Dichloromethane was detected at a concentration of 0.00077 mg/l which is below the proposed Subpart S guidance level of 90 mg/kg for soil.

4.5.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

A125-T-L (Liquid)

Semi-VOCs were not detected above laboratory detection limits.

A125-T2-L (Liquid)

Semi-VOCs were not detected above laboratory detection limits.

A125-T3-L (Liquid)

Semi-VOCs were not detected above laboratory detection limits.

A125-T3-S (Sludge)

1,4-dichlorobenzene was detected in the sludge sample at a concentration of 1.30 mg/l. This concentration is below the TCLP Action Level of 7.5 mg/l but exceeds the NDEP guidance level of 0.75 mg/l.

A125-T4-L (Liquid)

Semi-VOCs were not detected above laboratory detection limits.

A125-T4-S (Sludge)

1,4-dichlorobenzene was detected at a total concentration of 5.233 mg/l and a TCLP concentration of 0.09 mg/l. The concentrations do not exceed the TCLP Action Level (7.5 mg/l), however, the total concentration exceeds the NDEP guidance level (0.75 mg/l).

Pyridine was detected in the sludge sample at a total concentration of 0.0987 mg/l. This concentration is below the proposed Subpart S guidance level of 80 mg/kg for soil (solid). 2,4-dichlorophenol was detected at a total concentration of 0.0231 mg/l. This concentration is below the proposed Subpart S guidance level of 200 mg/kg for soil (solid). Di-n-butylphthalate was detected at a concentration of 0.0426 mg/l. This concentration is below the proposed Subpart S guidance level of 800 mg/kg for soil (solid). Bis(2-ethylhexyl)phthalate was detected at a concentration of 0.1084 mg/l. This concentration is below the proposed Subpart S guidance level of 50 mg/kg for soil (solid).

Benzoic acid (0.00471 mg/l), phenanthrene (0.0246 mg/l), and pyrene (0.0237 mg/l) were also detected in the sludge sample. There are no proposed or existing regulatory guidance levels for these compounds at this time.

A125-T5-L (Liquid)

1,4-dichlorobenzene was detected at reported TCLP concentration of 0.07 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

A125-T5-S (Sludge)

1,4-dichlorobenzene was detected at a "total" concentration of 1.0 mg/l and a TCLP concentration of 0.11 mg/l. The "total" concentration exceeds the NDEP guidance level of 0.75 mg/l, however, the guidance level is based upon TCLP values. The TCLP value of the sample (0.11 mg/l) is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

A125-T6-L/S (Liquid and Sludge)

Semi-VOCs were not detected above laboratory detection limits in the liquid or sludge samples collected.

4.5.2.4 TOTAL PETROLEUM HYDROCARBONS

A125-T-L

TPH as gasoline, diesel, or oil was not detected above laboratory detection limits in the liquid tank sample.

A125-T2-L

TPH as gasoline, diesel, or oil was not detected above laboratory detection limits in the liquid tank sample.

A125-T3-L/S

TPH as oil was detected at a concentration of 669 mg/kg in the sludge sample from A125-T3 exceeding the TPH Action Level of 100 mg/kg.

A125-T4-L/S

TPH as gas (3.3 mg/kg), diesel (49 mg/kg), and oil (200 mg/kg) was detected in the sludge sample from A125-T4. The oil concentration exceeds the TPH Action Level of 100 mg/kg.

A125-T5-L/S

TPH as oil was detected at a concentration of 0.39 mg/l in the liquid sample from A125-T5. The sludge sample from the same tank contained TPH as gas (1.7 mg/kg), diesel (2 mg/kg) and oil (74 mg/kg). TPH concentrations in samples collected from this tank are below the TPH Action Level of 100 mg/kg.

A125-T6-L/S

TPH as gas (10 mg/kg) was detected in the A125-T6 sludge below the TPH Action Level of 100 mg/kg.

4.5.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the sludge sample from A125-T3 at a concentration of 0.109 mg/kg. This is below the Federal Action Level of 10 mg/kg.

4.5.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. Analytical results did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 7B

4.5.3 SUMMARY AND RECOMMENDATIONS

A125-T1

Federal Action Levels or NDEP regulatory guidelines were not exceeded in the liquid sample collected from this tank. It is recommended that the tank be closed under NSHD guidelines.

A125-T2

Federal Action Levels or NDEP regulatory guidelines were not exceeded in the liquid sample collected from this tank. The tank can be closed under NSHD guidelines.

A125-T3

Federal Action Levels were not exceeded in samples collected from this tank, however, NDEP guidance levels were exceeded in the sludge sample for TPH as oil and 1,4-dichlorobenzene. Oil and grease concentrations exceeded the REECO WMD guideline concentration for disposal acceptance of liquid into the Area 23

Sewage Lagoon. The tank will require closure under a separate Work Plan. Closure authority for this site will be under NDEP guidelines.

A125-T4

Federal Action Levels were not exceeded in samples collected from this tank. 1,4-dichlorobenzene was detected in the sludge sample collected at a total concentration of 5.233 mg/kg and a TCLP concentration of 0.09 mg/l. The total concentration exceeds the NDEP guidance level of 0.75 mg/l, however, the guidance level is based upon TCLP concentration values. The TCLP concentration of 1,4-dichlorobenzene in the sample is below the NDEP guidance level of 0.75 mg/l.

The TPH Action Level of 100 mg/kg was exceeded in the sludge sample.

Based upon the low VOC and Semi-VOC concentrations and the elevated TPH concentration (200 mg/kg) it is recommended that the tank be closed as a "hydrocarbon containing tank" (REECo, 1992). Closure authority for this site will be under NDEP guidelines.

A125-T5

Acetone was detected in the sludge sample at a "total" concentration of 0.031 mg/kg. Acetone was not detected in the TCLP results. 1,4-dichlorobenzene was detected at a "total" concentration of 1.0 mg/kg and a TCLP concentration of 0.11 mg/l. The "total" concentration exceeds the NDEP guidance level of 0.75 mg/l, however, the guidance level is based upon TCLP values. The TCLP concentration is below the Federal Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

Based upon the presence of the VOCs, indicating a non-domestic sewage waste the tank can be closed under NDEP guidelines.

A125-T6

Although TCLP Action Levels and NDEP guidance levels were not exceeded in the liquid and sludge samples collected from the tank, the presence of benzene and chlorobenzene indicate a non-domestic sewage waste. It is recommended that the tank be closed under NDEP guidelines.

REEC Co

FIGURE 10 SITE MAP - SEPTIC TANKS A125

SOURCE: USGS RAINIER MESA, NEV. 7.5' QUADRANGLE, 1986

DISTRIBUTION BOX

A125 TANKS
(~7,500 GAL. CAPACITY EA.)

A125-T6-L/S
A125-T3-L/S
A125-T5-L/S
A125-T2-L
A125-T-L
A125-T4-L/S

WAREHOUSE 5

WAREHOUSE 4

RAINIER MESA ROAD

EXPLANATION

* SAMPLING LOCATION

FIGURE 11
LOCATION OF SEPTIC TANKS A125

TABLE 7A - SEPTIC SYSTEM A125: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
125-T-L	<5.0	<0.5	<0.5	ND	ND	ND	NA	NA	NA	8.12	<0.0005	<0.10
125-T2-L	<5.0	<0.5	<0.5	1,4-Dichlorobenzene 0.018	ND	Ba 0.0088	NA	NA	NA	6.84	<0.0005	0.16
125-T3-L	<5.0	<0.5	<0.5	1,4-Dichlorobenzene 0.039	ND	ND	NA	NA	NA	7.93	<0.0005	<0.10
125-T3-S	<5.0	<10.0	669	NA	NA	NA	ND	1,4-Dichlorobenzene 0.44(E) 1,4-Dichlorobenzene 1.30 (D)	Ba 0.46	7.13	0.109*	1,400
125-T4-L	<1.0	<0.1	<0.1	Acetone 0.0045 (B)	ND	ND	ND	ND	Ba 0.082	7.80	<0.001	<0.1
DR0327-1 (Trip Blank)	NA	NA	NA	Methylene Chloride 0.00067 Acetone 0.0081 1,1,1-Trichloroethane 0.0017 1,2-Dichloropropane 0.00072	NA	NA	NA	NA	NA	NA	NA	NA
125-T4-S	3.3	49	200	Dichloromethane 0.00043	Pyridine 0.0987 1,4-Dichlorobenzene 5.233 Benzoic Acid 0.0471 2,4-Dichlorophenol 0.0231 Phenanthrene 0.0246 Di-n-butylphthalate 0.0426 Pyrene 0.0237 Bisphthalate- (2-ethylhexyl) 0.1084	Ba 57 Cr 12	Methyl Ethyl Ketone 0.0028	1,4-Dichlorobenzene 0.09	Ba 0.19	7.10	<0.033	250
125-T5-L	<1.0	<0.1	0.39	ND	ND	Ba 0.073	ND	1,4-Dichlorobenzene 0.07	Ba 0.21	7.70	<0.001	<0.1
125-T5-S	1.7	22	74	Dichloromethane 0.00054 Acetone 0.031 Chlorobenzene 0.0022	1,4-Dichlorobenzene 1.0	Ba 67 Cr 2.1 Hg 0.069	Tetrachloro- ethylene 0.00046 (B)	1,4-Dichlorobenzene 0.11	Ba 0.16	7.00	<0.033	100
B-53694-1 (Method Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.000591	NA	NA	NA	NA	NA
125-T6-L	<1.0	<0.1	<0.1	Trichloroethene 0.00032	ND	Hg 0.0001	ND	ND	Ba 0.21	7.80	<0.001	0.4
125-T6-S	<1.0	<10	10	Dichloromethane 0.00077 Benzene 0.0038 Chlorobenzene 0.120	ND	Ba 110 Cr 1.1 Hg 0.076	Benzene 0.00081 Chlorobenzene 0.029	ND	Ba 0.21	7.50	<0.033	50

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A125-T-L: VOCs, Semi-VOCs, Radioanalytical

94-08-064: A125-T-L: TPH, PCBs

94-08-065: A125-T-L: Metals, pH

94-08-066: A125-T-L: Oil & Grease

94-09-003: A125-T2-L: Metals, pH

A125-T3-L: Metals, pH

A125-T3-S: TCLP-Metals, pH

94-09-004: A125-T2-L: VOCs, Semi-VOCs

A125-T3-L: VOCs, Semi-VOCs

A125-T3-S: TCLP:VOCs,Semi-VOCs

94-09-005: A125-T2-L: TPH, PCBs

A125-T3-L: TPH, PCBs

A125-T3-S: TPH, PCBs

94-09-006: A125-T2-L: Oil & Grease, Radioanalytical

A125-T3-L: Oil & Grease, Radioanalytical

A125-T3-S: Oil & Grease, Radioanalytical

95-03-060: A125-T4-L: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals, Radioanalytical

A125-T4-S: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals, Radioanalytical

95-03-061: A125-T4-L: TPH, pH, PCBs, Oil & Grease

A125-T4-S: TPH, pH, PCBs, Oil & Grease

95-03-066: A125-T5-L: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals

A125-T5-S: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals

A125-T6-L: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals

A125-T6-S: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals

95-03-067: A125-T5-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A125-T5-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A125-T6-L: TPH, pH, PCBs, Oil & Grease, Radioanalytical

A125-T6-S: TPH, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 7B - SEPTIC SYSTEM A125: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A125-T-L	Not Detected	NA	NA	Tritium: 3.21E-07	uCi/mL	Pu-238 Pu-239	Not Detected 5.19E-12	NA uCi/mL
A125-T2-L	Bi-214 K-40	8.91E+02 2.01E+02	pCi/L pCi/L	Tritium: 1.31E-07	uCi/mL	Pu-238 Pu-239	-3.76E-12 -3.76E-12	uCi/mL uCi/mL
A125-T3-L	Not Detected	NA	N/A	Tritium: 2.22E-07	uCi/mL	Pu-238 Pu-239	-3.59E-12 4.62E-12	uCi/mL uCi/mL
A125-T3-S	Ac-228 Bi-212 Bi-214 Cs-137 K-40 Pb-212 Pb-214 TI-208	4.68E-01 6.02E-01 8.13E-01 1.85E-01 6.85E+00 5.86E-01 8.73E-01 1.50E-01	pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g	Tritium: 4.01E+00	pCi/g	Pu-238 Pu-239	Not Detected Not Detected	NA NA
A125-T4-L	Not Detected	NA	NA	Beta: 1.63E-08 Tritium: -2.84E-07	uCi/cc uCi/cc	Pu-238 Pu-239	-1.15E-11 3.79E-11	uCi/cc uCi/cc
A125-T4-S	Cs-137 K-40 Ra-226 Th-228 Th-232	3.91E-01 2.54E+01 1.02E+00 2.28E+00 1.53E+00	pCi/g pCi/g pCi/g pCi/g pCi/g	Beta: 3.78E-06 Tritium: 1.53E+00	uCi/g pCi/g	Pu-238 Pu-239	-4.48E-03 -5.25E-03	pCi/g pCi/g
A125-T5-L	Not Detected	NA	NA	Beta: 2.34E-08 Tritium: -1.08E-07	uCi/cc uCi/cc	Pu-238 Pu-239	1.75E-12 2.25E-12	uCi/cc uCi/cc
A125-T5-S	Ac-228 Bi-214 Cs-137 K-40 Pb-212 Pb-214 TI-208	1.31E+00 8.86E-01 3.45E-01 2.13E+01 1.79E+00 1.06E+00 5.34E-01	pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g	Beta: 1.06E-05 Tritium: -1.50E-07	uCi/cc uCi/cc	Pu-238 Pu-239	Not Detected 2.02E-08	NA uCi/cc
A125-T6-L	Not Detected	NA	NA	Beta: 2.40E-08 Tritium: -1.14E-07	uCi/cc uCi/cc	Pu-238 Pu-239	-4.04E-12 2.05E-11	uCi/cc uCi/cc
A125-T6-S	Ac-228 Bi-212 Bi-214 Cs-137 K-40 Pb-212 Pb-214 TI-208	1.50E+00 2.10E+00 9.55E-01 1.86E-01 1.99E+01 1.73E+00 8.06E-01 4.63E-01	pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g	Beta: 1.31E-05 Tritium: -1.63E-07	uCi/cc uCi/cc	Pu-238 Pu-239	-1.14E-08 -1.14E-08	uCi/cc uCi/cc

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.6 SEPTIC SYSTEM A15EPA (AREA 15 EPA RESEARCH FARM)

4.6.1 FIELD OBSERVATIONS

Septic System A15EPA is located in Area 15 at the former EPA research farm (Figure 12). The tank is associated with sanitary sewage from the main laboratory building (Figure 13). The system consists of one 3,785 liter (1,000 gallon) capacity concrete tank. Limited observation of the tank interior indicates that one channel separator exists. Access to the north (influent) tank end was obtained using backhoe equipment. The tank contains an estimated 3,028 liters (800 gallons) of waste including approximately two foot thick sludge layer. The liquid was relatively clear and had floating particles. The sludge was dark brown to black in color and viscous. One liquid sample (A15EPA-T-L) and sludge sample (A15EPA-T-S) was collected on September 12, 1994.

A background soil sample (A15EPA-BG) was collected approximately 26 meters (85 feet) north of the tank on September 7, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface. The soil consisted of a medium brown in color sandy silt with fine to coarse gravel and was dry to slightly moist. The headspace reading of the background soil sample was 0.0 ppm.

A distribution box and associated leachfield is located directly south of the tank system. One soil sample (A15EPA-LF-1) was collected below the first identified tile perforation on March 27, 1995. The soil consisted of a brown silty sand with cobbles and was slightly moist. The headspace reading of the leachfield sample was 0.0 ppm. Laboratory analytical results are summarized in Table 8A.

4.6.2 ANALYTICAL RESULTS

4.6.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

Barium was detected in the tank liquid and TCLP sludge samples at 0.084 mg/l (A15EPA-T-L) and 0.33 mg/l (A15EPA-T-S), respectively. These concentrations are below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the tank sample (liquid and sludge) ranged from 7.02 units to 8.28 units. This range is not hazardous under 40 CFR 261.22 (corrosivity) and is within NDWS guidelines.

Oil and grease was detected in the liquid sample at 0.2 mg/l, and in the sludge sample at 1,600 mg/kg. The sludge sample concentration exceeds the REECo WMD guideline of 100 mg/l for disposal acceptance of liquid into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium (110 mg/kg), cadmium (0.69 mg/kg), and chromium (4.8 mg/kg) were detected in the "total" metal analysis, however, barium was the only metal detected in the TCLP metal analysis at a concentration of 0.22 mg/l. This result correlates with background concentrations for the area and is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the sample was 7.40 units. This result correlates with background values for the area and is not hazardous under 40CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquid only it is used here to provide an indication of the pH waste characteristic of the leachfield soils.

Oil and grease was detected at 0.2 mg/kg. This value does not exceed the allowable liquid discharge limits for the Area 23 Sewage Lagoon. Although the sewage lagoon limits refers to liquids only, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils

Background Soil Sample

TCLP barium was detected at 0.19 mg/kg which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the sample was 7.52 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquid only, it is used here to provide an indication of the pH waste characteristic of the background soils.

4.6.2.2 VOLATILE ORGANIC COMPOUNDS

Septic Tank (Liquid and sludge)

Chlorobenzene was detected in the liquid and TCLP sludge samples at concentrations of 0.026 mg/l to 0.480 mg/l, respectively. 1,4-dichlorobenzene was detected in the liquid sample at 0.024 mg/l. These concentrations are below the TCLP Action Levels of 100 mg/l (chlorobenzene) and 7.5 mg/l (1,4-dichlorobenzene) and the NDEP guidance levels of 10.0 mg/l (chlorobenzene) and 0.75 mg/l (1,4-dichlorobenzene).

Leachfield Soil Sample

Tetrachloroethylene was detected at a concentration of 0.00033 mg/l, and was also detected in the reagent blank (0.00059 mg/l) which indicates probable laboratory contamination. This concentration is below the TCLP Action Level (0.7 mg/l) and the NDEP guidance level (0.07 mg/l).

Background Soil Sample

VOCs were not detected above laboratory detection limits.

4.6.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP 1,4-dichlorobenzene was detected at a concentration of 0.67 mg/l in the sludge sample (A15EPA-T-S) collected from the tank. This concentration is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

Semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample (A15EPA-LF-1) or background soil sample (A15EPA-BG).

4.6.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as oil was detected at a concentration of 1,130 mg/kg in the sludge sample collected from the tank. This concentration exceeds the TPH Action Level of 100 mg/kg. TPH were not detected above laboratory detection limits in the leachfield soil sample (A15EPA-LF-1), or background soil sample (A15EPA-BG).

4.6.2.5 POLYCHLORINATED BIPHENYLS

The sludge sample collected from the tank contained a PCB concentration of 0.195 mg/kg which is below the Federal Action Level of 10 mg/kg. PCBs were not detected above laboratory detection limits in the leachfield soil sample (A15EPA-LF-1), or background soil sample (A15EPA-BG).

4.6.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The samples collected from the tank and associated leachfield did not exceed ORERP and EPA guidance levels. However, the background soil sample contained Plutonium 239 above guidance level criteria at a concentration of 1.34E picocuries per gram (pCi/g) (Appendix B). Radioanalytical results are summarized in Table 8B.

4.6.3 SUMMARY AND RECOMMENDATIONS

The sludge contains TPH as oil which exceeds the TPH Action Level. Although low concentrations of 1,4-dichlorobenzene and chlorobenzene were detected, TCLP Action Levels or NDEP guidance levels were not exceeded. Based upon these results, septic system A15EPA can be closed as a "hydrocarbon containing tank" (REECo, 1992).

The Plutonium 239 isotope detected in the background soil sample should not affect the closure of the septic system. However, precautions may be warranted if any additional excavation activities are required in the septic system vicinity.

Closure authority for this site will be under NDEP guidelines.

REEC Co

FIGURE 12 SITE MAP - SEPTIC TANK A15EPA

SOURCE: USGS OAK SPRING, NEV. 7.5' QUADRANGLE, 1986

A15EPA-BG
(~85' N. OF TANK)

A15EPA
TANK
(~1,000 GAL.
CAPACITY)

A15EPA-T-L/S

DISTRIBUTION BOX

A15EPA-LF-1

CONCRETE
PAD

SHELTER

FEED
BUNKER

70'

8'

EXPLANATION

* SAMPLING LOCATION

NO SCALE

REEC Co

FIGURE 13

LOCATION OF SEPTIC TANK A15EPA

TABLE 8A - SEPTIC SYSTEM A15EPA: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL ETALS (mg/l)	TCLP ^E			pH ^F	PCBS ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A15EPA-T-L	<5.0	<0.5	<0.5	Chlorobenzene 0.026 1,4-Dichlorobenzene 0.024	ND	Ba 0.084	NA	NA	NA	8.28	<0.0005	0.2
A15EPA-T-S	<5.0	<10.0	1,130	NA	NA	NA	Chlorobenzene 0.480 1,4-Dichlorobenzene 0.67(E)	NA	Ba 0.33	7.02	0.195*	1,600
A15EPA-LF-1	<1.0	<10.0	<10.0	ND	ND	Ba 110 Cd 0.69 Cr 4.8	Tetrachloro- ethylene 0.00033 (B)	ND	Ba 0.22	7.40	<0.033	20
TB-53694-1 (Reagent Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.00059	NA	NA	NA	NA	NA
A15EPA-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.19	7.52	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBS: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-09-014: A15EPA-BG: Oil & Grease

94-09-019: A15EPA-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A15EPA-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A15EPA-BG: TPH, PCBs

94-09-033: A15EPA-T-L: TPH, VOCs, Semi-VOCs, Metals, pH, PCBs, Oil & Grease, Radioanalytical

A15EPA-T-S: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

95-03-060: A15EPA-LF-1: VOCs, Semi-VOCs, Metals, TCLP:VOCs,Semi-VOCs,Metals, Radioanalytical

95-03-061: A15EPA-LF-1: TPH, pH, PCBs, Oil & Grease

TABLE 8B - SEPTIC SYSTEM A15EPA: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A15EPA-BG	Ac-228	8.97E-01	pCi/g	Tritium: -4.17E+00	pCi/g	Pu-238	6.49E-01	pCi/g
	Bi-212	1.03E+00	pCi/g			Pu-239	1.34E+00	pCi/g
	Bi-214	4.56E+00	pCi/g					
	Cs-137	1.39E-01	pCi/g					
	K-40	2.80E+01	pCi/g					
	Pb-212	8.53E-01	pCi/g					
	Pb-214	5.89E+00	pCi/g					
	Tl-208	2.73E-01	pCi/g					
A15EPA-T-L	Bi-214	1.06E+02	pCi/L	Tritium:		Pu-238	-2.22E-13	uCi/mL
				5.42E-07	uCi/mL	Pu-239	-2.22E-13	uCi/mL
A15EPA-T-S	Ac-228	1.83E+02	pCi/L	Tritium: 1.31E-07	uCi/mL	Pu-238	-4.77E-12	uCi/mL
	Bi-212	3.39E+02	pCi/L			Pu-239	-4.77E-12	uCi/mL
	Bi-214	3.07E+02	pCi/L					
	Cs-137	5.40E+01	pCi/L					
	K-40	2.11E+03	pCi/L					
	Pb-212	1.72E+02	pCi/L					
	Pb-214	4.27E+02	pCi/L					
	Tl-208	4.91E+01	pCi/L					
A15EPA-LF-1	K-40	2.54E+01	pCi/g	Beta:		Pu-238	1.60E-02	pCi/g
	Ra-226	8.50E-01	pCi/g	3.29E-06	uCi/g	Pu-239	-4.48E-03	pCi/g
	Th-228	1.48E+00	pCi/g	Tritium:				
	Th-232	8.58E-01	pCi/g	-5.07E+00	pCi/g			

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.7 SEPTIC SYSTEM A25BRE (AREA 25 BREN TOWER)

4.7.1 FIELD OBSERVATIONS

Septic System A25BRE is located in Area 25 at the Bren Tower site (Figure 14). The tank is associated with sanitary sewage from former trailers which were located south of the main entrance off Cane Springs Road (Figure 15). The system consists of one approximately 2,840 liter (750 gallon) capacity concrete tank. Limited observation of the tank interior indicates that one channel separator exists. Access to the north (influent) tank end was obtained using backhoe equipment. The tank contains an estimated 1,892 liters (500 gallons) of liquid. A small amount of sludge was noted but not in sufficient quantities to sample. The contents were medium brown in color and had a moderate septage odor. One liquid sample (A25BRE-T-L) was collected on September 31, 1994.

A background soil sample (A25BRE-BG) was collected approximately 16 meters (53 feet) east of the tank on September 7, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface. The soil consisted of silty sand with fine gravel, medium brown in color, and dry. The headspace reading of the background soil sample was 0.0 ppm.

A distribution box and associated leachfield is located directly south of the tank. One soil sample (A25BRE-LF-1) was collected below the first identified perforation on March 14, 1995. The soil consisted of silt, was light gray in color, and dry. The soil had a headspace reading of 0.1 mg/l. A resistant caliche bed was noted below the gravel zone of the leach line. Laboratory analytical results are summarized in Table 9A.

4.7.2 ANALYTICAL RESULTS

4.7.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid)

Barium was detected in the tank liquid sample (A25BRE-T-L) at 0.013 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the tank sample was 8.88 units. This value is not hazardous under 40 CFR 261.22 (corrosivity) but exceeds the NDWS range.

Leachfield Soil Sample

TCLP Barium was detected at 0.33 mg/l. This result correlates with background concentrations for the area and is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the sample was 7.70 units. This result correlates with background values for the area and is not hazardous under 40 CFR 261.22 (corrosivity).

Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for soils.

Oil and grease was detected at 10 mg/kg. This value does not exceed the REECo WMD allowable discharge limits into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids only, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils

Background Soil Sample

TCLP Barium was detected at 0.59 mg/kg which is below TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/kg).

The pH of the sample was 7.41 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for soils.

4.7.2.2 VOLATILE ORGANIC COMPOUNDS

VOCs were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.7.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-VOCs were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.7.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.7.2.5 POLYCHLORINATED BIPHENYLS

PCBs were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.7.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The samples collected from the tank, associated leachfield and background did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 9B.

4.7.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels or NDEP guidance levels were not exceeded in the tank or associated leachfield soil sample with the exception of the pH value of the tank contents. Although the pH value (8.88 units) of sample A25BRE-T-L exceeds the NSHD drinking water value of 8.5 units, it is not hazardous under 40 CFR 261.22. Based upon no other constituents exceeding guidance levels, it is recommended that the system be closed as a domestic sewage system under NSHD guidelines.

REEC₀

FIGURE 14
SITE MAP - SEPTIC TANK A25BRE
 SOURCE: USGS SKULL MOUNTAIN, NEV. 7.5' QUADRANGLE, 1983

(TO CANE SPRINGS ROAD)

TRAILER TOILET

CENTER OF
FACILITY
(REMOVED)

N
R
D
L

A25BRE TANK
(~760 GAL. CAPACITY)

A25BRE-T-L

A25BREN-BG

DISTRIBUTION BOX

A25BRE-LF-1

LEACHFIELD

(TO EG&G TRAILERS)
(REMOVED)

(TO HELICOPTER PAD
ACCESS ROAD)

EXPLANATION

* SAMPLING LOCATION

APPROX. SCALE

REEC Co

FIGURE 15
LOCATION OF SEPTIC TANK A25BRE

TABLE 9A - SEPTIC SYSTEM A25BRE: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25BRE-T-L	<5.0	<0.5	<0.5	ND	ND	Ba 0.013	NA	NA	NA	8.88	<0.0005	<0.10
A25BRE-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.33	7.70	<0.5	10
A25BREN-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.59	7.41	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-09-003: A25BRE-T-L: Metals, pH

94-09-004: A25BRE-T-L: VOCs, Semi-VOCs

94-09-005: A25BRE-T-L: TPH, PCBs

94-09-006: A25BRE-T-L: Oil & Grease, Radioanalytical

94-09-014: A25BREN-BG: Oil & Grease

94-09-019: A25BREN-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A25BREN-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A25BREN-BG: TPH, PCBs

95-03-025: A25BRE-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 9B - SEPTIC SYSTEM A25BRE: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25BRE-T-L	Bi-214	2.20E+02	pCi/L	Tritium: 1.57E-06	uCi/mL	Pu-238	-6.59E-12	uCi/mL
	K-40	7.08E+02	pCi/L			Pu-239	-2.45E-13	uCi/mL
	Pb-214	2.19E+02	pCi/L					
A25BRE-LF-1	K-40	2.41E+01	pCi/g	Beta: 2.88E-06	uCi/g	Pu-238	2.54E-02	pCi/g
	Ra-226	1.23E+00	pCi/g			Pu-239	-4.73E-03	pCi/g
	Th-228	2.11E+00	pCi/g	Tritium: 2.42E+00	pCi/g			
	Th-232	1.89E+00	pCi/g					
A25BREN-BG	Ac-228	1.71E+00	pCi/g	Tritium: -7.42E-01	pCi/g	Pu-238	Not Detected	NA
	Bi-212	1.95E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	5.92E+00	pCi/g					
	Cs-137	8.68E-02	pCi/g					
	K-40	2.93E+01	pCi/g					
	Pb-212	1.74E+00	pCi/g					
	Pb-214	7.13E+00	pCi/g					
	Tl-208	5.47E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.8 SEPTIC SYSTEM A25ETS (AREA 25-ENGINE TEST STAND)

4.8.1 FIELD OBSERVATIONS

Septic System A25ETS is located in Area 25 at the Engine Test Stand Facility (Figure 16). The tank is associated with sanitary sewage from multiple structures within the facility (Figure 17). The system consists of one steel tank with an approximate capacity of 28,390 liters (7,500 gallons). The tank has one separation chamber. Access to the north (influent) tank end was obtained by removing a manhole cover. The tank contents are dry and cake like with a moderate septage odor. Concrete debris and piping were noted in the tank bottom. One solid sample (A25ETS-T-S) was collected on June 28, 1994. The sample was medium brown in color and light in weight.

A background soil sample (A25ETS-BG) was collected approximately 23 meters (75 feet) west of the tank on September 6, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface.

The associated leachfield is located directly south of the tank. A distribution box is not associated with this tank. One soil sample (A25ETS-LF-1) was collected below the first identified perforation on March 14, 1995. The soil consisted of silty sand to sandy silt with gravel, medium brown in color, and was slightly moist. A headspace reading of 1.6 ppm was recorded. Minor black discolorization of the leachfield gravel was observed, however, no odors were noted. Laboratory analytical results are summarized in Table 10A.

4.8.2 ANALYTICAL RESULTS

4.8.2.1 INORGANIC COMPOUNDS

Septic Tank (Solid)

Low TCLP concentrations of barium (0.041 mg/l), cadmium (0.067 mg/l), and mercury (0.00047 mg/l) were detected in the solid sample. The concentrations are below the TCLP Action Levels of 100 mg/l (barium), 1.0 mg/l (cadmium) and 0.2 mg/l (mercury). The concentrations are also below the NDEP guidance levels of 10.0 mg/l (barium), 0.1 mg/l (cadmium), and 0.02 mg/l (mercury), respectively.

The pH of the tank sample was 5.31 units. This value exceeds the NDWS range but is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for solids.

Oil and grease was detected at 810 mg/kg. This value exceeds the REECO WMD allowable discharge limits into the Area 23 Sewage Lagoon. Although the sewage lagoon limits refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the solid tank contents.

Leachfield Soil Sample

TCLP barium was detected at 0.51 mg/l. This result correlates with background concentrations for the area and is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.20 units. This value exceeds the NDWS range but is not hazardous under 40CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for soils. This result correlates with background values for the area.

Oil and grease was detected at a concentration of 10 mg/kg which is below the limit of 100 mg/l for discharge into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the solid tank contents.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.30 mg/l, which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the sample was 7.39 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for soils.

4.8.2.2 VOLATILE ORGANIC COMPOUNDS

VOCs were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.8.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-VOCs were not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits.

4.8.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected in the tank, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits. However, the detection limits for diesel and oil in the solid tank sample were reported at less than 100 mg/kg. As indicated on the analyst notes, the high detection limit was due to the sample being run at "ten times dilution level because they were found to be heavily colored and cloudy indicating the presence of large amounts of TPH or non-TPH organic components and suspended solids" (Analytical Packet 94-06-075). Based upon the TPH concentration being less than 100 mg/kg, and the sample being from an organic source, it is assumed that the sample represents a "non-TPH organic component."

4.8.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sample at a concentration of 4.78 mg/kg. This concentration is below the Federal Action Level of 10 mg/kg. PCBs were not detected in the leachfield soil sample or background soil sample at concentrations above laboratory detection limits.

4.8.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The samples collected from the tank, leachfield, and background did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 10B.

4.8.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels or NDEP guidance levels were not exceeded in the tank, associated leachfield soil sample, or background soil sample. However, due to the presence of PCBs, a non-domestic waste, it is recommended that closure authority for Septic System A25ETS be under NDEP guidelines.

REECo

FIGURE 16 **SITE MAP - SEPTIC TANK A25ETS**

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

EXPLANATION

* SAMPLING LOCATION

REEC_o

FIGURE 17

LOCATION OF SEPTIC TANK A25ETS

TABLE 10A - SEPTIC SYSTEM A25ETS: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/kg)	OIL & GREASE ^H (mg/kg)
	GASOLINE (mg/kg)	DIESEL (mg/kg)	OIL (mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25ETS-T-S	<5.0	<100 (D)	<100 (D)	NA	NA	NA	ND	ND	Ba 0.041 Cd 0.067 Hg 0.00047	5.31	4.78*	810
A25ETS-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.51	7.20	<0.5	10
A25ETS-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.30	7.39	<0.167	60

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-06-073: A25ETS-T-S: TPH, TCLP:VOCs,Semi-VOCs,Metals, PCBs

94-06-075: A25ETS-T-S: pH, Oil & Grease, Radioanalytical

94-09-018: A25ETS-BG: Oil & Grease, Radioanalytical

94-09-015: A25ETS-BG: TCLP-Metals, pH

94-09-016: A25ETS-BG: TCLP-VOCs,Semi-VOCs

94-09-017: A25ETS-BG: TPH, PCBs

95-03-025: A25ETS-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 10B - SEPTIC SYSTEM A25ETS: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25ETS-T-S	Bi-214	1.35E+00	pCi/g	Tritium: 3.91E-01	pCi/g	Pu-238	5.53E-03	pCi/g
	Cs-137	9.28E-02	pCi/g			Pu-239	5.53E-03	pCi/g
	K-40	8.16E+00	pCi/g					
	Pb-212	6.01E-01	pCi/g					
	Pb-214	2.15E+00	pCi/g					
	Tl-208	1.54E-01	pCi/g					
A25ETS-LF-1	K-40	2.55E+01	pCi/g	Beta: 2.08E-06 Tritium: 1.96E+00	uCi/g pCi/g	Pu-238	-3.37E-03	pCi/g
	Ra-226	6.91E-01	pCi/g			Pu-239	-3.24E-03	pCi/g
	Th-228	1.71E+00	pCi/g					
	Th-232	1.55E+00	pCi/g					
A25ETS-BG	Ac-228	1.71E+00	pCi/g	Tritium: 1.20E+02	pCi/g	Pu-238	Not Detected	NA
	Bi-212	2.37E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.67E+00	pCi/g					
	Cs-137	4.45E+02	pCi/g					
	K-40	3.00E+01	pCi/g					
	Pb-212	1.75E+00	pCi/g					
	Pb-214	1.79E+00	pCi/g					
	Tl-208	5.32E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

NA = Not Applicable

4.9 SEPTIC SYSTEM A25J5 (AREA 25-WAREHOUSE J5)

4.9.1 FIELD OBSERVATIONS

Septic System A25J5 is reportedly located in Area 25, east of Road C (Figure 18). The tank was identified on Engineering Drawing FMBF-15 dated December 10, 1962, (AEC, 1962). The drawing indicated that the tank serviced former Warehouse J5 (Figure 19).

Numerous attempts were made to locate the identified septic system. The chronology of field activities conducted in an effort to locate the system are as follows:

- June 23, 1994 - location measured from engineering drawing and limited hand excavation conducted;
- July 5, 1995 - area surveyed with metal detector;
- August 1, 1994 - electricians goldak for utilities and suspected tank;
- August 16, 1994 - utilized backhoe to excavate potholes and short trenches to 10.7 meters (35 feet) in length;
- September 6, 1994 - collected background soil sample from suspect area in anticipation of locating tank;
- March 6, 1995 - excavated trenches using a backhoe. Trenches were excavated to 23 meters (75 feet) in length and up to 2.7 meters (nine feet) in depth;
- April 18, 1995 - conduct magnetometer survey of 30.5 meters (100 feet) by 30.5 meters (100 feet) grid area (numerous interferences from steel plates and buried debris);
- April 19, 1995 - extensive backhoe excavation of entire area and also confirmed that the A25RAD septic system (in the same vicinity) was not associated with the former Warehouse J5 system.

4.9.2 BACKGROUND ANALYTICAL RESULTS

In anticipation to locating the tank and associated seepage pit, a background soil sample was collected on September 6, 1994. The sample was collected in the vicinity where the tank was believed to be located at a depth of approximately 0.46 meters (1.5 feet) below ground surface. Parameters analyzed for were not detected with the exception of TCLP barium at a concentration of 0.032 mg/l, which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l). The pH of the soil was 6.94 units. Sample analytical results are summarized in Table 11A.

The radioanalytical results of the background soil sample did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 11B.

4.9.3 SUMMARY AND RECOMMENDATIONS

No indication of sewage lines, tank, or an associated seepage pit was identified during the above described field activities. Based upon the extensive field investigation, it has been determined that a septic tank at Warehouse J5 was:

- never constructed; or
- constructed in a different location than indicated; or
- constructed without water or sewer utilities.

Based on the information collected, it appears that the tank and seepage pit do not exist, and that no further action is necessary at this location.

REEC₀

FIGURE 18 **SITE MAP - SEPTIC TANK A25J5**

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

APPROXIMATELY 1000 FEET
TO ROAD 'G'

ROAD "C"
(JACKASS FLATS ROAD)

LOADING
DOCK

WAREHOUSE J-5
(REMOVED)

A25J5 TANK
(NOT LOCATED)

SEEPAGE PIT
(NOT LOCATED)

A25RAD TANK

EXPLANATION

— = APPROX. TRENCH LOCATIONS

REEC₀

FIGURE 19
LOCATION OF SEPTIC TANK A25J5

TABLE 11A - SEPTIC SYSTEM A25J5: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/kg)	OIL & GREASE ^H (mg/kg)
	GASOLINE (mg/kg)	DIESEL (mg/kg)	OIL (mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25J5-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.32	6.94	<0.167	<10

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-09-018: A25J5-BG: Oil & Grease, Radioanalytical

94-09-015: A25J5-BG: TCLP-Metals, pH

94-09-016: A25J5-BG: TCLP:VOCs, Semi-VOCs

94-09-017: A25J5-BG: TPH, PCBs

TABLE 11B - SEPTIC SYSTEM A25J5: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25J5-BG	Ac-228	1.91E+00	pCi/g	1.37E+02	pCi/g	Pu-238	Not Detected	NA
	Bi-212	2.12E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.17E+00	pCi/g					
	K-40	3.41E+01	pCi/g					
	Pb-212	2.37E+00	pCi/g					
	Pb-214	2.54E+00	pCi/g					
	Tl-208	5.73E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

NA = Not Applicable

4.10 SEPTIC SYSTEM A25PAN (AREA 25-PAN AM TRAILERS)

4.10.1 FIELD OBSERVATIONS

Septic System A25PAN is located in Area 25 west of the Reactor Control point (RCP) Compound (Figure 20). The tank is associated with sanitary sewage from former Pan American trailers located to the east of the tank (Figure 21). The tank location was not readily known or accessible for sampling. Extensive hand and backhoe excavation was required to locate the tank. The system consists of one approximate 2,840 liter (750 gallon) capacity concrete tank without an apparent separation chamber. At the time of sample collection, the tank contained approximately 1,419 liters (375 gallons) of liquid and sludge. Liquid contents of the tank were yellow and had an oily sheen on the surface. The sludge was brown to black in color and appeared to contain gravelly soils. Slight septage odors were noted. The liquid and sludge samples (A25PAN-T-L/S) were collected from the east (influent) tank end on August 31, 1994.

A background soil sample (A25PAN-BG) was collected approximately 18.3 meters (60 feet) north of the tank on September 6, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface adjacent to the gravel access road to the east.

A distribution box was not located during the excavation for the leachfield sampling. However, field observations indicate that work had been done in the area between the tank and leach lines leaving a gap in the system (Figure 21). It is likely that the work was completed when the nearby sewer line was installed. One soil sample (A25PAN-LF-1) was collected below the first identified perforation on March 7, 1995. The soil consisted of gravelly sand to sandy gravel, light brown in color, and was dry. Odors or soil staining were not noted and a headspace reading of 0.0 ppm was recorded. Laboratory analytical results are summarized in Table 12A.

4.10.2 ANALYTICAL RESULTS

4.10.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

Barium was detected in the liquid and sludge sample at concentrations of 0.075 mg/l (total) and 0.97 mg/l (TCLP), respectively which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the liquid and sludge samples were 8.30 units and 7.97 units, respectively. These values are not hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected in the liquid and sludge sample at 0.14 mg/l and 3,700 mg/l, respectively. This sludge value exceeds the REECo WMD allowable limits for discharge into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

TCLP barium was detected at 0.83 mg/l. This concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.70 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at 30 mg/kg. This value does not exceed the REECo WMD allowable limits for discharge into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soil.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.24 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.60 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.10.2.2 VOLATILE ORGANIC COMPOUNDS

VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.10.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP 1,4-dichlorobenzene was detected in the sludge sample at a concentration of 0.49 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). TCLP semi-VOCs were not detected above laboratory detection limits in the leachfield and background soil samples collected.

4.10.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as oil was detected in the sludge sample collected at a concentration of 752 mg/kg. This concentration exceeds the TPH Action Level of 100 mg/kg. TPH was not detected above laboratory detection limits in the leachfield or background soil samples collected.

4.10.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sludge sample at a concentration of 0.116 mg/kg. This concentration is below the Federal Action Level of 10.0 mg/kg.

PCBs were not detected above laboratory detection limits in the leachfield and background soil samples collected.

4.10.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The samples collected from the tank, leachfield, and background did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 12B.

4.10.3 SUMMARY AND RECOMMENDATIONS

The TPH Action Level was exceeded in the sludge sample. Oil and grease concentrations from the sludge sample collected also exceeded the sewage lagoon allowable waste concentration of 100 mg/l. Based upon the analytical results Septic Tank A25PAN may be closed as a "hydrocarbon containing tank." Closure authority will be under NDEP guidelines.

REEC₀

FIGURE 20 **SITE MAP - SEPTIC TANK A25PAN**

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

TABLE 12A - SEPTIC SYSTEM A25PAN: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25PAN-T-L	<5.0	<0.5	<0.5	ND	ND	Ba 0.075	NA	NA	NA	8.30	<0.0005	0.14
A25PAN-T-S	<5.0	<0.5	752	NA	NA	NA	ND	,4-Dichlorobenzene 0.49 (D)	Ba 0.97	7.97	0.116*	3,700
A25PAN-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.83	7.70	<0.033	30
A25PAN-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.24	7.60	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-09-003: A25PAN-T-L: Metals, pH

A25PAN-T-S: TCLP-Metals, pH

94-09-004: A25PAN-T-L: VOCs, Semi-VOCs

A25PAN-T-S: TCLP:VOCs,Semi-VOCs

94-09-005: A25PAN-T-L: TPH, PCBs

A25PAN-T-S: TPH, PCBs

94-09-006: A25PAN-T-L: Oil & Grease, Radioanalytical

A25PAN-T-S: Oil & Grease, Radioanalytical

94-09-018: A25PAN-BG: Oil & Grease, Radioanalytical

94-09-015: A25PAN-BG: TCLP-Metals, pH

94-09-016: A25PAN-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A25PAN-BG: TPH, PCBs

95-03-016: A25PAN-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 12B - SEPTIC SYSTEM A25PAN: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25PAN-T-L	Bi-214	1.33E+02	pCi/L	-1.42E-07	uCi/mL	Pu-238	-4.22E-12	uCi/mL
	K-40	7.56E+02	pCi/L			Pu-239	-4.22E-12	uCi/mL
	Pb-214	1.79E+02	pCi/L					
	Tl-208	2.81E+01	pCi/L					
A25PAN-T-S	Ac-228	1.38E+00	pCi/g	-1.03E+00	pCi/g	Pu-238	8.31E-03	pCi/g
	Bi-212	1.96E+00	pCi/g			Pu-239	8.31E-03	pCi/g
	Bi-214	3.13E+00	pCi/g					
	Cs-137	6.64E-02	pCi/g					
	K-40	2.69E+01	pCi/g					
	Pb-212	1.91E+00	pCi/g					
	Pb-214	4.02E+00	pCi/g					
	Tl-208	4.84E-01	pCi/g					
A25PAN-LF-1	K-40	3.28E+01	pCi/g	-5.76E-02	pCi/g	Pu-238	3.45E-03	pCi/g
	Ra-226	1.25E+00	pCi/g			Pu-239	4.89E-03	pCi/g
	Th-228	2.84E+00	pCi/g					
	Th-232	2.45E+00	pCi/g					
A25PAN-BG	Ac-228	1.72E+00	pCi/g	-9.75E-01	pCi/g	Pu-238	Not Detected	NA
	Bi-212	1.92E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.38E+00	pCi/g					
	K-40	2.89E+01	pCi/g					
	Pb-212	2.13E+00	pCi/g					
	Pb-214	2.55E+00	pCi/g					
	Tl-208	5.16E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/mL = microcuries per milliliter

pCi/L = picocuries per liter

NA = Not Applicable

4.11 SEPTIC SYSTEM A25RAD (AREA 25-RAD SAFE BUILDING)

4.11.1 FIELD OBSERVATIONS

Septic System A25RAD is located in Area 25 east of Road C (Figure 22). The tank serviced two former rad-safe trailers which have been removed (Figure 23). The system consists of one approximately 2,460 liter (650 gallon) capacity steel tank with one separation chamber. Access to the north (influent) tank end was obtained by hand excavation to expose the tank surface. The tank contents were dry and brittle and reddish brown in color. The tank contained numerous skeletal remains of rodents and snakes. One solid sample (A25RAD-T-S) was collected on June 28, 1994.

A background soil sample (A25RAD-BG) was collected approximately 10.7 meters (35 feet) east of the tank on September 6, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface.

The tank has a distribution box and associated leachfield located directly south. One soil sample (A25RAD-LF-1) was collected below the first identified pipe perforation on March 6, 1995. The soil consisted of gravelly silt, medium brown in color, and was damp to moist. A headspace reading of 0.0 ppm was recorded and no odors were noted. Laboratory analytical results are summarized in Table 13A.

4.11.2 ANALYTICAL RESULTS

4.11.2.1 INORGANIC COMPOUNDS

Septic Tank (Solid)

Low TCLP concentrations of barium (0.045 mg/l) and mercury (0.0011 mg/l) were detected in sample A25RAD-T-S. The concentrations are below the TCLP Action Levels of 100 mg/l (barium) and 0.2 mg/l (mercury). The concentrations are also below the NDEP guidance levels of 10.0 mg/l (barium) and 0.02 mg/l (mercury).

The pH of the tank sample was 6.03 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for solids.

Oil and grease was detected at a concentration of 350 mg/kg. This value exceeds the allowable limit of 100 mg/l for discharge into the REECO WMD Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the solid tank contents.

Leachfield Soil Sample

TCLP barium was detected at a concentration of 0.71 mg/l which is below the TCLP Action Level (100 mg/l) and NDEP guidance level (10.0 mg/l).

The pH of the sample was 9.00 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at a concentration of 20 mg/kg. This value does not exceed the REECO WMD allowable limits for discharge into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils.

Background Soil Sample

TCLP barium was detected at 0.24 mg/l which is below the TCLP Action Level (100 mg/l) and NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.44 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.11.2.2 VOLATILE ORGANIC COMPOUNDS

TCLP VOCs were not detected in the tank or background soil samples at concentrations above laboratory detection limits. TCLP tetrachloroethylene was detected in the leachfield sample at a concentration of 0.00065 mg/l which is below the TCLP Action Level (0.7 mg/l) and NDEP guidance level (0.07 mg/l). It was also detected in the reagent blank (0.0019 mg/l) which indicates that it may have been introduced into the sample during laboratory storage, or analysis.

4.11.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP semi-VOCs were not detected in the leachfield or background soil samples at concentrations above laboratory detection limits. TCLP 1,4-dichlorobenzene was detected in the tank sample at a concentration of 0.81 mg/l. This concentration is less than the TCLP Action Level of 7.5 mg/l but exceeds the NDEP guidance level of 0.75 mg/l.

4.11.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected in the tank, leachfield, or background soil samples at concentrations above laboratory detection limits. However, the detection limits for diesel and oil in the solid tank sample were reported at less than 100 mg/l. As indicated on the analyst notes, the high detection limit was due to the sample being run at "ten times dilution level because they were found to be heavily colored and cloudy. This indicated the presence of large amounts of TPH or non-TPH organic components and suspended solids" (Analytical Packet 94-06-075). Based upon the TPH concentration being less than 100

mg/kg, and the sample being from an organic source, it is assumed that the sample represents a "non-TPH organic component."

4.11.2.5 POLYCHLORINATED BIPHENYLS

PCBs were not detected in the tank, leachfield, or background soil samples at concentrations above laboratory detection limits.

4.11.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The solid sample collected from the tank contained plutonium 239 at a concentration of 1.22E pCi/g which exceeds the ORERP and EPA guidance levels (Appendix B). The leachfield and background soil samples did not exceed ORERP and EPA guidance levels. Radioanalytical results are summarized in Table 13B.

4.11.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels were not exceeded for the leachfield or background soil samples collected. NDEP guidance levels were exceeded for 1,4-dichlorobenzene in the tank sample. Plutonium 239 was detected in the tank sample at values exceeding DOE and EPA guidance levels. Based upon the detection of Plutonium 239, a low-level radioactive waste, closure authority for this site will be under NDEP guidelines.

REEC_o

FIGURE 22 SITE MAP - SEPTIC TANK A25RAD

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

APPROXIMATELY 1000 FEET TO ROAD 'G'

ROAD "C" (TO MERCURY)
(JACKASS FLATS ROAD)

FORMER RAD-SAFE
TRAILERS (REMOVED)

A25RAD TANK
(~650 GAL. CAPACITY)

A25RAD-T-S

DISTRIBUTION
BOX

A25RAD-LF-1

A25RAD-BG

LEACHFIELD
(ABANDONED)

EXPLANATION

* SAMPLING LOCATION

REEC Co

FIGURE 23

LOCATION OF SEPTIC TANK A25RAD

TABLE 13A - SEPTIC SYSTEM A25RAD: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/kg)	OIL & GREASE ^H (mg/kg)
	GASOLINE (mg/kg)	DIESEL (mg/kg)	OIL (mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25RAD-T-S	<5.0	<100 (D)	<100 (D)	NA	NA	NA	ND	1,4-Dichlorobenzene 0.81	Ba 0.045 Hg 0.0011	6.03	<0.167	350
A25RAD-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	Tetrachloro- ethylene 0.00065 (B)	ND	Ba 0.71	9.00	<0.033	20
TB-52477 (Reagent Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.0019	NA	NA	NA	NA	NA
A25RAD-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.24	7.44	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-06-073: A25RAD-T-S: TCLP:VOCs,Semi-VOCs,Metals, PCBs

94-06-075: A25RAD-T-S: TPH, pH, Oil & Grease, Radioanalytical

94-09-018: A25RAD-BG: Oil & Grease, Radioanalytical

94-09-015: A25RAD-BG: TCLP-Metals, pH

94-09-016: A25RAD-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A25RAD-BG: TPH, PCBs

95-03-016: A25RAD-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 13B - SEPTIC SYSTEM A25RAD: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25RAD-T-S	Pb-212	1.21E-01	pCi/g	-7.25E-01	pCi/g	Pu-238	Not Detected	NA
						Pu-239	1.22E+00	pCi/g
A25RAD-LF-1	K-40	2.89E+01	pCi/g	2.36E+00	pCi/g	Pu-238	-5.17E-03	pCi/g
	Ra-226	1.00E+00	pCi/g			Pu-239	6.58E-03	pCi/g
	Th-228	2.72E+00	pCi/g					
	Th-232	2.58E+00	pCi/g					
A25RAD-BG	Ac-228	1.99E+00	pCi/g	4.01E-03	pCi/g	Pu-238	Not Detected	NA
	Bi-212	2.58E+00	pCi/g			Pu-239	7.45E-03	pCi/g
	Bi-214	2.04E+00	pCi/g					
	K-40	3.39E+01	pCi/g					
	Pb-212	2.34E+00	pCi/g					
	Pb-214	2.48E+00	pCi/g					
	Tl-208	5.99E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

NA = Not Applicable

4.12 SEPTIC SYSTEM A25RCPGA (AREA 25-REACTOR CONTROL POINT)

4.12.1 FIELD OBSERVATIONS

Septic System A25RCPGA is located in Area 25 at the Reactor Control Point (RCP) Compound (Figure 24). The tank is associated with sanitary sewage from multiple structures within the compound. As-built drawings indicated that the tank was located outside the RCP compound. Field investigation determined that the tank was located inside the compound at the south fence line (Figure 25). The system consists of one steel tank with an approximate 28,390 liter (7,500 gallon) capacity. The tank has one separation chamber. Access to the north (influent) tank end was obtained by removing a shallow buried manhole cover. The tank contained approximately 13,247 liters (3,500 gallons) of liquid and sludge. Liquid contents of tank were slightly clouded and had a floating oily phase. Moderate septage odors were noted. The liquid and sludge samples (A25RCPGA-T-L/S) were collected on July 27, 1994.

A background soil sample (A25RCPGA-BG) was collected approximately 12 meters (40 feet) west of the tank on September 6, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface outside the fence line of the compound.

The distribution box and associated leachfield are located directly south of the tank outside of the compound. One soil sample (A25RCPGA LF-1) was collected below the first identified perforation on March 6, 1995. The soil consisted of gravelly sand with silt, was medium brown in color, and was slightly moist. A headspace reading of 0.6 ppm was recorded. Laboratory analytical results are summarized in Table 14A.

4.12.2 ANALYTICAL RESULTS

4.12.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

The liquid sample (A25RCPGA-T-L) contained barium at a concentration of 0.28 mg/l (total). The sludge sample (A25RCPGA-T-S) contained barium, cadmium and lead at TCLP concentrations of 1.4 mg/l, 0.030 mg/l, and 0.49 mg/l, respectively. These concentrations did not exceed TCLP Action Levels of 100 mg/l (barium), 1.0 mg/l (cadmium) and 5.0 mg/l (lead). In addition, NDEP guidance levels of 10.0 mg/l (barium), 0.1 mg/l (cadmium), and 0.5 mg/l (lead) were not exceeded, however the lead concentration detected in the sample is slightly below the guidance level.

The pH of the tank samples ranged from 6.27 units to 7.00 units. This value is not hazardous under 40 CFR 261.22 (corrosivity) and is below the NDWS range.

Oil and grease detected in the samples ranged from 490 mg/l to 22,000 mg/l. This value exceeds the allowable limit of 100 mg/l for discharge into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium and cadmium were detected at TCLP concentrations of 0.97 mg/l and 0.011 mg/l, respectively. These concentrations are below the TCLP Action Levels of 100 mg/l and 1.0 mg/l, respectively. The concentrations are also below the NDEP guidance levels of 10.0 mg/l and 0.1 mg/l, respectively.

The pH of the sample was 7.70 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at a concentration of 340 mg/kg. This value exceeds the REECO WMD allowable limit of 100 mg/l for discharge into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soil.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.32 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 8.59 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the background.

4.12.2.2 VOLATILE ORGANIC COMPOUNDS

Septic Tank

1,4-dichlorobenzene was detected in the liquid sample at 0.010 mg/l (total) which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). 1,2-dichloroethene was detected in the liquid sample at a maximum concentration of 2.0 mg/l (total). There are currently no existing or proposed guidance levels for 1,2-dichloroethene.

Leachfield Soil Sample

Tetrachloroethylene was detected at a TCLP concentration of 0.0006 mg/l. However, it was also detected in the reagent blank (0.0019 mg/l) which indicates that it may have been introduced into the sample during laboratory storage, or analysis.

Background Soil Sample

TCLP VOCs were not detected above laboratory detection limits in Sample A25RCPGA-BG.

4.12.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in the sludge sample collected from the tank at a TCLP concentration of 2.9 mg/l which is below the TCLP Action Level of 7.5 mg/l, but exceeds the NDEP guidance level of 0.75 mg/l. Semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample (A25RCPGA-LF-1), or background soil sample (A25RCPGA-BG).

4.12.2.4 TOTAL PETROLEUM HYDROCARBONS

Septic Tank (Liquid and Sludge)

The liquid and sludge sample contained TPH as diesel at concentrations ranging from 15.5 mg/l to 7,890 mg/kg, respectively. TPH as oil was detected at concentrations ranging from 4.46 mg/l to 37,200 mg/kg, respectively. Gasoline was not detected. The diesel and oil concentration exceed the TPH Action Level of 100 mg/kg.

Leachfield Soil Sample

Gasoline was detected in the leachfield sample at a concentration of 0.094 mg/kg which is below the TPH Action Level of 100 mg/kg. TPH as diesel and oil was not detected above laboratory detection limits.

Background Soil Sample

TPH was not detected above laboratory detection limits in the Sample A25RCPGA-BG.

4.12.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the liquid and sludge tank sample at concentrations of 0.0021 mg/l and 0.259 mg/kg, respectively. This concentration is below the Federal Action Level of 10.0 mg/kg. PCBs were not detected above laboratory detection limits in the leachfield soil sample (A25RCPGA-LF-1), or background soil sample (A25RCPGA-BG).

4.12.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The samples collected from the tank, leachfield, and background did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 14B.

4.12.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels were not exceeded in the tank samples collected. The TPH Action Level was exceeded in the sludge sample collected. In addition,

the NDEP guidance level was exceeded for 1,4-dichlorobenzene in the sludge sample collected. The oil and grease limit for discharge into the Area 23 Sewage Lagoon was also exceeded for both the liquid and sludge samples. Based upon the analytical results, the tank contents will require closure under a separate work plan. Closure authority will be under NDEP guidelines.

The low TPH and VOC concentrations detected in the leachfield sample are well below Federal Action Levels and NDEP guidance levels. Therefore, the leachfield will not require additional characterization.

FIGURE 24
SITE MAP - SEPTIC TANK A25RCPGA

EXPLANATION

* SAMPLING LOCATION

REECo.

FIGURE 25

LOCATION OF SEPTIC TANK A25RCPGA

TABLE 14A - SEPTIC SYSTEM A25RCPGA: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25RCPGA-T-L	<5.0	15.5	4.46	1,2-Dichloroethene 1.90 (E) 1,2-Dichloroethene 2.00 (D) 1,4-Dichlorobenzene 0.010	ND	Ba 0.28	NA	NA	NA	7.00	0.0021**	490
A25RCPGA-T-S	<5.0	7,890	37,200	NA	NA	NA	ND	1,4 Dichlorobenzene 2.9	Ba 1.4 Cd 0.030 Pb 0.49	6.27	0.259**	22,000
A25RCPGA-LF-1	0.094	<10.0	<10.0	NA	NA	NA	Tetrachloro- ethylene 0.0006 (B)	ND	Ba 0.97 Cd 0.011	7.70	<0.033	340
TB-52477 (Reagent Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.0019	NA	NA	NA	NA	NA
A25RCPGA-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.32	8.59	<0.167	30

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (**Aroclor 1254).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-07-067: A25RCPGA-T-L: TPH, VOCs, Semi-VOCs, Metals, pH, PCBs, Oil & Grease, Radioanalytical

A25RCPGA-T-S: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

94-09-015: A25RCPGA-BG: TCLP-Metals, pH

94-09-016: A25RCPGA-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A25RCPGA-BG: TPH, PCBs

94-09-018: A25RCPGA-BG: Oil & Grease, Radioanalytical

95-03-016: A25RCPGA-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 14B - SEPTIC SYSTEM A25RCPGA: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25RCPGA-T-L	Not Detected	NA	NA	3.01E-07	uCi/cc	Pu-238	-2.86E-12	uCi/cc
						Pu-239	-2.86E-12	uCi/cc
A25RCPGA-T-S	K-40	1.21E-06	uCi/cc	-9.03E-08	uCi/cc	Pu-238	-4.86E-12	uCi/cc
	Ra-226	9.43E-08	uCi/cc			Pu-239	Not Detected	NA
	Th-228	8.65E-08	uCi/cc					
A25RCPGA-LF-1	K-40	2.71E+01	pCi/g	-5.76E-02	pCi/g	Pu-238	-3.43E-03	pCi/g
	Ra-226	9.94E-01	pCi/g			Pu-239	4.36E-03	pCi/g
	Th-228	2.40E+00	pCi/g					
	Th-232	1.69E+00	pCi/g					
A25RCPGA-BG	Ac-228	1.64E+00	pCi/g	9.75E-01	pCi/g	Pu-238	Not Detected	NA
	Bi-212	1.97E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.05E+00	pCi/g					
	K-40	3.12E+01	pCi/g					
	Pb-212	2.04E+00	pCi/g					
	Pb-214	2.31E+00	pCi/g					
	Tl-208	5.06E+01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/cc = microcuries per cubic centimeter

NA = Not Applicable

4.13 SEPTIC SYSTEM A25SS (AREA 25-SECURITY STATION)

4.13.1 FIELD OBSERVATIONS

Septic System A25SS is located in Area 25 near the intersection of Jackass Flats Road and Cane Springs Road (Figure 26). The tank is associated with sanitary sewage from former security trailer sites located east of Guard Station 500 (Figure 27). The tank was exposed and readily accessible for sampling. The system consists of an approximate 1,510 liter (400 gallon) capacity cylindrical tank with a three-foot diameter concrete cover. One influent and one effluent clay line was observed within the tank. The tank contained approximately 189 liters (50 gallons) of material which includes an approximate 0.3 meters (one foot) layer of sludge. Liquid contents of the tank were relatively clear. The sludge was brown in color and viscous. The liquid and sludge samples (A25SS-T-L/S) were collected from the tank on June 28, 1994.

A background soil sample (A25SS-BG) was collected approximately 15 meters (50 feet) north east of the tank on September 6, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface.

The system does not have a distribution box. One soil sample (A25SS-LF-1) was collected from the leachfield below the first identified perforation on March 14, 1995. The soil consisted of silty sand, was medium brown in color, and was moist. No odors or staining were noted and a headspace reading of 0.0 ppm was recorded. Laboratory analytical results are summarized in Table 15A.

4.13.2 ANALYTICAL RESULTS

4.13.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

Barium was detected in the liquid and sludge sample at concentrations of 0.047 mg/l (total) and 0.85 mg/l (TCLP), respectively. TCLP mercury was detected in the sludge sample at a concentration of 0.00044 mg/l. TCLP Action Levels for barium (100 mg/l) or Mercury (0.2 mg/l) were not exceeded. In addition, NDEP guidance levels for barium (10.0 mg/l) or mercury (0.02 mg/l) were not exceeded.

The pH of the liquid and sludge tank samples were 8.02 units and 7.11 units, respectively. These values are not hazardous under 40 CFR 261.22 (corrosivity).

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.88 mg/l. This concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.60 units. This value is not hazardous under 40 CFR

261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at a concentration of 10 mg/kg. This value does not exceed the REECO WMD allowable limits of 100 mg/l for discharge of liquid into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.48 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.20 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the background soils.

4.13.2.2 VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in the liquid sample at a concentration of 0.009 mg/l (total) which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). VOCs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample collected.

4.13.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in the sludge sample at a TCLP concentration of 4.1 mg/l which is below the TCLP Action Level of 7.5 mg/l but exceeds the NDEP guidance level of 0.75 mg/l. Semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample collected.

4.13.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.13.2.5 POLYCHLORINATED BIPHENYLS

PCBs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.13.2.6 RADIOANALYTICAL DATA

One radioanalytical sample was collected from the liquid and sludge within the tank and analyzed for gamma, tritium, and plutonium. Additional samples were collected from the associated leachfield and background area. The sample collected from the tank contained cesium 137 at a value of $2.44\text{E}+02$ picocuries per milliliter (pCi/ml) which exceeds ORERP and EPA guidance levels (Appendix B). The samples from the leachfield and background did not exceed ORERP and EPA guidance levels. Radioanalytical results are summarized in Table 15B.

4.13.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels were not exceeded in the tank contents, leachfield soil sample, or background soil sample. NDEP guidance levels were exceeded for 1,4-dichlorobenzene in the tank sludge sample.

Cesium 137 was detected at values which exceed DOE and EPA guidance levels. Based upon the detection of cesium 137, a low level radioactive waste, and 1,4-dichlorobenzene, closure authority for this site will be under NDEP guidelines.

REEC_o

FIGURE 26 SITE MAP - SEPTIC TANK A25SS

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

FIGURE 27
LOCATION OF SEPTIC TANK A25SS

TABLE 15A - SEPTIC SYSTEM A25SS: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25-SS-T-L	<5.0	<0.5	<0.5	1,4-Dichlorobenzene 0.009	ND	Ba 0.047	NA	NA	NA	8.02	<0.0005	<0.10
A25-SS-T-S	<5.0	<10.0	<10.0	NA	NA	NA	ND	1,4-Dichlorobenzene 4.1	Ba 0.85 Hg 0.00044	7.11	<0.167	<10.0
A25SS-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.88	7.60	<0.5	10
A25-SS-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.48	7.20	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

ND: Not detected above laboratory detection limits.

NA: Not analyzed.

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-06-073: A25SS-T-L: TPH, VOCs, Semi-VOCs, Metals, PCBs

A25SS-T-S: TPH, TCLP:VOCs,Semi-VOCs,Metals, PCBs

94-06-075: A25SS-T-L: pH, Oil & Grease, Radioanalytical

A25SS-T-S: pH, Oil & Grease, Radioanalytical

94-09-015: A25SS-BG: TCLP-Metals, pH

94-09-016: A25SS-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A25SS-BG: TPH, PCBs

94-09-018: A25SS-BG: Oil & Grease, Radioanalytical

95-03-025: A25SS-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 15B - SEPTIC SYSTEM A25SS: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25SS-T-L/S	Ac-228	7.99E+02	pCi/mL	Tritium: -2.41E-08	uCi/mL	Pu-238	4.49E-10	uCi/mL
	Bi-214	1.58E+03	pCi/mL			Pu-239	6.64E-09	uCi/mL
	Cs-137	2.44E+02	pCi/mL					
	K-40	1.07E+04	pCi/mL					
	Pb-212	1.00E+03	pCi/mL					
	Pb-214	1.86E+03	pCi/mL					
	Tl-208	1.81E+02	pCi/mL					
A25SS-LF-1	K-40	2.54E+01	pCi/g	Beta: 3.05E-06 Tritium: 2.88E+00	uCi/g pCi/g	Pu-238	-3.35E-03	pCi/g
	Ra-226	1.11E+00	pCi/g			Pu-239	3.66E-03	pCi/g
	Th-228	2.09E+00	pCi/g					
	Th-232	1.53E+00	pCi/g					
A25SS-BG	Ac-228	1.82E+00	pCi/g	Tritium: 4.51E+01	pCi/g	Pu-238	Not Detected	NA
	Bi-212	1.95E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.05E+00	pCi/g					
	K-40	2.97E+01	pCi/g					
	Pb-212	2.23E+00	pCi/g					
	Pb-214	2.52E+00	pCi/g					
	Tl-208	5.19E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/mL = microcuries per milliliter

pCi/mL = picocuries per milliliter

NA = Not Applicable

4.14 SEPTIC SYSTEM A25TCA (AREA 25-TEST CELL A)

4.14.1 FIELD OBSERVATIONS

Septic System A25TCA is located in Area 25 north of Road F and south of the Test Cell A fence line (Figure 28). The tank appears to have serviced a nearby former structure outside the facility in addition to a facility(s) inside Test Cell A (Figure 29). The system consists of one concrete tank with an approximate capacity of 1,510 liters (400 gallons). The tank did not have a separation chamber. A single manway cover was readily accessible for sampling the tank. The tank contents were dry and brittle and medium brown in color. One solid sample (A25TCA-T-S) was collected on August 17, 1994.

A background soil sample (A25TCA-BG) was collected approximately 7.6 meters (25 feet) north west of the tank on September 7, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface.

A distribution box and associated leachfield is located directly west of the tank. One soil sample (A25TCA-LF-1) was collected below the first identified pipe perforation on March 8, 1995. The soil consisted of silty sand with gravel, was medium brown in color, and was damp. A headspace reading of 0.0 ppm was recorded and no odors were noted. Laboratory analytical results are summarized in Table 16A.

4.14.2 ANALYTICAL RESULTS

4.14.2.1 INORGANIC COMPOUNDS

Septic Tank (Solid)

Concentrations of TCLP barium and cadmium were detected at 0.048 mg/l and 0.12 mg/l, respectively. The barium concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). The cadmium concentration is below the TCLP Action Level (1.0 mg/l) but exceeds the NDEP guidance level (0.1 mg/l).

The pH of the tank sample was 5.38 units. This value is below the NDWS range but is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for solids.

Oil and grease was detected at a concentration of 6,900 mg/kg. This value exceeds the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the solid tank contents.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.28 mg/l. This result is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.70 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at 20 mg/kg. This value is below the sewage lagoon limits. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.41 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.49 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the background soils.

4.14.2.2 VOLATILE ORGANIC COMPOUNDS

TCLP VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.14.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP semi-VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.14.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as oil was detected in the tank sample at a concentration of 7,580 mg/kg which exceeds the TPH Action Level of 100 mg/kg. TPH as gasoline was detected in the leachfield sample at a concentration of 0.11 mg/kg which is below the TPH Action Level.

4.14.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sample at a concentration of 9.75 mg/kg. This concentration is slightly below the Federal Action Level of 10 mg/kg.

4.14.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The tank and leachfield samples did not exceed ORERP and EPA guidance levels. However, the background soil sample contained Europium 152 at a value of $2.19\text{E-}01$ pCi/g which exceeds ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 16B.

4.14.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels were not exceeded in the tank contents or leachfield sample. PCBs were detected at slightly below the Federal Action Level. TPH Action Levels were exceeded in the tank contents. NDEP guidance levels were also exceeded in the tank contents for cadmium.

The Europium 152 detected in the background soil sample should not affect tank closure activities. Based on the analytical results, the tank contents will require closure under a separate work plan. Closure authority for this site will be under NDEP guidelines.

REEC Co

FIGURE 28 **SITE MAP - SEPTIC TANK A25TCA**

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

EXPLANATION

* SAMPLING LOCATION

REEC Co

FIGURE 29
LOCATION OF SEPTIC TANK A25TCA

TABLE 16A - SEPTIC SYSTEM A25TCA: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL ETALS (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/kg)	OIL & GREASE ^H (mg/kg)
	GASOLINE (mg/kg)	DIESEL (mg/kg)	OIL (mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25-TCA-T-S	<5.0	<100 (D)	7,580	NA	NA	NA	ND ND (RE)	ND	Ba 0.078 Cd 0.12	5.34	9.75*	6,900
A25-TCA-LF-1	0.11	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.28	7.70	<0.033	20
A25-TCA-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.41	7.49	<0.167	10

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(RE): Sample reanalyzed for a specific analyte.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A25TCA-T-S: TCLP:VOCs,Semi-VOCs, Radioanalytical

94-08-064: A25TCA-T-S: TPH, PCBs

94-08-065: A25TCA-T-S: TCLP-Metals, pH

94-08-066: A25TCA-T-S: Oil & Grease

94-09-014: A25TCA-BG: Oil & Grease

94-09-019: A25TCA-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A25TCA-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A25TCA-BG: TPH, PCBs

95-03-016: A25TCA-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 16B - SEPTIC SYSTEM A25TCA: SUMMARY OF RADAIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25TCA-T-S	Ac-228	4.01E-07	uCi/g	3.24E-06	uCi/g	Pu-238	1.30E-08	uCi/g
	Bi-212	8.11E-07	uCi/g			Pu-239	2.27E-08	uCi/g
	Bi-214	3.57E-08	uCi/g					
	Cs-137	2.55E-06	uCi/g					
	K-40	5.97E-06	uCi/g					
	Ra-226	2.37E-07	uCi/g					
	Tl-208	1.47E-07	uCi/g					
A25TCA-LF-1	K-40	2.94E+01	pCi/g	2.88E+00	pCi/g	Pu-238	-6.18E-03	pCi/g
	Ra-226	8.84E-01	pCi/g			Pu-239	-3.88E-03	pCi/g
	Th-228	2.59E+00	pCi/g					
	Th-232	1.64E+00	pCi/g					
A25TCA-BG	Eu-152	2.19E-01	pCi/g	1.94E+00	pCi/g	Pu-238	5.00E-03	pCi/g
	K-40	3.36E+01	pCi/g			Pu-239	Not Detected	NA
	Ra-226	1.22E+00	pCi/g					
	Th-228	4.39E+00	pCi/g					
	Th-232	2.38E+00	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

NA = Not Applicable

4.15 SEPTIC SYSTEM A25TCC1 (AREA 25-TEST CELL C TANK 1)

4.15.1 FIELD OBSERVATIONS

Septic System A25TCC1 is located in Area 25 at the Test Cell C Facility (Figure 30). The tank is one of multiple systems accepting sewage from the facility, and is located south of the compound fence line (Figure 31). The tank manway was exposed and readily accessible for sampling. The system consists of a concrete tank that is approximately 2,840 liters (750 gallons) in capacity with a single manway access port. At the time of sampling, the tank contained approximately 568 liters (150 gallons) of clear liquid. No sludge was observed within the tank. Sample A25TCC1-T-L was collected from the tank on August 17, 1994.

A background soil sample (A25TCC1-BG) was collected approximately 15 meters (50 feet) east of the tank and 3 meters (10 feet) south of the fence line on September 7, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface.

The distribution box and associated leachfield are located directly southeast of the tank. The distribution box has four influent lines leading into the box and two effluent lines. It could not be determined if the influent lines were from the tank or other possible tank sources. One soil sample (A25TCC1-LF-1) was collected from the leachfield below the first identified perforation on March 14, 1995. The soil consisted of silty sand, was medium brown in color, and was moist. No odors or staining was noted and a headspace reading of 0.0 ppm was recorded. Laboratory analytical results are summarized in Table 17A.

4.15.2 ANALYTICAL RESULTS

4.15.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid)

The pH of the liquid was 8.64 units. This value exceeds the NDWS range, however, this value is not hazardous under 40 CFR 261.22 (corrosivity).

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.29 mg/l. This concentration is consistent with background levels and is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.50 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.31 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10 mg/l).

The pH of the sample was 7.50 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.15.2.2 VOLATILE ORGANIC COMPOUNDS

Septic Tank (Liquid)

Acetone was detected in the liquid sample at 0.01 mg/l (total) but was reanalyzed by the laboratory and was not detected.

Leachfield Soil Sample

Tetrachloroethylene was detected at a TCLP concentration of 0.00047 mg/l. However, it was also detected in the reagent blank (0.0019 mg/l) indicating that it was introduced into the sample during laboratory storage, or analysis.

Background Soil Sample

TCLP VOCs were not detected above laboratory detection limits in Sample A25-TCC1-BG.

4.15.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.15.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected above laboratory detection limits in the tank or background soil samples.

TPH as gasoline was detected in the leachfield sample at a concentration of 0.090 mg/kg which is below the TPH Action Level of 100 mg/l.

4.15.2.5 POLYCHLORINATED BIPHENYLS

PCBs were reported in the background soil sample at a concentration of 0.131 mg/kg. The concentration is below the Federal Action Level of 10.0 mg/kg.

4.15.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The liquid and leachfield samples did not exceed ORERP and EPA guidance levels. The background soil sample contained Europium 152 at a value of $2.61\text{E-}01$ pCi/g which exceeds guidance levels (Appendix B). Radioanalytical results are summarized in Table 17B.

4.15.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels or NDEP guidance levels were not exceeded in the tank or leachfield samples. Europium 152 was detected in the background soil sample at a value exceeding ORERP and EPA guidance levels. This correlates with other background soil samples collected from the Test Cell C Facility.

Based upon the laboratory analytical data, the detection of Europium 152 is not specific to the tank system and the tank contents of A25TCC1 can be closed as a domestic sewage system under the guidelines of NSHD.

FIGURE 31
LOCATION OF SEPTIC TANK A25TCC1

TABLE 17A - SEPTIC SYSTEM A25TCC1: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25-TCC1-T-L	<5.0	<0.5	<0.5	Acetone 0.01 ND (RE)	ND	ND	NA	NA	NA	8.64	<0.0005	<0.1
25-TCC1-LF-	0.09	<10.0	<10.0	NA	NA	NA	Tetrachloro- ethylene 0.00047 (B)	ND	Ba 0.29	7.50	<0.5	<5.0
TB-52477 (Reagent Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro- ethylene 0.0019	NA	NA	NA	NA	NA
A25TCC1-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.31	7.09	0.131**	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (**Aroclor 1254).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(RE): Sample reanalyzed for a specific analyte.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A25TCC1-T-L: VOCs, Semi-VOCs, Radioanalytical

94-08-064: A25TCC1-T-L: TPH, PCBs

94-08-065: A25TCC1-T-L: TCLP-Metals, pH

94-08-066: A25TCC1-T-L: Oil & Grease

94-09-014: A25TCC1-BG: Oil & Grease

94-09-019: A25TCC1-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A25TCC1-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A25TCC1-BG: TPH, PCBs

95-03-025: A25TCC1-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 17B - SEPTIC SYSTEM A25TCC1: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25TCC1-T-L	Not Detected	NA	NA	Tritium: - 7.88E-08	uCi/mL	Pu-238 Pu-239	Not Detected 5.27E-12	NA uCi/mL
A25TCC1-LF-1	K-40 Ra-226 Th-228 Th-232	3.15E+01 7.11E-01 2.25E+00 1.42E+00	pCi/g pCi/g pCi/g pCi/g	Beta: 2.88E-06 Tritium: -5.18E-01	uCi/g pCi/g	Pu-238 Pu-239	-4.11E-03 -3.95E-03	pCi/g pCi/g
A25TCC1-BG	Ac-228 Bi-212 Bi-214 Cs-137 Eu-152 K-40 Pb-212 Pb-214 Tl-208	1.58E+00 2.07E+00 4.62E+00 9.56E-02 2.61E-01 3.11E+01 2.27E+00 5.99E+00 5.75E-01	pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g	Tritium: 1.20E+00	pCi/g	Pu-238 Pu-239	Not Detected 6.71E-03	NA pCi/g

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/mL = microcuries per milliliter

NA = Not Applicable

4.16 SEPTIC SYSTEM A25TCC2 (AREA 25-TEST CELL C TANK 2)

4.16.1 FIELD OBSERVATIONS

Septic System A25TCC2 is located in Area 25 at the Test Cell C Facility (Figure 32). The tank is associated with sewage from former Building 3228 (Figure 33). The tank location was not readily known or accessible for sampling. Backhoe excavation was required to locate the tank. The system consists of an approximate 5,677 liters (1,500 gallon) capacity steel tank. It could not be determined if a separation chamber existed within the tank. At the time of sampling, the tank contained approximately 2,839 liters (750 gallons) of liquid and sludge. Liquid contents of tank were cloudy and had an oily sheen on the surface. The sludge was brown to black in color. Strong septage odors were noted. The liquid and sludge samples (A25TCC2-T-L/S) were collected from the north (influent) tank end on August 17, 1994.

A background soil sample (A25TCC2-BG) was collected approximately 13 meters (42 feet) east of the tank on September 7, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface.

The distribution box and associated leachfield is located directly south of the tank. One soil sample (A25TCC2-LF-1) was collected below the first identified perforation on March 13, 1995. The soil consisted of silty sand with gravel, was medium brown in color, and was slightly moist. No odors or staining was noted and a headspace reading of 0.0 ppm was recorded. Laboratory analytical results are summarized in Table 18A.

4.16.2 ANALYTICAL RESULTS

4.16.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

Barium was detected in the liquid and sludge sample at concentrations of 0.011 mg/l (total) and 1.0 mg/l (TCLP), respectively. These concentrations do not exceed the TCLP Action Level (100 mg/l) or the NDEP guidance level (10.0 mg/l).

The pH of the liquid and sludge samples were 7.24 units and 6.31 units, respectively. The sludge value is below the NDWS range of 6.5-8.5, however, it is not considered hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected in the liquid and sludge sample at 1.4 mg/l and 16,000 mg/kg, respectively. The sludge value exceeds the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.13 mg/l. This concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.70 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at 10 mg/kg. This value does not exceed the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.28 mg/kg which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.30 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.16.2.2 VOLATILE ORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

1,4-dichlorobenzene was detected in the liquid sample at 0.012 mg/l (total) which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). Trichloroethene was detected in the liquid and sludge samples at concentrations of 0.070 mg/l (total) and 16 mg/l (TCLP), respectively. The sludge sample concentration exceeds the TCLP Action Level of 0.5 mg/l. The liquid sample concentration also exceeds the NDEP guidance level of 0.05 mg/l.

1,2-dichloroethene was detected in the liquid sample at a maximum concentration of 3.1 mg/l (total). There are currently no existing or proposed guidance levels for 1,2-dichloroethene.

Leachfield Soil Sample

Tetrachloroethylene was detected in the sludge sample at a TCLP concentration of 0.00040 mg/l which is below the TCLP Action Level (0.7 mg/l) and the NDEP guidance level (0.07 mg/l). It was also detected in the reagent blank which indicates that it may have been introduced into the sample during storage or analysis.

Background Soil Sample

TCLP VOCs were not detected above laboratory detection limits in Sample A25TCC2-BG.

4.16.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in the sludge sample at a maximum TCLP concentration of 81 mg/l which exceeds the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). Semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.16.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as oil was detected in the sludge sample at a concentration of 2,720 mg/kg which exceeds the TPH Action Level of 100 mg/kg. TPH was not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.16.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sludge sample at a concentration of 0.226 mg/kg. This concentration is below the Federal Action Level of 10.0 mg/l. PCBs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.16.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The liquid and leachfield samples did not exceed ORERP and EPA guidance levels. The background soil sample collected from the tank vicinity contained Europium 152 at a value of $1.01\text{E}-01$ pCi/g which exceeds the ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 18B.

4.16.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels and NDEP guidelines were exceeded in the tank contents for TPH, VOCs and Semi-VOCs. Oil and grease concentrations also exceeded the sewage lagoon allowable waste concentration of 100 mg/l. Based upon the laboratory analytical data, the tank contents are considered hazardous and will require closure under a separate Work Plan.

The detection of Europium 152 in the background soil sample is not specific to the A25TCC2 septic system and is found in other background soil samples collected from the vicinity of Test Cell C. Closure authority for the site will be under NDEP guidelines.

FIGURE 32
SITE MAP - SEPTIC TANK A25TCC2

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

FIGURE 33
LOCATION OF SEPTIC TANK A25TCC2

TABLE 18A - SEPTIC SYSTEM A25TCC2: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25-TCC2-T-L	<5.0	<0.5	<0.5	1,2-Dichloroethene 1.4 (E) Trichloroethene 0.070 1,4-Dichlorobenzene 0.012 1,2-Dichloroethene 3.1 (D)	ND	Ba 0.011	NA	NA	NA	7.24	<0.0005	1.4
A25-TCC2-T-S	<5.0	<100 (D)	2,720	NA	NA	NA	Trichloroethene 16 Trichloroethene 12 (D)	1,4-Dichlorobenzene 47 (E) 1,4-Dichlorobenzene 81 (D) 4-Methylphenol 3.6 (E)	Ba 1.0	6.31	0.226*	16,000
A25-TCC2-LF-1	0.1	<10.0	<10.0	NA	NA	NA	Tetrachloro-ethylene 0.00040 (B)	ND	Ba 0.13	7.70	<0.5	10
TB-52477 (Reagent Blank)	NA	NA	NA	NA	NA	NA	Tetrachloro-ethylene 0.0019	NA	NA	NA	NA	NA
A25-TCC2-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.28	7.30	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (*Aroclor 1260).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

(D): Identifies all compounds identified in an analysis at a secondary dilution factor.

(E): Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-08-063: A25TCC2-T-L: VOCs, Semi-VOCs, Radioanalytical
A25TCC2-T-S: TCLP:VOCs,Semi-VOCs, Radioanalytical

94-08-064: A25TCC2-T-L: TPH, PCBs
A25TCC2-T-S: TPH, PCBs

94-08-065: A25TCC2-T-L: Metals, pH
A25TCC2-T-S: TCLP-Metals, pH

94-08-066: A25TCC2-T-L: Oil & Grease
A25TCC2-T-S: Oil & Grease

94-09-014: A25TCC2-BG: Oil & Grease

94-09-019: A25TCC2-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A25TCC2-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A25TCC2-BG: TPH, PCBs

95-03-025: A25TCC2-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 18B - SEPTIC SYSTEM A25TCC2: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25TCC2-T-L	Not Detected	NA	NA	Tritium: 5.63E-08	uCi/mL	Pu-238 Pu-239	Not Detected 8.11E-12	NA uCi/mL
A25TCC2-T-S	Ac-228 Bi-212 Bi-214 Cs-137 K-40 Pb-212 Tl-208	3.62E-07 4.76E-07 4.65E-07 2.44E-08 3.51E-06 3.54E-07 1.22E-07	uCi/g uCi/g uCi/g uCi/g uCi/g uCi/g uCi/g	Tritium: 1.26E-06	uCi/g	Pu-238 Pu-239	Not Detected 3.26E-09	NA uCi/g
A25TCC2-LF-1	K-40 Ra-226 Th-228 Th-232	2.75E+01 9.50E-01 2.31E+00 2.22E+00	pCi/g pCi/g pCi/g pCi/g	Beta: 1.92E-06 Tritium: 4.49E+00	uCi/g pCi/g	Pu-238 Pu-239	-2.87E-03 -2.76E-03	pCi/g pCi/g
A25TCC2-BG	Eu-152 K-40 Ra-226 Th-228 Th-232	1.01E-01 3.34E+01 1.02E+00 3.83E+00 2.08E+00	pCi/g pCi/g pCi/g pCi/g pCi/g	Tritium: 7.99E+00	pCi/g	Pu-238 Pu-239	Not Detected 2.14E-02	NA pCi/g

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/mL = microcuries per milliliter

NA = Not Applicable

4.17 SEPTIC SYSTEM A25TRA (AREA 25-TRAILERS)

4.17.1 FIELD OBSERVATIONS

Septic System A25TRA is located in Area 25 south of the Reactor Control Point (RCP) Compound (Figure 34). The tank is associated with sanitary sewage from a former trailer park located to the north of the tank (Figure 35). The system consists of one steel tank with an approximate capacity of 28,390 liters (7,500 gallons). The tank has one separation chamber. Access to the south (effluent) tank end was obtained by removing a bolted manway within a 0.6 meters (two feet) diameter protective conductor casing. The effluent side of the tank contents was sampled since the influent access required extensive work to remove the rusted manway bolts. In addition, the area within the protective conductor casing was infested with spiders and insects. Spraying the area with insecticide would pose a potential risk to workers in the small work area and potentially contaminate samples collected from the manway access.

The tank contained approximately 13,247 liters (3,500 gallons) of liquid and sludge which included a thick layer of sludge approximately 0.46 meters (1.5 feet). Liquid contents of the tank were relatively clear. The sludge was black in color and had strong septage odors. The liquid and sludge samples (A25TRA-T-L/S) were collected on June 28, 1994.

A background soil sample (A25TRA-BG) was collected approximately 18 meters (60 feet) north west of the tank on September 6, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface adjacent to the gravel access road.

The distribution box and associated leachfield are located directly south of the tank. One soil sample (A25TRA-LF-1) was collected below the first identified perforation on March 7, 1995. The soil consisted of gravelly sand with silt, was medium brown in color, and was slightly moist. No odors or staining was noted and a headspace reading of 0.6 ppm was recorded. Laboratory analytical results are summarized in Table 19A.

4.17.2 ANALYTICAL RESULTS

4.17.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid and Sludge)

Sludge Sample A25TRA-T-S contained barium at a TCLP concentrations of 1.2 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the tank liquid sample was 8.79 units. This value exceeds the NDWS range but is not hazardous under 40 CFR 261.22 (corrosivity). The pH of the sludge sample was not analyzed by the laboratory due to its organic characteristic. There is no approved method for determination of pH on an organic compound (ACS Packet No. 94-06-075).

Oil and grease was detected in the sludge sample at 560 mg/kg. This value exceeds the REECO WMD allowable limits (100 mg/l) for discharge of liquid into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.63 mg/l. This concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.80 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for leachfield soils.

Oil and grease was detected at 20 mg/l. This value does not exceed the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soil.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.26 mg/l which is below TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.58 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for soils.

4.17.2.2 VOLATILE ORGANIC COMPOUNDS

VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.17.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in sludge sample A25TRA-T-S at a TCLP concentration of 1.2 mg/l which is below the TCLP Action Level (7.5 mg/l) but exceeds the NDEP guidance level (0.75 mg/l). TCLP semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.17.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected in the tank contents, leachfield soil sample, or background soil sample at concentrations above laboratory detection limits. However, the detection limits for diesel and oil in the solid tank sample were reported at less than 100 mg/l. As indicated on the analyst notes, the high

detection limit was due to the sample being run at "ten times dilution level because they were found to be heavily colored and cloudy indicating the presence of large amounts of TPH or non-TPH organic components and suspended solids" (Analytical Packet 94-06-075). Based upon the TPH concentration being less than 100 mg/kg, and the sample being from an organic source, it is assumed that the sample represents a "non-TPH organic component."

4.17.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in Sample A25TRA-T-S at concentrations of 0.356 mg/kg which is below the Federal Action Level of 10 mg/kg. PCBs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.17.2.6 RADIOANALYTICAL DATA

One radioanalytical sample was composited from the liquid and sludge tank contents and analyzed for gamma, tritium, and plutonium. One leachfield soil sample and background soil sample was also collected. The samples collected from the tank, leachfield, and background did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 19B.

4.17.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels were not exceeded in the tank, leachfield, or background samples. The NDEP guidance level was exceeded for 1,4-dichlorobenzene in the sludge sample collected within the tank. Oil and grease concentrations were also exceeded for the sludge sample.

Based upon the analytical results exceeding NDEP guidance levels, the tank should be closed under a separate work plan. Closure authority will be under NDEP guidelines.

REEC Co

FIGURE 34 SITE MAP - SEPTIC TANK A25TRA

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

EXPLANATION

* SAMPLING LOCATION

APPROX. SCALE

20 0 20 40

FIGURE 35

LOCATION OF SEPTIC TANK A25TRA

TABLE 19A - SEPTIC SYSTEM A25TRA: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI-VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBS ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)			
A25TRA-T-L	<5.0	<0.5	<0.5	ND	ND	Ba <0.0060	NA	NA	NA	8.79	<0.0005	<0.1
A25TRA-T-S	<5.0	<100 (D)	<100 (D)	NA	NA	NA	ND	1,4-Dichlorobenzene 1.2	Ba 1.2	NA	0.356**	560
A25TRA-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.63	7.80	<0.033	20
A25TRA-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.26	7.58	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBS: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (**Aroclor 1254).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-06-073: A25TRA-T-L: TPH, VOCs, Semi-VOCs, Metals, PCBs

A25TRA-T-S: TCLP:VOCs,Semi-VOCs,Metals, PCBs

94-06-075: A25TRA-T-L: pH, Oil & Grease, Radioanalytical

A25TRA-T-S: TPH, pH, Oil & Grease, Radioanalytical

94-09-018: A25TRA-BG: Oil & Grease, Radioanalytical

94-09-015: A25TRA-BG: TCLP-Metals, pH

94-09-016: A25TRA-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A25TRA-BG: TPH, PCBs

95-03-016: A25TRA-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 19B - SEPTIC SYSTEM A25TRA: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A25TRA-T-L/S	Ac-228	4.84E+02	pCi/mL	3.61E-08	uCi/mL	Pu-238	1.48E-10	uCi/mL
	Bi-214	1.34E+03	pCi/mL			Pu-239	1.10E-09	uCi/mL
	K-40	8.78E+03	pCi/mL					
	Pb-212	7.90E+02	pCi/mL					
	Pb-214	1.64E+03	pCi/mL					
	Tl-208	1.85E+02	pCi/mL					
A25TRA-LF-1	K-40	3.28E+01	pCi/g	7.78E+00	pCi/g	Pu-238	-3.06E-03	pCi/g
	Ra-226	9.18E-01	pCi/g			Pu-239	-1.92E-03	pCi/g
	Th-228	2.35E+00	pCi/g					
	Th-232	2.28E+00	pCi/g					
A25TRA-BG	Ac-228	2.40E+00	pCi/g	-1.49E+00	pCi/g	Pu-238	Not Detected	NA
	Bi-212	2.66E+00	pCi/g			Pu-239	Not Detected	NA
	Bi-214	2.70E+00	pCi/g					
	K-40	3.67E+01	pCi/g					
	Pb-212	2.88E+00	pCi/g					
	Pb-214	3.12E+00	pCi/g					
	Tl-208	7.26E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/mL = microcuries per milliliter

pCi/mL = picocuries per milliliter

NA = Not Applicable

4.18 SEPTIC SYSTEM A253210 (AREA 25-TEST CELL C BUILDING 3210)

4.18.1 FIELD OBSERVATIONS

Septic System A253210 is located in Area 25 at the Test Cell C Facility (Figure 36). The tank is one of multiple systems accepting sewage from the facility and is located inside the western fence line (Figure 37). Through extensive excavation efforts, the tank was located partially beneath the concrete cover of the facility apron. Approximately one quarter of the manway access was accessible without having to cut away the concrete slab which would have disrupted the drainage flow and containment of the facility. The system consists of one concrete tank with a capacity of approximately 3,785 liters (1,000 gallons). The tank has one single manway access port. At the time of sampling, the tank contained approximately 378 liters (100 gallons) of clear liquid. No sludge was observed within the tank. Liquid Sample A253210-1 was collected from the tank on March 14, 1995.

A background soil sample (A253210-BG) was collected approximately 10.7 meters (35 feet) west of the tank's distribution box outside the fence line on September 6, 1994. The sample was collected at approximately 0.46 meters (1.5 feet) below the ground surface.

The system has a distribution box and associated leachfield located directly southwest of the tank. One soil sample (A253210-LF-1) was collected from the leachfield below the first identified perforation on March 13, 1995. The soil consisted of silty sand with gravel, was medium brown in color, and was slightly moist. No odors or staining was noted and a headspace reading of 5.4 ppm was recorded. Laboratory analytical results are summarized in Table 20A.

4.18.2 ANALYTICAL RESULTS

4.18.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid)

Total barium was detected at 0.044 mg/l. This concentration is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the liquid was 8.70 units. This value exceeds the NDWS range, however, this value is not hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected at a concentration of 1.2 mg/l. This value does not exceed the REECo WMD allowable limits of 100 mg/l for discharge of liquid into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.29 mg/l. This concentration is consistent with background levels and is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 6.40 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at 10 mg/kg. This value does not exceed the allowable limits for discharge of liquid into the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic of the leachfield soil.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.82 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.53 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.18.2.2 VOLATILE ORGANIC COMPOUNDS

VOCs were not detected above laboratory detection limits in the tank or background soil sample. Tetrachloroethylene was detected at a TCLP concentration 0.00054 mg/l in leachfield Sample A25320-LF-1 which is below the TCLP Action Level (0.7 mg/l) and the NDEP guidance level (0.07 mg/l). However, it was also detected in the reagent blank (0.0019 mg/l) which indicates that it may have been introduced into the sample during laboratory storage or analysis.

4.18.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.18.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH as gasoline and diesel were detected in the tank sample at 0.049 mg/l and 0.7 mg/l, respectively which is below the TPH Action Level of 100 mg/l.

TPH was not detected above laboratory detection limits in the leachfield soil sample, or background soil sample.

4.18.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sample at a concentration of 0.00081 mg/l which is below the Federal Action Level of 10 mg/l. PCBs were not detected above laboratory detection limits in the leachfield or background soil samples.

4.18.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The tank and leachfield samples did not exceed ORERP and EPA guidance levels. The background soil sample collected from the tank contained Europium 152 at a value of $9.47\text{E}-01$ pCi/g which exceeds ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 20B.

4.18.3 SUMMARY AND RECOMMENDATIONS

Federal Action Levels or NDEP guidance levels were not exceeded in the tank or leachfield samples. Europium 152 was detected in the background soil sample at a value exceeding ORERP and EPA guidance levels. The detection of Europium 152 correlates with other background soil samples collected in the vicinity of Test Cell C.

Based upon the laboratory analytical data, the detection of Europium 152 is not specific to the tank system and the tank contents of A253210 can be closed as a domestic sewage system under the guidelines of NSHD.

REECo

FIGURE 36 SITE MAP - SEPTIC TANK A253210

SOURCE: USGS JACKASS FLATS, NEV. 7.5' QUADRANGLE, 1983

EXPLANATION

* SAMPLING LOCATION

REEC₀

FIGURE 37
LOCATION OF SEPTIC TANK A253210

TABLE 20A - SEPTIC SYSTEM A253210: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			SEMI-VOCs ^B	TOTAL METALS ^D	VOCs ^C	SEMI-VOCs ^E	METALS ^F	PH ^F	PCBs ^G	OIL & GREASE ^H
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)								
A25-3210-1	0.049	0.7	<0.1	NA	NA	ND	ND	Ba 0.044	8.70	0.00081**	1.2
A25-3210-LF-1	<1.0	<10.0	<10.0	NA	NA	Tetrachloro-ethylene 0.00054 (B)	ND	Ba 0.29	6.40	<0.5	10
TB-52477	NA	NA	NA	NA	NA	Tetrachloro-ethylene 0.0019	NA	NA	NA	NA	NA
A25-3210-BG	<5.0	<10.0	<10.0	NA	NA	NA	NA	Ba 0.82	7.53	<0.167	<10.0

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (**Aroclor 1254).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

(B): Analyte is found in the associated blank as well as in the sample.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)

(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-09-018: A253210-BG: Oil & Grease, Radioanalytical

94-09-015: A252310-BG: TCLP-Metals, pH

94-09-016: A253210-BG: TCLP:VOCs,Semi-VOCs

94-09-017: A253210-BG: TPH, PCBs

95-03-025: A253210-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

95-03-048: A253210-1: TPH, VOCs, Semi-VOCs, Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 20B - SEPTIC SYSTEM A253210: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A253210-1	Not Detected	NA	NA	Tritium: 2.35E-07	uCi/cc	Pu-238 Pu-239	-1.35E-09 -2.17E-09	uCi/cc uCi/cc
A253210-LF-1	K-40 Ra-226 Th-228 Th-232	2.84E+01 9.32E-01 2.12E+00 1.83E+00	pCi/g pCi/g pCi/g pCi/g	Beta: 2.97E-06 Tritium: 1.73E-01	uCi/g pCi/g	Pu-238 Pu-239	4.08E-03 1.22E-02	pCi/g pCi/g
A253210-BG	Ac-228 Bi-212 Bi-214 Cs-137 Eu-152 K-40 Pb-212 Pb-214 Tl-208	1.72E+00 2.03E+00 2.73E+00 5.15E-02 9.47E-01 2.91E+01 2.20E+00 3.17E+00 5.37E-01	pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g pCi/g	Tritium: -3.44E-01	pCi/g	Pu-238 Pu-239	Not Detected 5.90E-03	NA pCi/g

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

NA = Not Applicable

4.19 SEPTIC SYSTEM A26CS (AREA 26-CHECK STATION)

4.19.1 FIELD OBSERVATIONS

Septic System A26CS is located in Area 26 north of Cane Springs Road (Figure 38). The system serviced the Check Station and Rad Safe Building 2105 (Figure 39). The system consists of one steel tank with a capacity of approximately 3,785 liters (1,000 gallons). It could not be determined in the field if the tank had a separation chamber. The east (influent) manway was exposed by hand excavation in order to sample the tank. The tank contained approximately 1,514 liters (400 gallons) of liquid. Liquid Sample A26CS-T-L was collected on July 27, 1994. Beryllium was also analyzed for in the tank and leachfield samples since former facility personnel indicated that beryllium was used in past operations (Sorum, 1994).

A background soil sample (A26CS-BG) was collected approximately 23 meters (75 feet) north of the tank on September 7, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface and consisted of sandy silt with gravel, was medium brown in color, and was dry.

The distribution box and associated leachfield are located directly south west of the tank. One soil sample (A26CS-LF-1) was collected below the first identified pipe perforation on March 15, 1995. The soil consisted of sandy silt, was medium brown in color, and was damp. A headspace reading of 4.6 ppm was recorded and no odors or staining was noted. Laboratory analytical results are summarized in Table 21A.

4.19.2 ANALYTICAL RESULTS

4.19.2.1 INORGANIC COMPOUNDS

Septic Tank (Liquid)

Barium was detected at a concentration of 0.064 mg/l (total) which is below TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). Beryllium was not detected above laboratory detection limits.

The pH of the tank sample was 8.41 units. This value is not hazardous under 40 CFR 261.22 (corrosivity).

Oil and grease was detected at 0.1 mg/l. This value does not exceed the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.82 mg/l. This result is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l). Beryllium was not detected above laboratory detection limits.

The pH of the sample was 7.60 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to

liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at a concentration of 10 mg/kg. This value does not exceed the REECO WMD allowable limits for discharge of liquid into the Area 23 Sewage Lagoon.

Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic for the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.58 mg/l which is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.49 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.19.2.2 VOLATILE ORGANIC COMPOUNDS

Septic Tank (Liquid)

Methylene chloride was detected at a concentration of 0.005 mg/l (total). This concentration is at the minimum concentration range for water in the proposed 40 CFR Subpart S media protection standards. Methylene chloride is also considered a common laboratory contaminant by the EPA.

1,4-dichlorobenzene was detected at a concentration of 0.02 mg/l which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l).

Leachfield Soil Sample

TCLP VOCs were not detected above laboratory detection limits in Sample A26CS-LF-1.

Background Soil Sample

TCLP VOCs were not detected above laboratory detection limits in Sample A26CS-BG.

4.19.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

1,4-dichlorobenzene was detected in tank Sample A26CS-T-L at a concentration of 0.013 mg/l (total) which is below the TCLP Action Level (7.5 mg/l) and the NDEP guidance level (0.75 mg/l). Semi-VOCs were not detected above laboratory detection limits in the leachfield soil sample or background soil sample.

4.19.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.19.2.5 POLYCHLORINATED BIPHENYLS

PCBs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.19.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The tank, leachfield soil sample, or background soil sample did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 21B.

4.19.3 SUMMARY AND RECOMMENDATIONS

Existing Federal Action Levels or NDEP guidance levels were not exceeded in the tank, leachfield soil sample, or background soil sample. However, methylene chloride was detected in the tank sample at the minimum concentration range for water in the proposed 40 CFR Subpart S regulations. Since methylene chloride was detected at such a low concentration and based upon the fact that it is a common laboratory contaminant, it is recommended that the system be closed as a domestic sewage system under NSHD guidelines.

REEC_o

FIGURE 38 SITE MAP - SEPTIC TANK A26CS

SOURCE: USGS SKULL MOUNTAIN, NEV. 7.5' QUADRANGLE, 1983

FIGURE 39
LOCATION OF SEPTIC TANK A26CS

TABLE 21A - SEPTIC SYSTEM A26CS: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS ^D (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/l or mg/kg)	OIL & GREASE ^H (mg/l or mg/kg)	Beryllium ^I (mg/l or mg/kg)
	GASOLINE (mg/l or mg/kg)	DIESEL (mg/l or mg/kg)	OIL (mg/l or mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)				
A26CS-T-L	<5.0	<0.5	<0.5	Methylene Chloride 0.005 1,4-Dichlorobenzene 0.02	1,4 Dichloro benzene 0.013	Ba 0.064	NA	NA	NA	8.41	<0.0005	0.1	ND
A26CS-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.82	7.60	<0.5	10	ND
A26CS-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.58	7.49	<0.167	<10.0	NA

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080.

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

^I Beryllium: Analyzed by ICP.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-07-067: A26CS-T-L: TPH, VOCs, Semi-VOCs, Metals, pH, PCBs, Oil & Grease, Radioanalytical

94-09-014: A26CS-BG: Oil & Grease

94-09-019: A26CS-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A26CS-BG: TCLP:VOCs, Semi-VOCs

94-09-021: A26CS-BG: TPH, PCBs

95-03-025: A26CS-LF-1: TPH, TCLP:VOCs, Semi-VOCs, Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 21B - SEPTIC SYSTEM A26CS: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A26CS-T-L	Cs-137	7.84E-08	uCi/cc	Tritium:		Pu-238	-4.00E+00	uCi/cc
	K-40	2.00E-07	uCi/cc	2.95E-07	uCi/cc	Pu-239	Not Detected	NA
A26CS-LF-1	K-40	2.08E+01	pCi/g	Beta:		Pu-238	-2.58E-03	pCi/g
	Ra-226	7.68E-01	pCi/g	4.90E-06	uCi/g	Pu-239	-2.48E-03	pCi/g
	Th-228	1.79E+00	pCi/g	Tritium:				
	Th-232	1.61E+00	pCi/g	1.38E+00	pCi/g			
A26CS-BG	Ac-228	1.61E+00	pCi/g	Tritium:		Pu-238	Not Detected	NA
	Bi-212	1.97E+00	pCi/g	1.14E-01	pCi/g	Pu-239	2.87E-02	pCi/g
	Bi-214	5.26E+00	pCi/g					
	K-40	2.42E+01	pCi/g					
	Pb-212	1.90E+00	pCi/g					
	Pb-214	6.76E+00	pCi/g					
	Tl-208	4.80E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

uCi/cc = microcuries per cubic centimeter

NA = Not Applicable

4.20 SEPTIC SYSTEM A26HCF (AREA 26-HOT CRITICAL FACILITY)

4.20.1 FIELD OBSERVATIONS

Septic System A26HCF is located in Area 26 south of Cane Springs Road east of the "Port Gaston" Training Facility (Figure 40). The system serviced the Hot Critical Facility Building 2103 (Figure 41). The system consists of one concrete tank with an approximate capacity of 2,460 liters (650 gallons). The tank did not have a separation chamber. A single manway cover was exposed by hand excavation in order to sample the tank. Influent and effluent lines inside the tank were sealed with concrete. The tank contents were dry and medium brown in color. One solid sample (A26HCF-T-S) was collected on July 27, 1994. Beryllium was also analyzed for in the tank and leachfield samples since former facility personnel indicated that beryllium was used in past operations (Sorum, 1994).

A background soil sample (A26HCF-BG) was collected approximately 21 meters (70 feet) east of the tank on September 7, 1994. The sample was collected from approximately 0.46 meters (1.5 feet) below the ground surface and consisted of sandy silt with gravel, was medium brown in color, and was dry.

The distribution box and associated leachfield are located directly north of the tank. One soil sample (A26HCF-LF-1) was collected below the first identified perforation on March 15, 1995. The soil consisted of silty sand with gravel, was medium brown in color, and was slightly moist. A headspace reading of 0.0 ppm was recorded and no odors were noted. Laboratory analytical results are summarized in Table 22A.

4.20.2 ANALYTICAL RESULTS

4.20.2.1 INORGANIC COMPOUNDS

Septic Tank (Solid)

Barium and cadmium were detected at TCLP concentrations of 0.38 mg/l and 0.022 mg/l, respectively. The barium and cadmium concentrations are below the TCLP Action Levels of 100 mg/l and 1.0 mg/l, respectively. The concentrations are also below NDEP guidance levels of 10 mg/l and 0.1 mg/l, respectively. Beryllium was detected at a concentration of 0.59 mg/kg. This concentration exceeds the proposed 40 CFR Subpart S Action Level of 0.2 mg/kg for soil.

The pH of the tank sample was 6.85 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the tank solids.

Oil and grease was detected at 200 mg/kg. This value exceeds the REECO WMD allowable limits for discharge for the Area 23 Sewage Lagoon. Although the

sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic for the tank solids.

Leachfield Soil Sample

Barium was detected at a TCLP concentration of 0.85 mg/l. This result is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 7.70 units. This value is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for the leachfield soils.

Oil and grease was detected at 10 mg/kg. This value does not exceed the REECO WMD allowable limits (100 mg/l) for discharge for the Area 23 Sewage Lagoon. Although the sewage lagoon limit refers to liquids, it is used here to provide an indication of the oil and grease characteristic for the leachfield soils.

Background Soil Sample

Barium was detected at a TCLP concentration of 0.58 mg/l. This result is below the TCLP Action Level (100 mg/l) and the NDEP guidance level (10.0 mg/l).

The pH of the sample was 8.11 units and is not hazardous under 40 CFR 261.22 (corrosivity). Although the corrosivity characteristic refers to liquids only, it is used here to provide an indication of the pH waste characteristic for background soils.

4.20.2.2 VOLATILE ORGANIC COMPOUNDS

TCLP VOCs were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.20.2.3 SEMI-VOLATILE ORGANIC COMPOUNDS

TCLP Semi-volatile organic compounds were not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.20.2.4 TOTAL PETROLEUM HYDROCARBONS

TPH was not detected above laboratory detection limits in the tank, leachfield soil sample, or background soil sample.

4.20.2.5 POLYCHLORINATED BIPHENYLS

PCBs were detected in the tank sample at a concentration of 0.208 mg/kg. This concentration is below the Federal Action Level of 10 mg/kg.

4.20.2.6 RADIOANALYTICAL DATA

Radioanalytical samples were collected for analysis of gamma, tritium, and plutonium. The tank, leachfield, and background soil samples did not exceed ORERP and EPA guidance levels (Appendix B). Radioanalytical results are summarized in Table 22B.

4.20.3 SUMMARY AND RECOMMENDATIONS

Existing Federal Action Levels and NDEP guidance levels were not exceeded in samples from the tank contents, leachfield, or background soils. However, the beryllium concentration of the tank contents exceeds the proposed 40 CFR Subpart S Action Level of 0.2 mg/kg for soil. Based upon the laboratory analytical data, concurrence for system closure as a domestic sewage system will be required from NDEP due to the beryllium detected.

TABLE 22A - SEPTIC SYSTEM A26HCF: SUMMARY OF ANALYTICAL RESULTS

SAMPLE ID	TOTAL PETROLEUM HYDROCARBONS ^A			VOCs ^B (mg/l)	SEMI- VOCs ^C (mg/l)	TOTAL METALS (mg/l)	TCLP ^E			pH ^F	PCBs ^G (mg/kg)	OIL & GREASE ^H (mg/kg)	Beryllium ^I (mg/kg)
	GASOLINE (mg/kg)	DIESEL (mg/kg)	OIL (mg/kg)				VOCs (mg/l)	SEMI-VOCs (mg/l)	METALS (mg/l)				
A26HCF-T-S	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.38 Cd 0.022	6.85	0.208**	200	0.59
A26HCF-LF-1	<1.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.85	7.70	<0.5	10	ND
A26HCF-BG	<5.0	<10.0	<10.0	NA	NA	NA	ND	ND	Ba 0.58	8.11	<0.167	<10.0	NA

^A TPH: Total petroleum hydrocarbons (gasoline, diesel, & oil) analyzed using U.S. EPA Method 8015 Modified.

^B VOCs/TCLP VOCs: Volatile organic compounds analyzed using U.S. EPA Method 8260.

^C Semi-VOCs/TCLP Semi-VOCs: Semi-Volatile Organic Compounds analyzed using U.S. EPA Method 8270.

^D Metals/TCLP Metals: Metals analyzed using U.S. EPA Method 7470. Extraction by Method 1311.

^E TCLP: Toxicity Characteristic Leaching Procedure (40 CFR, Part 261.24).

^F pH: Analyzed using U.S. EPA Method 1010.

^G PCBs: Polychlorinated Biphenyls analyzed using U.S. EPA Method 8080 (**Aroclor 1254).

^H Oil & Grease: Analyzed using U.S. EPA Method 503E.

^I Beryllium: Analyzed by ICP.

ND: Not detected above laboratory detection limits.

NA: Not analyzed

(mg/l or mg/kg): Milligrams per Liter (for liquid), Milligrams per Kilogram (for soil)
(Based upon matrix analyzed)

The analytical packets for the above sample results are as follows:

94-07-067: A26HCF-T-S: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

94-09-014: A26HCF-BG: Oil & Grease

94-09-019: A26HCF-BG: TCLP-Metals, pH, Radioanalytical

94-09-020: A26HCF-BG: TCLP:VOCs,Semi-VOCs

94-09-021: A26HCF-BG: TPH, PCBs

95-03-025: A26HCF-LF-1: TPH, TCLP:VOCs,Semi-VOCs,Metals, pH, PCBs, Oil & Grease, Radioanalytical

TABLE 22B - SEPTIC SYSTEM A26HCF: SUMMARY OF RADIOANALYTICAL RESULTS

SAMPLE ID	GAMMA			BETA / TRITIUM		PLUTONIUM		
	NUCLIDES	VALUE	UNITS	VALUE	UNITS	NUCLIDES	VALUE	UNITS
A26HCF-T-S	Cs-137	3.33E-08	uCi/g	Tritium:		Pu-238	-7.35E-09	uCi/g
	K-40	2.31E-05	uCi/g	-1.75E-06	uCi/g	Pu-239	8.08E-08	uCi/g
A26HCF-LF-1	K-40	2.23E+01	pCi/g	Beta:		Pu-238	-3.13E-03	pCi/g
	Ra-226	1.13E+00	pCi/g	2.12E-06	uCi/g	Pu-239	3.42E-03	pCi/g
	Th-228	2.01E+00	pCi/g	Tritium:				
	Th-232	1.33E+00	pCi/g	4.32E+00	pCi/g			
A26HCF-BG	Ac-228	1.66E+00	pCi/g	Tritium:		Pu-238	Not Detected	NA
	Bi-212	2.07E+00	pCi/g	2.34E+00	pCi/g	Pu-239	Not Detected	NA
	Bi-214	5.80E+00	pCi/g					
	K-40	2.49E+01	pCi/g					
	Pb-212	2.02E+00	pCi/g					
	Pb-214	7.39E+00	pCi/g					
	Tl-208	5.34E-01	pCi/g					

Notes:

pCi/g = picocuries per gram

uCi/g = microcuries per gram

NA = Not Applicable

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Soils generated during field activities were placed back into the respective tank or leachfield excavation. Based upon the leachfield soil sample results (very low to not detectable concentrations), process knowledge was used to determine that the rinseate was acceptable to discharge into the Area 23 Sewage Lagoon. The rinseate was disposed into the Mercury Sewage Lagoon on July 17, 1995, with REECO WMD prior approval.

A total of 20 abandoned septic systems were investigated for preliminary characterization. Of the 20 sites, 19 were located and characterized through samples collected from each tank(s) and associated leachfields (where applicable). In addition, background soil samples were collected from sites where the septic tank had and associated leachfield.

A total of 33 tanks were sampled for the liquid and/or solid phases present. Fourteen leachfields were identified and sampled. Samples were evaluated to characterize the septic system as having domestic, non-domestic, elevated hydrocarbon concentrations (above NAC Action Level), hazardous, radioactive, or mixed waste.

5.2 RECOMMENDATIONS

Of the 33 tanks sampled, 11 contained domestic sewage constituents. The tanks can be closed under NSHD guidelines. The remaining 22 tanks contained material which was; non-domestic, hazardous, hydrocarbon containing, or radioactive. The systems characterized did not contain mixed waste. Some of these 22 systems contain a combination of the described materials (ie. hazardous and hydrocarbon containing). It is recommended that these 22 systems be closed under a separate Work Plan per NDEP guidelines (NDEP, 1994). A summary of individual tank waste characterization and closure authority for each site is provided in Table 23A. A summary of findings for overall waste characterization is provided in Table 23B.

Concentrations exceeding Federal Action Levels and NDEP guidance levels were not detected in the leachfields sampled. However, additional sampling of leachfields is recommended to be conducted at sites where the septic tank contained hazardous, hydrocarbon, or Subpart S constituents exceeding Regulatory Action Levels. Additional characterization will verify if the septic tank discharged constituents with concentrations exceeding Action Levels into the associated leachfield.

TABLE 23A - SUMMARY OF SEPTIC SYSTEM PRELIMINARY WASTE CHARACTERIZATION AND CLOSURE AUTHORITY

TANK IDENTIFICATION	TANK CAPACITY (EST. GAL.)	TANK CONTENTS (EST. GAL.)	PHASE SAMPLED	LEACHFIELD ASSOCIATED WITH SEPTIC TANK	IDENTIFIED WASTE CHARACTERISTIC ¹	RECOMMENDED CLOSURE AUTHORITY ²
A5TRA-T	7,500	3,600	Liquid	No	Domestic	NSHD
A5TRA-T2	7,500	3,600	Liquid	No	Domestic	NSHD
A5TRA-T3	7,500	3,600	Liquid	No	Domestic	NSHD
A5TRA-T4	7,500	3,600	Liquid	No	Domestic	NSHD
A121-T	7,500	3,750	Liquid & Sludge	No	Hazardous	NDEP
A121-T2	7,500	3,750	Liquid & Sludge	No	Hydrocarbon & Non Domestic	NDEP
A121-T3	7,500	3,750	Liquid & Sludge	No	Hydrocarbon	NDEP
A121-T4	7,500	3,750	Liquid & Sludge	No	Hydrocarbon	NDEP
A124-TW	7,500	5,000	Liquid & Sludge	No	Hazardous	NDEP
A124-T2	7,500	5,000	Liquid & Sludge	No	Hydrocarbon	NDEP
A124-T3	7,500	5,000	Liquid & Sludge	No	Hydrocarbon	NDEP
A124-TE	7,500	5,000	Liquid	No	Domestic	NSHD
A124-TE2	7,500	5,000	Liquid & Sludge	No	Hazardous & Hydrocarbon	NDEP
A125-T	7,500	3,500-5,000	Liquid	No	Domestic	NSHD
A125-T2	7,500	3,500-5,000	Liquid	No	Domestic	NSHD
A125-T3	7,500	3,500-5,000	Liquid & Sludge	No	Hydrocarbon & Non Domestic	NDEP
A125-T4	7,500	3,500-5,000	Liquid & Sludge	No	Hydrocarbon & Non Domestic	NDEP
A125-T5	7,500	3,500-5,000	Liquid & Sludge	No	Non Domestic	NDEP
A125-T6	7,500	3,500-5,000	Liquid & Sludge	No	Non Domestic	NDEP
A25BRE-T	760	500	Liquid	Yes	Domestic	NSHD
A15EPA-T	1,000	800	Liquid & Sludge	Yes	Hydrocarbon	NDEP
A25ETS-T	7,500	Dry	Solid	Yes	Non Domestic	NDEP
A25J5	750	Not Located	--	Pit	--	--
A25PAN-T	750	375	Liquid & Sludge	Yes	Hydrocarbon	NDEP

TANK IDENTIFICATION	TANK CAPACITY (EST. GAL.)	TANK CONTENTS (EST. GAL.)	PHASE SAMPLED	LEACHFIELD ASSOCIATED WITH SEPTIC TANK	IDENTIFIED WASTE CHARACTERISTIC ¹	RECOMMENDED CLOSURE AUTHORITY ²
A25RAD-T	650	Dry	Solid	Yes	Low Level Rad & Non Domestic	NDEP
A25RCPGA-T	7,500	3,500	Liquid & Sludge	Yes	Non Domestic	NDEP
A25SS-T	400	50	Liquid & Sludge	Yes	Low Level Rad & Non Domestic	NDEP
A25TCA-T	400	Dry	Solid	Yes	Hydrocarbon & Non Domestic	NDEP
A25TCC1-T	750	150	Liquid	Yes	Domestic	NSHD
A25TCC2-T	1,500	750	Liquid & Sludge	Yes	Hazardous & Hydrocarbon	NDEP
A25TRA-T	7,500	3,500	Liquid & Sludge	Yes	Non Domestic	NDEP
A253210-T	1,000	100	Liquid	Yes	Domestic	NSHD
A26CS-T	1,000	400	Liquid	Yes	Domestic	NSHD
A26HCF-T	650	Dry	Dry Solid	Yes	Non Domestic	NDEP

-- Not Applicable

¹ **Hazardous Waste** - Compounds exceeding Federal Action Levels.

Hydrocarbon Waste - Total petroleum hydrocarbons (gasoline, diesel, or oil) exceeding State Action Levels

Non Domestic Waste - VOCs, Semi-VOCs, Metals, or PCBs exceeding NDEP Guidance Levels.

Low Level Radioactive - Radioactive isotopes exceeding Department of Energy Offsite Radiation Exposure Review Project Study (ORERP) and the Environmental Protection Agency (EPA) Drinking Water Standards.

² **NSHD** - Nevada State Health Division

NDEP - Nevada Division of Environmental Protection

TABLE 23B - SUMMARY OF FINDINGS FOR SEPTIC SYSTEM PRELIMINARY WASTE CHARACTERIZATION

WASTE TYPE IDENTIFIED IN SEPTIC SYSTEMS INVESTIGATED ^A	NUMBER OF TANKS	ESTIMATED WASTE VOLUME ^B (GALLONS)
Domestic (can be closed)	11	30,550
Hazardous	2	14,500
Hazardous With Petroleum Hydrocarbons	2	
Petroleum Hydrocarbons	6	32,425
Petroleum Hydrocarbons & Non Domestic Waste ^C	4	
Non Domestic	6	17,550 ^D
Low Level Radioactive & Non Domestic Waste	2	100 ^D
Mixed Waste	0	0

^AWaste type consists of both liquid and/or solid phase.

^BEstimated waste volumes are from field observations only. Specific volumes were not gauged or measured.

^CNon domestic waste may likely be managed as a petroleum hydrocarbon waste if it meets landfill criteria and is solidified. Some waste may be treated using the Mercury Landfill Package Treatment Plant and discharged into the Mercury Sewage Lagoon.

^DIncludes an estimated quantity of dry solids within septic tank (as applicable).

Hazardous Waste - Compounds exceeding Federal Action Levels.

Hydrocarbon Waste - Total petroleum hydrocarbons (gasoline, diesel, or oil) exceeding State Action Levels.

Non Domestic Waste - VOCs, Semi-VOCs, Metals, or PCBs exceeding NDEP Guidance Levels.

Low Level Radioactive - Radioactive isotopes exceeding Department of Energy Offsite Radiation Exposure Review Project Study (ORERP) and the Environmental Protection Agency (EPA) Drinking Water Standards.

6.0 REFERENCES

AEC, 1962, Engineering Drawing-Miscellaneous Projects NRDS, J-5 Warehouse. FMBF-15.

NDEP, 1994, Letter from Paul J. Liebendorfer to Donald R. Elle, Septic Tank and Leachfield Closures; November 1, 1994.

ORERP, 1989, Offsite Radiation Exposure Review Project Phase II Soils Program. Desert Research Institute, University of Nevada System, Publication 45064, December 1989.

Sorom, Fred, Personnel Communication, July 25, 1994.

REECo, 1992, Work Plan, Phase 1 Preliminary Characterization of Abandoned Septic tank Systems, Reynold Electrical and Engineering Company, Environmental Restoration and Waste Management Division, Environmental Remediation Section

U.S. DOE, 1990, Environment Safety and Health, 1990, Compliance Assessment of the Nevada Test Site. Tiger Team Finding SW/CF-3; DOE/EH-0115.

U.S. EPA, 1976, National Interim Primary Drinking Water Regulations, Environmental Protection Agency Office of Water Supply (EPA 570/9-76-003), July 9, 1976.

U. S. EPA, 1995, 40 CFR Part 261, Toxicity Characteristic.

U.S. EPA, 1990; 40 CFR Subpart S, Corrective Action for Solid Waste Management Units at Hazardous Waste Facilities, 55 FR 30798; July 27, 1990, proposed rule.

U. S. Fish and Wildlife Service (U.S.FWS), 1992, The Nevada Test Site Biological Opinion Terms and Conditions, 1992-1995.

APPENDIX A

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION:
GUIDANCE LEVELS FOR CLOSURE LETTER

L. H. DODGION
Administrator

STATE OF NEVADA
BOB MILLER
Governor

PETER G. MORROS
Director

Administration (702) 687-4670
Air Quality 687-5065
Mining Regulation and Reclamation 687-4675
Water Quality Planning 687-5883
Water Pollution Control 687-5870
Fax 687-5856

Waste Management 687-5872
Chemical Hazards Management 687-5872
Federal Facilities 687-5872
Fax 885-0868

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION

Capitol Complex
333 W. Nye Lane
Carson City, Nevada 89710

November 1, 1994

Donald R. Elle, Ph.D., Director
U.S. Department of Energy
P.O. Box 98518
Nevada Operations Office
Las Vegas, NV 89193-8518

RE: Septic Tank Closures; Leachfield Closures

Dear Dr. Elle:

On 15 March 1993, the 8 October 1992 Work Plan for Phase I Preliminary Characterization of Abandoned Septic Tank Systems was submitted for review and comment. On 27 May 1993, comments were forwarded for resolution. In the review of the Work Plan, my staff was guided by the statement in the Scope on page 4, which reads in part, "Each septic tank and associated leach field will be sampled for evidence of...waste." This compound sentence was taken as a statement that each septic tank will be sampled and each leachfield will be sampled; the entirety of the Work Plan was reviewed in that context and comments were based upon that reading. Task 3 of the Work Plan essentially commits to sampling all leachfields as a task separate from sampling the content of discrete septic tanks (Task 2).

In the process of reviewing the information packets ensuing from Task 1 and Task 2 of the Phase I Work Plan, the issue of determining the character of residues in leachfields based upon the character of the residue in its tank requires clarification. The context of this letter clarifies the issue of divorcing the septic tank from its leachfield and also addresses the issue of apparent uncertainty in allocation of state regulatory authorities. This letter should not affect the conduct of Task 1 or Task 2 of the Phase I Work Plan. Consideration of possible affect upon Task 3 will defer until leachfield sampling is scheduled, at which time the leachfield sampling protocols will again be reviewed for conformance with regulatory intent.

RECEIVED

NOV 2 2 45 PM '94

RECO
CENTRAL FILE

94-11-2704
MHS 20
Leachfield
X MHS 2001

My staff will apply the following rules when making a determination of eligibility of septic tanks systems, which includes the associated leachfields, for closure under Division of Health (DOH) authority.

1. A septic tank, leachfield, and customary appurtenances, i.e., the system, which is shown to have received, treated, and disposed only domestic sewage will close under the authority of the DOH. The NDEP forgoes its current and future interest in those purely domestic sewage systems.
2. Closure of a septic tank system will remain under NDEP authority where the system is found, either by process knowledge or historic usage or analysis of tank content, to contain:
 - (a) a non-domestic sewage constituent in concentration greater than 10 fold its Nevada Drinking Water Standard (NDWS); or
 - (b) a hazardous waste constituent in concentration greater than one tenth its TCLP regulatory limit; or
 - (c) a total petroleum hydrocarbon (TPH) concentration greater than 100 mg/Kg (a liter is assumed equal to a kilogram).

Septic tank systems which show lesser numerical concentrations than those in (a), (b) or (c) and which process knowledge reasonably affirms only domestic sewage was received will be released to the closure authority of the DOH.

Leachfields which do not serve a domestic sewage septic tank system are deemed industrial waste water disposal devices. These disposal devices (and ancillaries such as grease traps, SOWs, etc.) will be included in Task 3 of the Phase I Work Plan and will remain under NDEP regulatory authority.

Sincerely,

A handwritten signature in cursive script, reading "Paul J. Liebendorfer".

Paul J. Liebendorfer, P.E.
Chief
Bureau of Federal Facilities

cc: Dean Mierau, NDEP/BoFF
Al Tinney, DOH/BHPS
Howard Dickson, REECO
Steve Nacht, REECO/WMD ~~960~~

APPENDIX B
FIELD NOTES

From Page No. _____

13:15

FINISHED REMOVING 6 RSTEO UNITS & BOLTS FROM A25 TRA.
TANK VERY LARGE W/NOT OF WATER INSIDE - NO VOC'S NO RSTEO.
REMOVED 2 BOLTS FROM SEENHART.

13:25

ARRIVED @ A25 3210 - NOTHING PICKED UP BY LUNDS. ASSESS TO
HAND DIG IN AREA ESTIMATED BY P. GRANT.

13:40

HAND EXCAVATED TO ~1.5' HAND DIGGING - WILL RETURN W/JACK HAMMER
AND PROBE VOC'S.

13:50

AT A25 TCC1 OPENED DISTRIBUTION BOX SAME WATER INSIDE
BOX HAS 3 LINES STARTING N.E.S. SIDE IS 1 LG (6" DIA) LINE FROM
WEST SIDE. OPENED MANHOLE - 1 LG CONCRETE LINE 1/4 BUREAU W/ WASTE
NO PRO. NO VOC'S. WILL RETURN TO EXCAVATE S. OF DIST.
BOX W/JACK HAMMER - PICKED UP SOME STAINING W/ WASTE

14:25

TRIED TO LOCATE A25 TCC2 PICKED UP SOME STAINING W/ WASTE W/ WASTE
DIGGING - WILL WAIT TO USE JACK HAMMER. (WILL BE DROPPED OFF @ LINDS CATERING)
GOING TO AREA 5 CHECK A25 TRA FOR ACCESS & PRO. PRESENT.

14:40

PLACING CONE WITH A25 PRO. OPENING PRIOR TO GOING OUT TO AREA 5.

15:15

ARRIVE A25 PRO. W/ HELICOPTER. LADDER SET WITH CAMEL UP AREA
CAMEL W/ PRO. COMPASSING WALK TO TANKS W/ STAINING. ALL PREPARED
2 CONES EXPOSED BUT DOTTED DATA.

15:45

LADDER ARRIVES - LET HELICOPTER GO - PREPARED CHECK O.K. FOR A25 TRA.
HOLDING EXCAVATION CONES - 4 THICK CONES EXPOSED. WILL
CONTINUE TO EXPOSE CONES & REMOVE BOLTS BUT WILL NOT REMOVE
LID.

16:20

LEAVE SITE WILL MEET LADDER AT A25 PRO. IN A.M.
DIST WILL CONTINUE TO PROVIDE ACCESS TO TANKS.

Handwritten signature and date: 6/20/94

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & U _____

From Page No. _____

TITLE _____

21-

8:30

9:00

9:00

9:00

10:00

12:00

13:00

15:00

16:15

15:00

TITLE _____

From Page No. _____

6-20-94 Area 25 SPTC Tank work.

7:10 S. HANSEN AT OFFICE

7:20 HAS MTC w/MIKE, LIPSTADT, HOPPER, CLYDE, HANSEN & BOON

LIPSTADT HAS SIGNED TANKS SAFETY SHEET

7:50 LOANED MERCURY TO AREA 25.

(PRESCHEDULED)

8:20 ARRIVED @ GARD SHACK - AWAITING LABORERS. CHECKED A25SS

WHILE WAITING - NO RAD.; P.D. = 1.5 ppm

[Small snakes on piping in lounge]

8:30 MET w/BOON GRANT AT A25RAD - DISCUSSED AT-RISK LOCATION

OF SPTC SYSTEMS. STILL WAITING ON LABORERS. ONLY GET THEM

STARTED AT A25RAD. I WILL GO w/BOON TO REVIEW OTHER SITES.

9:00 9:15: VACUUM TANK - APPEARS DRY - VENT PIPING AROUND TOP - NO

PIPINGS ON INSIDE OF TANK IS ~ 3' BGS. PIPING RENEW

AROUND PERIMETER

9:40 SHOWED CROW LOCATION OF A25 PCPGA, A25 TRA & A25 PAN

TANK LOCATION. LEFT w/BOON TO LOCATE POSS. LOCATION OF REMAINING

TANKS.

10:45 RETURN FROM LOCATING TEST CELL C TANK LOCATIONS. ATTEMPTED TO

GET INTO BROW TOWER - GIVE LOCATION. BOON WENT BACK TO MERCURY

WILL NEED BACKHOE TO EXCAVATE A25 PCPGA AREA. DIST. Bdy.

SHOWS IN COMING LINE @ ~ 5-6' BGS. MOVE AT SITE TO A25 PAN.

10:55 STARTED EXCAVATING DIR. AREA @ POSS. LOCATION OF A25 PAN.

ESTIMATED TANK LOC. FROM WITHIN 10' WOUNDS. SOIL TOO

HARD TO HAVE P.G. CROW WENT TO A25 YARD TO GET SMITH

STEEL HAMMER.

11:55 EXCAVATE A25 PAN TO ~ 3.5' BGS - NO EVIDENCE OF TANK. WILL USE

BACKHOE TO EXCAVATE FURTHER. BACKHOE UNIT

12:30 RETURN FROM WORK - CONSIDER A25 PAN w/ROAD E

12:45 MOVE TO A25 TRA TO BOON BOLTS

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

TITLE _____

From Page No. _____

6/21/94 SECURE TANKS

8:30 Arrived @ ASTRA to meet LABAREE & CAPTAIN THAKUR EXPLORE
& BOB PONDARA.9:05 CREW NOT AT TANK SITE. RETURNED TO MERCURY & TRUCK TO
CONTACT M. LIPSTADT - NOT AVAILABLE.9:25 LOCATED CREW IN MERCURY ASSISTANT LOADING SUPPLIES ON TRUCK
W/IN 1000' SOUTH ON SITE (ASTRA)

9:45 Arrive @ ASTRA. CREW NOT HERE YET.

10:00 CREW ARRIVES

12:00 WDS. VULNERABLE FRAMES 2 OF THE 4 TANKS. (1.2.3.4.5.6.7.8.9.10.11.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.32.33.34.35.36.37.38.39.40.41.42.43.44.45.46.47.48.49.50.51.52.53.54.55.56.57.58.59.60.61.62.63.64.65.66.67.68.69.70.71.72.73.74.75.76.77.78.79.80.81.82.83.84.85.86.87.88.89.90.91.92.93.94.95.96.97.98.99.100.101.102.103.104.105.106.107.108.109.110.111.112.113.114.115.116.117.118.119.120.121.122.123.124.125.126.127.128.129.130.131.132.133.134.135.136.137.138.139.140.141.142.143.144.145.146.147.148.149.150.151.152.153.154.155.156.157.158.159.160.161.162.163.164.165.166.167.168.169.170.171.172.173.174.175.176.177.178.179.180.181.182.183.184.185.186.187.188.189.190.191.192.193.194.195.196.197.198.199.200.201.202.203.204.205.206.207.208.209.210.211.212.213.214.215.216.217.218.219.220.221.222.223.224.225.226.227.228.229.230.231.232.233.234.235.236.237.238.239.240.241.242.243.244.245.246.247.248.249.250.251.252.253.254.255.256.257.258.259.260.261.262.263.264.265.266.267.268.269.270.271.272.273.274.275.276.277.278.279.280.281.282.283.284.285.286.287.288.289.290.291.292.293.294.295.296.297.298.299.300.301.302.303.304.305.306.307.308.309.310.311.312.313.314.315.316.317.318.319.320.321.322.323.324.325.326.327.328.329.330.331.332.333.334.335.336.337.338.339.340.341.342.343.344.345.346.347.348.349.350.351.352.353.354.355.356.357.358.359.360.361.362.363.364.365.366.367.368.369.370.371.372.373.374.375.376.377.378.379.380.381.382.383.384.385.386.387.388.389.390.391.392.393.394.395.396.397.398.399.400.401.402.403.404.405.406.407.408.409.410.411.412.413.414.415.416.417.418.419.420.421.422.423.424.425.426.427.428.429.430.431.432.433.434.435.436.437.438.439.440.441.442.443.444.445.446.447.448.449.450.451.452.453.454.455.456.457.458.459.460.461.462.463.464.465.466.467.468.469.470.471.472.473.474.475.476.477.478.479.480.481.482.483.484.485.486.487.488.489.490.491.492.493.494.495.496.497.498.499.500.501.502.503.504.505.506.507.508.509.510.511.512.513.514.515.516.517.518.519.520.521.522.523.524.525.526.527.528.529.530.531.532.533.534.535.536.537.538.539.540.541.542.543.544.545.546.547.548.549.550.551.552.553.554.555.556.557.558.559.560.561.562.563.564.565.566.567.568.569.570.571.572.573.574.575.576.577.578.579.580.581.582.583.584.585.586.587.588.589.590.591.592.593.594.595.596.597.598.599.600.601.602.603.604.605.606.607.608.609.610.611.612.613.614.615.616.617.618.619.620.621.622.623.624.625.626.627.628.629.630.631.632.633.634.635.636.637.638.639.640.641.642.643.644.645.646.647.648.649.650.651.652.653.654.655.656.657.658.659.660.661.662.663.664.665.666.667.668.669.670.671.672.673.674.675.676.677.678.679.680.681.682.683.684.685.686.687.688.689.690.691.692.693.694.695.696.697.698.699.700.701.702.703.704.705.706.707.708.709.710.711.712.713.714.715.716.717.718.719.720.721.722.723.724.725.726.727.728.729.730.731.732.733.734.735.736.737.738.739.740.741.742.743.744.745.746.747.748.749.750.751.752.753.754.755.756.757.758.759.760.761.762.763.764.765.766.767.768.769.770.771.772.773.774.775.776.777.778.779.780.781.782.783.784.785.786.787.788.789.790.791.792.793.794.795.796.797.798.799.800.801.802.803.804.805.806.807.808.809.810.811.812.813.814.815.816.817.818.819.820.821.822.823.824.825.826.827.828.829.830.831.832.833.834.835.836.837.838.839.840.841.842.843.844.845.846.847.848.849.850.851.852.853.854.855.856.857.858.859.860.861.862.863.864.865.866.867.868.869.870.871.872.873.874.875.876.877.878.879.880.881.882.883.884.885.886.887.888.889.890.891.892.893.894.895.896.897.898.899.900.901.902.903.904.905.906.907.908.909.910.911.912.913.914.915.916.917.918.919.920.921.922.923.924.925.926.927.928.929.930.931.932.933.934.935.936.937.938.939.940.941.942.943.944.945.946.947.948.949.950.951.952.953.954.955.956.957.958.959.960.961.962.963.964.965.966.967.968.969.970.971.972.973.974.975.976.977.978.979.980.981.982.983.984.985.986.987.988.989.990.991.992.993.994.995.996.997.998.999.1000.1001.1002.1003.1004.1005.1006.1007.1008.1009.1010.1011.1012.1013.1014.1015.1016.1017.1018.1019.1020.1021.1022.1023.1024.1025.1026.1027.1028.1029.1030.1031.1032.1033.1034.1035.1036.1037.1038.1039.1040.1041.1042.1043.1044.1045.1046.1047.1048.1049.1050.1051.1052.1053.1054.1055.1056.1057.1058.1059.1060.1061.1062.1063.1064.1065.1066.1067.1068.1069.1070.1071.1072.1073.1074.1075.1076.1077.1078.1079.1080.1081.1082.1083.1084.1085.1086.1087.1088.1089.1090.1091.1092.1093.1094.1095.1096.1097.1098.1099.1100.1101.1102.1103.1104.1105.1106.1107.1108.1109.1110.1111.1112.1113.1114.1115.1116.1117.1118.1119.1120.1121.1122.1123.1124.1125.1126.1127.1128.1129.1130.1131.1132.1133.1134.1135.1136.1137.1138.1139.1140.1141.1142.1143.1144.1145.1146.1147.1148.1149.1150.1151.1152.1153.1154.1155.1156.1157.1158.1159.1160.1161.1162.1163.1164.1165.1166.1167.1168.1169.1170.1171.1172.1173.1174.1175.1176.1177.1178.1179.1180.1181.1182.1183.1184.1185.1186.1187.1188.1189.1190.1191.1192.1193.1194.1195.1196.1197.1198.1199.1200.1201.1202.1203.1204.1205.1206.1207.1208.1209.1210.1211.1212.1213.1214.1215.1216.1217.1218.1219.1220.1221.1222.1223.1224.1225.1226.1227.1228.1229.1230.1231.1232.1233.1234.1235.1236.1237.1238.1239.1240.1241.1242.1243.1244.1245.1246.1247.1248.1249.1250.1251.1252.1253.1254.1255.1256.1257.1258.1259.1260.1261.1262.1263.1264.1265.1266.1267.1268.1269.1270.1271.1272.1273.1274.1275.1276.1277.1278.1279.1280.1281.1282.1283.1284.1285.1286.1287.1288.1289.1290.1291.1292.1293.1294.1295.1296.1297.1298.1299.1300.1301.1302.1303.1304.1305.1306.1307.1308.1309.1310.1311.1312.1313.1314.1315.1316.1317.1318.1319.1320.1321.1322.1323.1324.1325.1326.1327.1328.1329.1330.1331.1332.1333.1334.1335.1336.1337.1338.1339.1340.1341.1342.1343.1344.1345.1346.1347.1348.1349.1350.1351.1352.1353.1354.1355.1356.1357.1358.1359.1360.1361.1362.1363.1364.1365.1366.1367.1368.1369.1370.1371.1372.1373.1374.1375.1376.1377.1378.1379.1380.1381.1382.1383.1384.1385.1386.1387.1388.1389.1390.1391.1392.1393.1394.1395.1396.1397.1398.1399.1400.1401.1402.1403.1404.1405.1406.1407.1408.1409.1410.1411.1412.1413.1414.1415.1416.1417.1418.1419.1420.1421.1422.1423.1424.1425.1426.1427.1428.1429.1430.1431.1432.1433.1434.1435.1436.1437.1438.1439.1440.1441.1442.1443.1444.1445.1446.1447.1448.1449.1450.1451.1452.1453.1454.1455.1456.1457.1458.1459.1460.1461.1462.1463.1464.1465.1466.1467.1468.1469.1470.1471.1472.1473.1474.1475.1476.1477.1478.1479.1480.1481.1482.1483.1484.1485.1486.1487.1488.1489.1490.1491.1492.1493.1494.1495.1496.1497.1498.1499.1500.1501.1502.1503.1504.1505.1506.1507.1508.1509.1510.1511.1512.1513.1514.1515.1516.1517.1518.1519.1520.1521.1522.1523.1524.1525.1526.1527.1528.1529.1530.1531.1532.1533.1534.1535.1536.1537.1538.1539.1540.1541.1542.1543.1544.1545.1546.1547.1548.1549.1550.1551.1552.1553.1554.1555.1556.1557.1558.1559.1560.1561.1562.1563.1564.1565.1566.1567.1568.1569.1570.1571.1572.1573.1574.1575.1576.1577.1578.1579.1580.1581.1582.1583.1584.1585.1586.1587.1588.1589.1590.1591.1592.1593.1594.1595.1596.1597.1598.1599.1600.1601.1602.1603.1604.1605.1606.1607.1608.1609.1610.1611.1612.1613.1614.1615.1616.1617.1618.1619.1620.1621.1622.1623.1624.1625.1626.1627.1628.1629.1630.1631.1632.1633.1634.1635.1636.1637.1638.1639.1640.1641.1642.1643.1644.1645.1646.1647.1648.1649.1650.1651.1652.1653.1654.1655.1656.1657.1658.1659.1660.1661.1662.1663.1664.1665.1666.1667.1668.1669.1670.1671.1672.1673.1674.1675.1676.1677.1678.1679.1680.1681.1682.1683.1684.1685.1686.1687.1688.1689.1690.1691.1692.1693.1694.1695.1696.1697.1698.1699.1700.1701.1702.1703.1704.1705.1706.1707.1708.1709.1710.1711.1712.1713.1714.1715.1716.1717.1718.1719.1720.1721.1722.1723.1724.1725.1726.1727.1728.1729.1730.1731.1732.1733.1734.1735.1736.1737.1738.1739.1740.1741.1742.1743.1744.1745.1746.1747.1748.1749.1750.1751.1752.1753.1754.1755.1756.1757.1758.1759.1760.1761.1762.1763.1764.1765.1766.1767.1768.1769.1770.1771.1772.1773.1774.1775.1776.1777.1778.1779.1780.1781.1782.1783.1784.1785.1786.1787.1788.1789.1790.1791.1792.1793.1794.1795.1796.1797.1798.1799.1800.1801.1802.1803.1804.1805.1806.1807.1808.1809.1810.1811.1812.1813.1814.1815.1816.1817.1818.1819.1820.1821.1822.1823.1824.1825.1826.1827.1828.1829.1830.1831.1832.1833.1834.1835.1836.1837.1838.1839.1840.1841.1842.1843.1844.1845.1846.1847.1848.1849.1850.1851.1852.1853.1854.1855.1856.1857.1858.1859.1860.1861.1862.1863.1864.1865.1866.1867.1868.1869.1870.1871.1872.1873.1874.1875.1876.1877.1878.1879.1880.1881.1882.1883.1884.1885.1886.1887.1888.1889.1890.1891.1892.1893.1894.1895.1896.1897.1898.1899.1900.1901.1902.1903.1904.1905.1906.1907.1908.1909.1910.1911.1912.1913.1914.1915.1916.1917.1918.1919.1920.1921.1922.1923.1924.1925.1926.1927.1928.1929.1930.1931.1932.1933.1934.1935.1936.1937.1938.1939.1940.1941.1942.1943.1944.1945.1946.1947.1948.1949.1950.1951.1952.1953.1954.1955.1956.1957.1958.1959.1960.1961.1962.1963.1964.1965.1966.1967.1968.1969.1970.1971.1972.1973.1974.1975.1976.1977.1978.1979.1980.1981.1982.1983.1984.1985.1986.1987.1988.1989.1990.1991.1992.1993.1994.1995.1996.1997.1998.1999.2000.2001.2002.2003.2004.2005.2006.2007.2008.2009.2010.2011.2012.2013.2014.2015.2016.2017.2018.2019.2020.2021.2022.2023.2024.2025.2026.2027.2028.2029.2030.2031.2032.2033.2034.2035.2036.2037.2038.2039.2040.2041.2042.2043.2044.2045.2046.2047.2048.2049.2050.2051.2052.2053.2054.2055.2056.2057.2058.2059.2060.2061.2062.2063.2064.2065.2066.2067.2068.2069.2070.2071.2072.2073.2074.2075.2076.2077.2078.2079.2080.2081.2082.2083.2084.2085.2086.2087.2088.2089.2090.2091.2092.2093.2094.2095.2096.2097.2098.2099.2100.2101.2102.2103.2104.2105.2106.2107.2108.2109.2110.2111.2112.2113.2114.2115.2116.2117.2118.2119.2120.2121.2122.2123.2124.2125.2126.2127.2128.2129.2130.2131.2132.2133.2134.2135.2136.2137.2138.2139.2140.2141.2142.2143.2144.2145.2146.2147.2148.2149.2150.2151.2152.2153.2154.2155.2156.2157.2158.2159.2160.2161.2162.2163.2164.2165.2166.2167.2168.2169.2170.2171.2172.2173.2174.2175.2176.2177.2178.2179.2180.2181.2182.2183.2184.2185.2186.2187.2188.2189.2190.2191.2192.2193.2194.2195.2196.2197.2198.2199.2200.2201.2202.2203.2204.2205.2206.2207.2208.2209.2210.2211.2212.2213.2214.2215.2216.2217.2218.2219.2220.2221.2222.2223.2224.2225.2226.2227.2228.2229.2230.2231.2232.2233.2234.2235.2236.2237.2238.2239.2240.2241.2242.2243.2244.2245.2246.2247.2248.2249.2250.2251.2252.2253.2254.2255.2256.2257.2258.2259.2260.2261.2262.2263.2264.2265.2266.2267.2268.2269.2270.2271.2272.2273.2274.2275.2276.2277.2278.2279.2280.2281.2282.2283.2284.2285.2286.2287.2288.2289.2290.2291.2292.2293.2294.2295.2296.2297.2298.2299.2300.2301.2302.2303.2304.2305.2306.2307.2308.2309.2310.2311.2312.2313.2314.2315.2316.2317.2318.2319.2320.2321.2322.2323.2324.2325.2326.2327.2328.2329.2330.2331.2332.2333.2334.2335.2336.2337.2338.2339.2340.2341.2342.2343.2344.2345.2346.2347.2348.2349.2350.2351.2352.2353.2354.2355.2356.2357.2358.2359.2360.2361.2362.2363.2364.2365.2366.2367.2368.2369.2370.2371.2372.2373.2374.2375.2376.2377.2378.2379.2380.2381.2382.2383.2384.2385.2386.2387.2388.2389.2390.2391.2392.2393.2394.2395.2396.2397.2398.2399.2400.2401.2402.2403.2404.2405.2406.2407.2408.2409.2410.2411.2412.2413.2414.2415.2416.2417.2418.2419.2420.2421.2422.2423.2424.2425.2426.2427.2428.2429.2430.2431.2432.2433.2434.2435.2436.2437.2438.2439.2440.2441.2442.2443.2444.2445.2446.2447.2448.2449.2450.2451.2452.2453.2454.2455.2456.2457.2458.2459.2460.2461.2462.2463.2464.2465.2466.2467.2468.2469.2470.2471.2472.2473.2474.2475.2476.2477.2478.2479.2480.2481.2482.2483.2484.2485.2486.2487.2488.2489.2490.2491.2492.2493.2494.2495.2496.2497.2498.2499.2500.2501.2502.2503.2504.2505.2506.2507.2508.2509.2510.2511.2512.2513.2514.2515.2516.2517.2518.2519.2520.2521.2522.2523.2524.2525.2526.2527.2528.2529.2530.2531.2532.2533.2534.2535.2536.2537.2538.2539.2540.2541.2542.2543.2544.2545.2546.2547.2548.2549.2550.2551.2552.2553.2554.2555.2556.2557.2558.2559.2560.2561.2562.2563.2564.2565.2566.2567.2568.2569.2570.2571.2572.2573.2574.2575.2576.2577.2578.2579.2580.2581.2582.2583.2584.2585.2586.2587.2588.2589.2590.2

From Page No.

6-22-94 SEARC TRAILS

9:00 A.M. Coordinates taken - S. Bobo returns conduct file to

INTERVIEW TRAIL DEPTH & AMOUNT OF SUGGS IF ANY

10:00 A.M. Apprais @ Area 25 ETS. TRAIL

6.8" to top of trail 86" to top of KAVAT

5. SWARDS IN TRAIL 1.500 Blocks - 1.7000 Blocks - 1.7000 Blocks - 1.7000 Blocks

SUGGS FOUND. List of FACILITY

MAHOLE - DISAPPEAR LINE

TRAIL. THIS THE

CHAS BAS WITH

SIDE LOCATED

DECKS & PINE

IN BERMINGHAM

BE. CUBA FROM

NORMAL END. UPON LIFTED WITH

MAHOLE. CUBE. SEPARATE "LIES. OPENS

NITRO

10:30 SECURITY AT SITE. GUARD MOUNTAIN. THAT THIS TRAIL

IN LINE WITH THE PATROL. SHOWNES ST.

10:30 FINISHED AT SITE.

10:40 MET AT W/HOLE & 2nd INTERVIEW. LEAD TO 1/25/94 LOC. FIVE MAHOLE &

NITRO LINE @ 1.5' bbs. CHECKED FIVE & LOCATED. LOSS TRAIL LOCATED

Q. 50' WEST OF MAHOLE (IN AREA WITH FIVE MAHOLE) SEPARATE

EXCAVATION. LOST. INTERVIEW @ 1/25/94. ROAD & T. LEAD TO

MAHOLE. EXCAVATION TRAILS

To Page No.

Witnessed & Understood by me,

Date

Invented by

Date

Witnessed & Unc

Recorded by *[Signature]*

11:30

10:30

9:45

9:30

7:15

6-23

16:00

15:25

15:10

14:00

12:00

11:15

11:10

From Page No.

TITLE _____

From Page No. _____

11:10 AT AZS PAV TANK WGSO TO BS. COMPLETELY EXPOSED.
TANK DEPTH IS ~ 4.5' BT SURFACE. @ 6.5' BGS. TANK DRY W/ DRY
SOIL/SLUDG. IN BOTTOM ~ 1" THICK.

11:15 TRY TO ESTIMATE WAREHOUSE S.S. TANK LOC. - NOT CONCLUSIVE.

12:00 CHECK w/ LABORERS - NO TANK FOUND YET AT AZS PAV. LET CREW
TO MAKE LIMIT. THEN LET TO TAKE BOBO BACK TO WAREHOUSE.
WILL RETURN TO CREW THIS AFTERNOON.

14:00 BACK @ AZS PAV. NO TANK FOUND YET.

15:10 EXCAVATION ~ 2X4X4. NO TANK FOUND WILL MOVE TO WEST IN A.M.
PLACE FENCING & PASTS AROUND EXCAVATION. LABORERS ASKED TO GO UP TO
HSA 6.

15:25 AREA SECURED WILL RETURN IN A.M.

16:00 RETURN TO OFFICE REVIEW AS-BUILTS.

6-23-84

7:15 CONTINUE TO REVIEW AVAILABLE AS-BUILTS ADJUST SCALE AND PLANS
IN AN EFFORT TO GET BETTER LOCATION IN FIELD. PLANS HAVE BEEN
REPRODUCED & REVISED SO SCALE HAS BEEN ADJUSTED.

9:30 ARRIVE @ AZS PAV. CHECK EXCAVATION. FURTHER WEST. TANK NOT
FOUND YET. BOBO & I GO TO AZS PAV TO EST. DIMENSIONS.
SOUTH END OF TANK REVEALS ~ 8.5' BT.S (~ 10.5' BGS); ~ 4.5' WATER/
SLUDGE. (3.5' WATER, 1' SLUDGE).

9:45 RECHECK RCP AREA (South of Fence Line). GOODER COULD NOT FIND EVIDENCE
OF TANK EXPOSED. SOME INITIALS, PORTALS AND DIO PICK UP SOMETHING w/
LIMITS BUT IT WAS LIMIT THE FENCE LINE. IT APPEARS THAT FENCE LINE
& MOUND LOCATIONS HAVE BEEN CHANGED FROM AS-BUILT.

10:30 BACK FOR INITIAL EXCAVATION AROUND VERT. LINES SOUTH OF RCP FENCE.
CHECK STATUS OF CREW @ AZS PAV. AREA.
AS CREW EXCAVATED TO MAX. ALLOWABLE DEPTH. TRENCH EXCAVATED
N-S ACROSS FENCE LINE AREA. DIRT SIDE CREW TO MAKE WEST
~ 5' E.DIG. N-S TRENCH TO ~ 3' BGS.

11:30 HEAD TO J.S. WAREHOUSE & WILL AGAIN TO MEASURE OUT LOCATION OF
TANK.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No. _____

11:45 MEASURED OUT PROBABLY J-S LOCATION. WILL HAVE CREW POSTHOLE LOCATION.

11:55 ARRIVE C. A555 8" SLUDGE AT BOTTOM. 2.4' WATER
1.5 TANK. TANK 7.5' BGS. CONCRETE LID & SIDE WALLS
TANK DIAMETER 23'

12:10 BAK 4 UNIT UNTIL 12:40

12:50 D166124 IN A25 PAV - 3RD N-S TRENCHING TRENCH END. TANK...

TO RCP COMPOUND

13:15 SECURE AREA. BACKFILL MOST WEST TRENCH LEAVE TO MEET.

BIOLOGIST AT ETS ALONG TO REMOVE SNAKES.

14:40 RETRIEVED 6 SNAKES FROM A25ETS. BIOLOGIST

LEFT SITE. WE RETURN TO LABREROS

14:45 ARRIVED. BAK C A25^{ROAD} CREW EXCAVATING TOP N. TANK15:45 EXPOSED ~~A25RA~~ ^{A25RAD} 8' LONG ~3' WIDE TANK DRY. LID ON SLOPE
& NORTH END 1.8" TANK HAS TWO CHAMBERS. NORTH END CHAMBER
OPENED; DEAD SNAKES & EGGS. AREA WILL BE FENCED & TANK
SECURED.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

TITLE _____

From Page No. _____

16:15

6/21

6/21

9

7:

(9:45) 9

1.

1.

10

Witnessed & I

TITLE _____

From Page No. _____

Location

SR
AZLS.

Tank.

(Locate)
Crew will perform mandatory & try to excavate I-S tank approx
100' east of AZ5 ^{RAD} tank. Also crew will unbolting lids to
AZ5 tank. I showed crew area & instructed them to not open any
tanks.

16/15 CRESITE

6/27/94 PROJ. MGMT TRAINING LV

6/28/94

AREA 25 SEPTIC; Check wind 0-1 S; Temp ~105-110°F
COORDINATED SEPTIC SAMPLING: Collected Brass Samples, Schoenher
Saber Haver to collect a Gastro sample @ 9:00am. Confirmed w/
Serge Henderson.

9:05 ARRIVED AT AZ555 - ANALYZE SAMPLES. ON SITE: J. B. Bann, S. Henderson (GEO)
J. David (PENGUIN WEIR), PIP & O₂ meter (U₂, H₂, CO₂, H₂S).
Gordon

9:20 JAMES HAVERT on site to collect samples. 2 PHASES

AZ5 SS - T - L

AZ5 SS - T - S

FORWARD SNAKE FROM AZ555 TANK

(9:45) 9:50 LIQUID SAMPLES COLLECTED - REANALYZE CLEAR GAMMA SAMPLE
MIXED IN ONE BOTTLE (~2.5' H₂O LIQ. & ~8" SLUDGE)

10:15 SLUDGE SAMPLES COLLECTED w/ 6' SHAPING FROM CUP. SLUDGES
HOMOGENEOUSLY VISCOS. P. DSS. SINKED. REPRESENTATIVE SLUDGE SAMPLES
COLLECTED IN SUP. FROM TANK BOTTOM w/ SLIDE PISTON CUP w/ 6' HANDLE.
DATE ON INSIDE OF TANK 12-17-62 (ID 3617520D)

10:30 SET JK/RAD SHOT TO AZ5 ^{RAD} FOR PRESERVE

10:52 ARRIVE @ AZ5 RAD - PREPARE CHECK & INVENTORY O.K.
NUMEROUS DEAD ROBBERIES (MICE) & SNAKES. SUE (Solid) K STY.

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

To Page No. _____

2 GND
CIRCUIT
& MARK

From Page No. _____

From Page No. _____

IN COAL FROM TANK S.O. BURN DECOMPOSITION. S.O. IS DET
 & PRIME - CIRCLES AT BOTTOM SAMPLE ~11:00 AM SAMPLE
 COLLECTED FROM N. END OF TANK

11:40 MOVE TO A25 TANK TO COLLECT LIQUID & SLUDGE SAMPLE

12:00 LABS & I.H. TAKES ^{LIQUID} SAMPLE; JAN & I CONTINUE TO COLLECT WATER

SAMPLES FROM S. END OF TANK A25 TANK SAMPLE COLLECTED

FROM S. END DUE TO NUMEROUS PIPES AT N. END HESITANT

TO SPRAY FOR BUGS AS IT MAY INTERFERE W/ SAMPLING

~12:30 COLLECTED SLUDGE SAMPLES. SLUDGE BLACK VARYING IN THICKNESS (VISCOSITY)

SOME GRAY (HUB NOTE), PAPER, STAGNANT OIL

- ESTIMATED TANK CAPACITY C - 4,000 GALLONS. SLUDGE ~1.5' THICK

13:05 ARRIVE @ ETS (A25 ETS) DUE TO HEAT THAT WILL BE LAST

SAMPLE FOR DAY

13:40 COLLECT ALL SLUDGE SAMPLES FROM A25 ETS. SAMPLE DET

1/2 GALLON, 1/2 GALLON, 1/2 GALLON, 1/2 GALLON, 1/2 GALLON, 1/2 GALLON

CONDITIONS: SLUDGE COLLECTED FROM TANK BOTTOM W/ 3' AT VARIOUS AREAS

OF THE ^{NORTH} TANK BOTTOM. STAINLESS STEEL COP W/ 1/2" ANGLE BRASS

14:00 CHECK IN W/ D. HADSEN TO INFORM HIM OF SAMPLES TAKEN. COLLECT

FOR ANALYSIS W/ LABORATORIES TO REVIEW/LOCATE 1/2" ANGLE BRASS

FOR ANALYSIS AT ETS

16:30 RETURN TO MERCURY

TANKS SAMPLED A25 ETS, A25 RAD, A25 TRAY, A25 SS

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

6/19/74

Witnessed & Un

*

*

*E.T.

17:00

TITLE _____

From Page No. _____

7-5-94

6:45 AM PICKUP GALAMATSE II MESH DETECTOR AT AHSBNS. Picked up in
10:30 RECVSD @ A2555 AREA WILL USE DETECTOR IN APPROX AREA OF POTENTIAL
TANK. ALOT OF INTERFERENCE FROM SCRAP METAL, BILTS, MISC ETC.
FOUND A COUPLE MORE POTENTIAL AREAS TO POTHOLES BUT NOTHING
DEFINITIVE

A25PAN - PICKED UP SIGNAL WEST OF WESTERN MANHOLE AND
EAST OF BURIED CABLE. NO OTHER DEFINITIVE SIGNALS.

A25TCA - NO DEFINITIVE SIGNALS BUT HAVE APPROXIMATE
LOCATION FROM AS-BUILT TO POTHOLES

A25TCL - NEED TO POTHOLE BETWEEN MANHOLE & DIST.
BOX - NEED TO VERIFY IF EXPOSED "DISTRIBUTION BOX"
IS ACTUALLY A CONCRETE TANK. SOME SIGNALS PICKED
UP BUT NOTHING DEFINITIVE.

A25TCL - NO DEFINITIVE SIGNALS PICKED UP - LOCATED
NUMEROUS SCRAP METAL PIECES & CANS

A253210 - POSSIBLE LOCATION MARKED. BASED ON AS-BUILT
& DETECTOR SIGNALS.

A25RCPGA - SIGNALS PICKED UP - NEED TO POTHOLE OR TRENCH W/BACKHOLE

* A25ITCF - LOCATED MANHOLE TO TANK W/ DETECTOR - NEED
LABOURS TO EXPOSE TANK

* A26CS - EXPOSED MANHOLE AND ASSUMED TO DETERMINE
TANK ORIENTATION FROM MANHOLE - NOT DEFINITIVE.

* TANKS LOCATED NEED TO BE EXPOSED

17:00 - RETURN TO OFFICE

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

7/5/94

From Page No. _____

7-6-94

SAMPLES VST'S WITH HAND PUMP & MASON JAR SET UP
 SAMPLE 2 TANKS WITHIN CP COMPOUND. DUE TO AIR LEAKS
 WE RECONFIGURED TANKS USING ~950ml LABORATORY JARS & STEEL
 AIR SAMPLING PUMP. COLLECTED A.Z.G. BOLLER HOUSE SAMPLE
 ALSO, ALL SAMPLES APPEAR TO BE FUEL PRODUCT.

17:00 RETURN TO MERCURY

7-7-94

8:30 MET TOM (SAMPLE) AT AIZ Field OFFICE. OBTAINED
 REMAINING KEYS FROM JACK HANWINGER (S)

9:30 FINISHED COLLECTING SAMPLES FROM REMAINING TANK USING
 PUMP & GLASS CONTAINMENT METHOD. PRODUCT APPEARED
 UNUSUAL & HAD FUEL CHARACTERISTICS.

(PROD. SPS. BULL.)
 MET w/ D. MADSEN WHILE REMOVING PRODUCT w/
 VAC TRUCK. RETURNED KEYS (REMA) TO JACK.
 REVIEWED SEPTIC TANKS (T-5 & RCP) w/ DETECTOR.
 DAVE CONCLUDES THAT DETECTOR IS NOT DETECTING
 HOWEVER, A COUPLE OF SUSPECT AREAS FOR PETROLEUM
 WERE MARKED.

13:00 ARRIVED @ AIZ EPA FACILITY. US60 DETECTOR IN ADJACENT
 TO LOCATIONS. DAVE'S SEPTIC MARKED SUSPECT AREAS & ATTEMPTED
 TO EXCAVATE SOILS IN SUSPECT AREA. DUE W/ 15' NO DRINK
 VISIBLE BUT STILL STRONG PETROLEUM DETECTOR. WILL NEED
 LABOR CREW.

14:30 US60 DETECTOR IN AREA 12 FOR SEPTICS. STRONG
 SIGNALS PICKED UP. HUMAN EXCAVATION & REMOVAL NO
 TANKS - SHOWING STILL STRONG SIGNALS. LABORS. NOTED MANY
 CANS & ALUMINUM TRASH.

16:15 HAD EDWIN GEN. TABLE @ PAMARCEL FOR SITE PHOTOGRAPHY

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Witnessed &

78/47%

* (CO₂ 20.5%, N₂ 70.0%, O₂ 1.0%, H₂O 8.5%)

9:30 Arrived @ 425 on to Sample Section near 425 PCH
located in arroyo in hollows (burrows) of *Reithrodontomys*
divinator (5 cm x 15 cm) Lined with 1/4" x 1/4" squares
on * (see above) 416 Sampled. Fine white lime areas
@ ~ 10:10. 0.57 84

Q ~ 10:10. 0.157 8.7

~~Chloroform~~

Depth to Top of Water ~ 5' 365

Silene

$$T_{\text{ank}} = B_{\text{ottom}} \approx 9.5$$

10.057 Sample ID: A25RCFGA-I-1

4a5cc6a-T-S

5/10/57 Letter on 5.175.120 Reserves 1955.5

Sam Risi with B's Co. & Co. (Alfons) 20. 11. 1910

Tom R. McElroy - Boston To - Co. Secy. L. C. & S. M. A.

PS. SMITH OFFICE, 5401 LAYNE ST. NEWARK, N.J. 07102

1. Introduction

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 2. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 3. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 4. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 5. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 6. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 7. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 8. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 9. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 10. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

David Sample, Dovesco, no loss, no etc

02/11.

Witnessed & Understood by me,

Date _____

invented by

Date _____

23/22/2

Recorded by

[Signature]

Witnessed &

1A:11
25-1-1

10:21

1257

21

TITLE _____

From Page No. _____

11:30 Sample visible through tank left in tank none to A26CS

11:45 Arrive @ A26CS. Training occurring @ Point Carbon Facility
no access until this afternoon.12:00 opened A26CS, top of water ~ 3.5' A.G.S. ONE PHASE
ONLY. ONE MANHOLE ACCESSIBLE. NOT DESIGNED IF INTERIOR - END
MEASUREMENTS. [20.6 O₂ %; 2.0 ppm CO; 1.0% LEL; 0.0 ppm H₂S]

will collect LIQUID PHASE ONLY A26CS-T-L (~40% in tank)

12:25 FINISHED SAMPLE COLLECTION. NO RPD DETECTION. CONNECTED
ROCK M.S. M.B. FROM THIS LOCATION

SAMPLE COLLECTION POINT

CHECK
STATION

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

12:30 - 13:00 Bk for lunch

13:00 At A26 HCF Oregon manhole tank: DRY - Soil / Bottom out on
 Bottom. Tank has 2 manholes in tank. Tank has 2 manholes
 Tank is approximately concrete rectangular in shape. Approx
 Dimensions 3' x 6' x 11.5' deep. BGS. Sample designation
 A26 HCF - T - S. 100% sample collected in 100% distribution.

6" LINE LISTS INTO (IN FRONT) OF TANK. BOTH
 HAVE BEEN CAPPED w/ CONCRETE & ARE LOCATED ~ 3' AGS.

[HCF]

13:45 Concrete Sample Collected Tank - NO. 0025, NO. 150
 100% Sample Collected for BGS

John B. 7/27/91

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Ur _____

TITLE _____

From Page No. _____

14:30

15:10

TITLE _____

From Page No. _____

14.30 Arrived @ ASTRA for Sample Collection
 15.10 Connected ASTRA-T-1. Collected Sample from Tank 3 (SS & B. Gas)
 Tank 3 contains no sludge, TOP of liquid = 3' BGS, depth to
 tank bottom ~ 8'. Tank ~ 20 ft. High. Liquid level is 15' BGS.
 Very clear, no odors, pH ~ 7.0. Minor rust products seen.
 Tank Bottom Pumping Pits (seen in tank) [unclear]

1. BWT on
 manholes
 Access
 SS (GAS) from
 B. Gas

Both
 ~ 3' BGS

TANK 3

DIST. Box

ONLY LIDS ARE EXPOSED

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

7/27/94

From Page No. _____

TITLE _____

From Page No. _____

8-1-94

U.D. 3765-002 (SEENUS)

7:30 ATTENDED VST HAS MISSING W/LABOR CREW

8:00 MET WITH ELEC. ELECTRICIANS @ BT. P&S YARD

8:30 ARRIVED @ AZS JS SEPTIC AREA. WITH ATTEMPT TO
GOLDEN AREA IN SEARCH OF TANK9:40 GOLDENED "7.5' AREA AROUND POT-HOUSE AREA FARM 1.
POTENTIAL AREA 4 PAINTED SQUARES.

9:45 ATTEMPT TO LOCATE AZS PAN

10:30 LEAVING AZS PAN - NO DEFINITIVE SIGNALS FOUND - MOVING TO
TEST CONC10:50 PAINTED POTENTIAL LOCATION FOR AZS 3-210 TANK - GOOD DEFINITION
PAINTED P&S AREA. PARALLEL TO FENCE LINE

- NO DEFINITION FOR AZS T&C - CONCRETE CONTAINMENT - POTENTIAL SEWER

11:20 - MARKED POTENTIAL LOCATION FOR AZS T&C. - GOOD DEFINITION
AROUND POTENTIAL CONCRETE DIST. BOX11:45 AT AZS T&C PICK UP STRONG SIGNAL IN CENTER OF P&S
AREA - PAINTED P&S. HOWEVER, UPON OPENING MANHOLE IT
APPEARS THAT A CONCRETE "TANK" EXISTS APPROX 4'x6'x9'
HAS "CAVES" AT BOTTOM & FURTHER FLUID LINES VISIBLE TO
NEAR TOP. INLET P.I.P. & OUEL P.I.P. VISIBLE

Witnessed & Understood by me,

Date

Invented by

Date

To Page No. _____

Recorded by

Witnessed & Und

TITLE _____

From Page No. _____

12:30-13:00 TAKE LUNCH @ AL

13:45 Located EASTERN SSS of A124 TANKS DBL CLUSTER
 Located & Painted. A124 WESTERN CLUSTER OF 4 NOT
 VISIBLE BUT GOOD DEFINITION

14:15 POTENTIAL LOCATED - GROUND & PHYSICAL EXAMINATION 3 TANKS of T15
 SIX CLUSTERS of A125

15:00 FINISH MARKING A15 CLIMAT MINE EAST IN PREPARATION
 FOR EXCAVATION. NO PERIMETER LINES DETECTED - TANK
 BOUNDARY MARKED.

15:05 ARRIVE @ A15 EPA TO LOCATE SECTOR.

15:35 LOCATE POTENTIAL TANK - PAINT AREA

15:45 HEAD BACK TO MERCURY

8-1-94
 [Signature]

ESTIMATED NTS: (Crew) Labor Hours 1200 3765.0002

DATE	HRS	CREW	EQUIPMENT
6-15	6	1	-
6-20	10	2	JACKHAMMER
6-21	10	2	-
6-22	10	2	-
6-23	10	2	JACKHAMMER
6-27	10	2	"
6-28	10	2	-

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No. _____

10:15 SECURE SITE - MOD TO A12 FOR SEPTIC WORK
 10:30 ARRIVE @ A12 REVIEW SITES w/ LABORERS
 11:30 BACKHOLE AT SITE. BEGAN AT A124 SOUTHERN (TBL) CLUSTER
 12:00-12:30 LUNCH
 13:15 LOCATE 1st HORIZONTAL MAINWAY. COUSE FOR A124. WESTERN TANK
 & DOUBLE CLUSTER.
 15:30 EXPOSED MAINWAY. SECURED EDIP. MOUNT
 16:25 ARRIVE @ MEASURE

8/4/94
 8/8/94 MONDAY

8/8/94 MONDAY

- SET UP 1st/RAD SAGE FOR MONITORING. EPA SURE EXCAVATION. STEVE HUSMAN SET. FOR 930 AM.
- SCHEDULE SAMPLER FOR VST. REMOVAL ON 8/9/94 - FAX SAMPLE REQUEST.

9:20 ARRIVE @ A15 GFA, FARM - CROW @ SITE. S. HUSMAN @ SITE. FOR I.H.E.PAD. MONITOR.

9:30 BEGAN EXCAVATION IN GOLDADO AREA w/ BACKHOLE. LOCATED STEEL PLATE. COVER OF SUS. LOCATED SEPTIC TANK & 25' B.G.S. UPON REVIEWING. EXPOSED PLATE WAS CORRODED. IT APPEARS THAT PLATE COVERS. DISCREPANCY BOX. LIQUID H.S. BEST UP TO - 6-8" BELOW PLATE. OTHER NOTES (SUNFIRE LIKE) NO VOC'S DETECTED. NO RAD. ADDITIONAL EXCAVATION REQUIRED. SECOND STEEL PLATE - LEFT OF CORRODED PLATE ARE FOR SEPTIC TANK. TWO (2) 2X2 STEEL PLATES COVER CORNER OF SEPTIC TANK. BASED ON FINAL LOCATIONS OF SEPTIC TANK GUE. ANTICIPATE NORTH END TO BUS. FULL AREA TANK IS TWIN CHANNEL.

10:15 1st/RAD SAGE OFF SITE. WILL CHECK INTO PERS. PPE FOR SAMPLING SEPTIC

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

To Page No. _____

From Page No. _____

From Page No. _____

10:20 ARGA PERS. OFF. C. PERS. ~~LEAVES~~ LEAVES FOR A.I.Z. FOR
ADDITIONAL SERVIC. EXCAVATING

10:50 ARRIVE @ IZ WILL BEGIN AT A.I.Z. WEST CLUSTER WHEN
BACKHOE ARRIVES

11:30 EXPOSE SOUTHERN INFANTRY TANK MANWAY FOR A.I.Z. CLUSTER
BACKHOE CARGOES LID & PULLED BACK. TANK HAS LIQUID & SOME
SOLID. CAKE LIKE MATERIAL w/ ABUNDANT PEATERS.

12:12:30 LUNCH BREAK

14:00 LOCATE 2ND TANK MANWAY. UNUSUAL AS TO WHICH TANK
WITHIN CLUSTER IT IS. BEGINNING TO EXCAVATE OUTSIDE
PREVIOUSLY EXPOSED AREA. CONSIDERED OVER PITCHMENT
UNDERGROUND. P.TANKS, SENSE ETC. WILL STOP WORKING
OUTSIDE GOLDARKS AREA. CONTINUE TO EXPOSE 2ND
MANWAY LID. BIRD. WILL ATTEMPT TO LOCATE ELECTRICALS
FOR ADAPTATION/UTILIZATION GOLDARKING.

14:25 WILKIN STOPPED BY. SAID THAT LINE LOCATION COULD BE DETERMINED
WITHOUT INSTRUMENTS. I ASKED IF SOMEONE COULD BE LINED UP
SINCE ELECTRICALS GENERALLY DON'T DO WELL w/ PHONE LINES. SOME
SOMEONE WILL GET SCHEDULED FOR TODAY OR TOMORROW. WORK
ORDER # PROVIDED FOR JOB.

15:10 EXCAVATED ~ 10' SOUTH OF 2ND LOCATED SERVIC. TANK. NO TANK. ENCOUNTERED
WILL STOP EXCAVATION AT THIS POINT. PERS. OF GOLDARKING. BUILT UP
WATER BEAM & PULSED (PULSED W/ AREA) CLAN. REVERES TO A.I.Z. CLIMAX
MINE TO PERS. BACKHOE. BUD. WILL LINE UP ELECTRICALS IN A.M. TO
GOLDARK LINKS & TANKS.

15:40 LEFT SITE - WILKIN GOLDARK NOT AT SITE

Jimmy R. [Signature]

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Witnessed & Understood by me,

From Page No. _____

From Page No. _____

14:30

EXPRESSO IN FLIGHT END OF S-SIDE HOLE WORK IN
VCP LINE - LINE IS DRY. TANK IS PIPED AT 45°
FROM OTHER CUSTODIAN (SEE BELOW)

July 11 8/11/94

8-15-94 Memo

8:30

ARRIVE @ A124 WEST TANKS - CONTINUE TO EXCAVATE HEREIN
TANK EXPRESSO IN FLIGHT WILL DIG HOLE UP TO TANK IN ATTEMPT
TO LOCATE POTENTIAL 4TH SEWER BACKLOG & 2 LABORERS ON SITE

10:15

LOCATED N.E.S. OF EXPOSED THIRD TANK & NO OTHER TANK
FOUND DUE TO PROXIMITY OF S-SIDE LINE DISCONTINUE EXCAVATION

10:55

EXPRESSO GETTING IN FLIGHT MANHOLES TO A124 EAST TANKS
MOVED TO A125 TANKS

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Witnessed & Understood by me,

TITLE _____

From Page No. _____

[8-15-84 cont.]

11:21 Determine that N. end of tanks are infusant -
 END; BASIS upon AS-BUILT & MAINTAIN DRAIN PIPES
 USE FRONT END OF RACKET SINCE THERE ARE OVERHEAD
 POWER LINES. PERMIT TO OPERATE UNDER LINES PROVIDED
 ENCLOSE ON SITE BY MILES CAPTAINS

11:40 Location Distribution Box for tanks only 6" wire connect
 into Box from North side & TWO EFFLUENT LINES are
 EAST, WEST & SOUTH WARD ~ 4' Below tank SA

12-12:30 Lunch Break

13:30 CURRENTLY EXPOSING LAST OF 6 INFUSANT MANWAYS
 OF A125 CLUSTERS. 4 OF 6 LIDS HAVE NO BOLTS
 SECURING THEM.

14:00 ~~LOC~~ EXPOSED LAST MANWAY OF CLUSTER A125.
 ACCESSIBLE TANKS ARE HAVE WATER ~ 2' Below TOP OF
 TANKS; WATER APPEARS CLEAR, TANKS CONTAIN FOUL
 THROUGHOUT. LABORES WILL SECURE / RACE NECESSARY
 ACCESS, BACKHOE WILL BEAM SOIL AROUND TANKS.

14:10 WILL ATTEMPT TO SCHEDULE SAMPLES FOR WEDNESDAY
 WILL ATTEMPT TO SCHEDULE BIOLOGIST FOR THURSDAY
 & THURSDAY IN A25 FOR SPEND LOCATED w/ BACKHOE

14:50 DIMENSION WILL ATTEMPT TO SCHEDULE FROM 456.05
 AREA SECURED - CREW OFFSITE

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

P/15/84

From Page No. _____

8-15-94, Nares:

16:30 Conference Biologists on Site for AZS work through
 Stacy Blumquist EGG (45151), Set up to meet at
 T.C.C. @ 10:00 A.M. (AZS Biol. Tag. 5-7308)

16:50 M. Lipstone Called to Camben Samsom will attempt
 to start at T.C.C. @ 10:00 A.M. Also mention that
 AZS Package Unit is back on Rental list. May
 start excavation tomorrow afternoon or Thursday.

8-16-94, Tues

7:30 Called K. Pinner (5-4114) Set up. Package for Samsom
 Sampling to go 8/17 @ 9:00 near warehouse 4ES.

Will meet George Pao Samsom @ RSN Bldg (Green) @
 C.P. in A.M. on way to A12. Camp.

9:50 Arrive @ T.C.C. Arriving Biologist & work crew

10:00 GUSMAN EGG Biol on Site awaiting work crew

10:15 Load crew Arrives

11:00 Backhoe at Site - Biol. clears area Return excav on AZS 210

Locate Cur. P.R.E. - And. Passy Tank. Pipe V.C.P. Pipe Dry
 4' Holes with 1/2" Sides Pipe Placed/buried in Cable Groove
 Assumed to be Lead line. FSBURION Excavation
 Area. Followed Pipe to Fence Line. Marked in Line
 Facility. Located Distribution Box. With Pot Hole
 up from Distribution Box in Area to Locate Tank
 Limited Access. BSGRE Began at Concrete.

12:23.0 Limit Bldg

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Understood by me, _____

From Page No. _____

13:00

13:

13:

13

1.

13

TITLE _____

From Page No. _____

13:00 Excavated down 3' & encountered clay pipe leading into DIST. BOX. MADE decision to DISCONTINUE excavating further until P&S S&B WAS AVAILABLE & CLEAN WORK WOULD BE PREPARED TO REMOVE CONCRETE IN VICINITY OF EXCAVATION.

13:15 Located TANK IT-CC BY OPENING ORANGE MANHOLE. TANK IS CONCRETE & CONTAINS WATER TO ~ 3' BELOW TOP OF TANK. DIST. BOX AREA CONFIRMED.

13:20 SET UP ON IT-CC SOUTH OF 3RD PAD. & LOCATED DIST. BOX & BEGAN EXCAVATION IN GOLD-KISS AREA. BLOW OK'D AREA.

13:25 TANK LOCATED. WITH CONTINUING EXCAVATION TO EXPOSE TANK.

13:30 EFFLUENT MANHOLE LOCATED. THE BOTTOM OF TANK IS STEEL & RUSTED THROUGH AROUND EFFLUENT MANHOLE. POOR INTEGRITY WILL NOT HOLD BODY WEIGHT OF PERSON. TANK CONTAINS LIQUID ~ 2' B. TANK SP. EXCAVATING TOWARDS INFLUENT MANHOLE.

13:55 EXPOSED INFLUENT TANK & RUSTED THROUGH ON TOP.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

14:10 SET UP IN AREA OF TANK J5. - EXCAVATED IN GULCHES. AREA BUT
 FOUND NO TANK OR ASSOC. PIPING. TRENCHES IN AREA OF PREVIOUSLY
 MADE EXCAVATED HOLES. AND TRENCHES ~ 30' LONG x 4.5' DEEP.
 TRENCH N.E. S. HAD ESTIMATED LOCATION. NO TANK OR PIPE
 FOUND. BACKFILLING THE J5 TRENCHES & EXCAVATED FENCING
 EROSION

15:35 CREW WILL PG. HONKING AREA. TCE TANKS WILL REMAIN AND
 THURSDAY TO CONTINUE EXCAVATION IN ASPEN & BERN TOWNSHIP
 AREAS.

16:00 BACK AT OFFICE.

Jimmy D. 8-16-84

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Und _____

TITLE _____

From Page No. _____

8-17-84 Temp ~ 100°F O-Simpit 55W winds, CLEAR

8:00 Tom P. from ASD met at office

8:30 met @ 672 Bldg CCP met with Lasei (KOSAKS)

9:00 ARRIVE @ A121 with SAMPLE A121 TANKS FIRST

A121 PAD

CONCRETE PA

TANK
SAMPLED

TANKS ARE STEEL

DEPTH OF LIQUID

~ 4' BOTTOM TANK SL

~ 1.5' SLUDGE

~ 8' TANK DIAMETER

BLACK, SLIGHTLY WET

NO PAD ABOVE BIKK

A121-T-2

C 9:15

" - S

C 9:35

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

10:00 Set up to sample A124-WEST (A124-TW-L, S.)

A124 WEST
Sample loc.

STEEL TANK ROOLERS

ROAD

10:33 A124-TW-L

10:54 A124-TW-S

APPROX 2' SLUDGE / GRAVEL

TANK DEPTH ~ 8'. COLLECTED

PRESERV. SLUDGE W/O ROCK/GRAVEL

ODOR NOTED - MUD (SOME) LATER

OYER. LIQUID OVER SLUDGE / GRAVEL @ ~ 3' BTSE

BROW
TANK

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Unc _____

TITLE _____

From Page No. _____

11:23 Removed Bulbs & LID TO A124 EAST. MOST EAST-SAN TANK OF 2 CLUSTER WILL BE SAMPLED

SOME TANKS, REEPLY DOOR PROBLEMS GROWING ON SIDE
LIMBS - WATER CLEAR: NO SLUDGE
DEPT TO WATER ~ 2' BELOW TANK SURFACE
DEPTER TANK BOTTOM ~ 8' DIAM.

12:30 SET UP @ A125 TANK CLUSTER. TANKS ARE STEEL
~ 8' DIAM. WATER ~ 2.5' BELOW TANK SURFACE. MINOR
SLUDGE ON BOTTOM ~ 6" BUT UNABLE TO SAMPLE SUCH
A SMALL QUANTITY.

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

To Page No. _____

From Page No. _____

12:50 Collected A25-T-L @ 12:45. LIQUID
CLEAR, NO ODOR. RAD SAGE OPPOSITE TO
GST LUNCH. CCP WILL MEET AT A25 TCC
@ 2:30. AFTER MEAL & LUNCH BREAK

14:30 ARRIVE @ TCC1 PREPARE TO SAMPLE. A25 TCC1
LIQUID ONLY SAMPLES.

TANK APPEARS TO BE CONCRETE. DEPTH OF TANK 6'
BELOW GROUND SURFACE. DEPTH TO LIQUID ~ 5' B-TANK SP
WINDS FROM SOUTH WEST 10-25 mph. OVERCAST HAZY SKY

~14:50 COLLECT A25 TCC2 - CLEAR LIQUID

15:00 A25 TCC2 SEEN TANK ~ 4' DIAMETER. TOP OF LIQUID ~
2' B-TANK SP. ~ 1' of SWOGE on BOTTOM of SAMPLES
A25 TCC2 T-L, S. TO BE COLLECTED FROM NORTH
INFLUENT END OF TANK

SAMPLES LOCATION

CCP DIST BOX

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Under _____

TITLE _____

From Page No. _____

15:33 Finished collecting AZITEG 2-TAIL, S
 SWAGE WAS WASHED DOWN TO BLACK, ODOROUS.
 CLOUD WAS CLOUDY & SHOWN WAS NOTED ON S.P.

15:40 WENT TO TRK TO HAVE PRO SURVEY LATER TO FINISHED
 LAPPING SAMPLES PRO SURVEY O.K. GESS TAG PROVIDED
 TO SAMPLES.

ATCA TRUNK CONCRETE DRY SOLID OUT OF SAMPLE
 SCOOPS - USED 500 ML LAB TAG ATTACHED TO 10' LONG
 CONDUIT PIPE. ODOR FROM TRUNK NOTED.

15:16:25 COMPLETED SAMPLE COLLECTION OF AZITEG 2-TAIL.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

8-18-94 THURSDAY

8:05 ARRIVE @ A25 AWAITING LAR. CREW & BACKHOE OPERATOR. B.O.L. SCHEDULED TO ARRIVE @ 9:30

8:15 DEBBIE (B.O.L. EG&G) ARRIVES

8:35 CREW ARRIVES - KIK ATTEMPT AGAIN TO POSITION GAS JET TANK LOCATED ABANDONED SUNK LINE & WIL CHASE OUT B.O.L. SURVEYOR AREA.

CHASED OUT LINE - LINE DEAD ENDS EXPOSED TWO BLACK CABLE LINES. APPEARED TO BE ABANDONED BUT UNSURE. LINES WERE CUT BY BACKHOE OR MAY HAVE BEEN PREVIOUSLY CUT. RUD WILL CALL M.I. PERMITS TO CHECK AREA AND DETERMINE IF LINES SHOULD BE CHECKED BY COMMUNICATIONS.

9:30 SET UP AT A25 PAN AREA - ^{BOLOUSE} B.O.L. SURVEY O.K.

10:55 LOCATED SUNK TANK A25 PAN. TANK IS CONCRETE W/ CONCRETE MANWAYS BURIED UP TREES & PREVIOUS EXCAVATIONS & FOUND ONE TANK TANK ACCESSIBLE TO SAMPLE

Witnessed & Understood by me,

Date

Invented by

Date

To Page No. _____

Recorded by

Witnessed & Undr

TITLE _____

From Page No. _____

11:

13:

14:

15:52

16:10

TITLE _____

From Page No. _____

11:20 Review to AZTJS AREA. EXPOSE AREA WHERE LINES WERE
PREVIOUSLY ENCOUNTERED. M. LIP SITE TO HAVE PHONE
PERSONNEL COME OUT TO CHECK SITE

CHASSED ON 2" METAL LINE THAT IS TIED INTO DIRT BUD
BOX FOR ALIS RAD. SECOND LINE IS VERY SHALLOW
& IS LIKELY A DRAIN LINE FOR THE FENCE FACILITY

13:25 MOD TO AZTJS. SATE UST SITE TO CLAR. ASPHALT
& EXPOSE UST. BIAL NEEDS TO REMAIN WITHIN SITE
DURING UST ACTIVITIES ALSO. NO ONE HAS ARRIVED TO
VIEW CUT. LINE BE DISCUSSED PREVIOUS. HADY CERTAIN
LINE IS INACTIVE. BUT WILL HAVE VERIFIED

14:00 WALTER @ SITE. BUD SHOWED HIM AREA OF RAILROAD
LINE. LINE VERIFIED TO BE INACTIVE - NO FURTHER ACTION
REQUIRED OR TAKEN.

15:10 BACKLOG DOWN FOR TIRE REPAIR - EXPOSURE UST - DRY
SLIGHTLY SANDY, SANDY SOIL SOME OCCASIONAL ROCK & COBBLE
NO ODOORS OR SMELLING NOTED. EXPOSED PORTION OF
TANK RUSTED. FOUR CORPSE LINES NOTED. TIED
TO TANK FROM BUD. WATER LINE (2" METAL) COMES
FROM BUD & 90'S AT UST. SLIGHTLY BEST W/
CRACKS & HAS SLOW DRIP. WILL NEED REPAIR
PRIOR TO BRICKWORK EXCAVATION.

16:10 SITE FENCED & SECURED. CLEAN UP SITE

John B. [Signature]

8/18/94

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

TITLE _____

From Page No. _____

10:45 CREW MOVS TO BRN TOWER FOR SEPTIC EXCAVATION. BRN WILL
STAY WITH US. BOB & STAN WILL TURN SAMPLES INTO ASD.
IN MERCURY

SITE FENCE, STOCKPILE COVER, BRN & LAGGS COLLECT

A25 BRN HAS BEEN GROUND BY WILLET & G. TRIMMIS
PRIOR TO PROPOSED EXCAVATION WORK

~11:30 A25 BRN SEPTIC LOCATED. TANK IS CONCRETE & HTS.

IN EX. G.T. & EFFLUENT MAINWAYS. TANK HAS LID AND INSIDE

M.B. TANK. ST. TANK IS ~ 2' TGS. TANK DIMENSIONS

ARE 9' X 4' W. O.D. CONCRETE LID IS 1.5' X 1.5'. BRN HAS

FILLS IN EXPLORATORY TRENCHES

~12:00 PULL BRN HAS LAGGS - BIOL. LAGGS

12:00-12:30 LUNCH BRN

12:30 FENCE OFF A25 BRN TANK

SPLIT REMAINS OF AFTERNOON. RESERVING LAGGS
FOR A25 SEPTICS. PROJ. EXPOSED. FENCE LINES SAGGING
& BRN. ALSO PART OF R-MAD VST SAN COMPLETES
AND BRN EXPOSED. OBSERVING KET & RESERVING
STOCK PILE & FENCE AROUND EXCAVATION

Witnessed & Understood by me, _____

Date

8/24/94

Invented by _____

Recorded by _____

Date

To Page No. _____

Witnessed & Understood by me, _____

8/25

8/30/

8/31

8:3

8:46

~9:26

~9:30

TITLE _____

From Page No. _____

8/29/94 BLOC 850 REPT. ELEVATION SAMPLES 8/31
 T.H. P. 5-7182
 J.A. H. 5-7782

8/30/94 T. P. H. 5-7782

8/31/94 SEPARATE DRINK SAMPLING
 CHINA, PAPER, CLOTH, - 950
 8:32 ARRIVE @ A25 R.P. HAVING G. END SITE
 1ST SAMPLE WITH BE A25 PAN - T - L
 8:40 SAMPLE (HOSING) ARRIVES
 8:45^{PM} COLLECT A25 PAN - T - L
 8:35 " " - T - S

NO PRO DETECTED, DRINK IS CONCRETE - 3X8 BLOC DOWN
 DROPTO LIQUID - 3' BEHIND DRINK SITE YELLOW
 " " SOLID - 5' " " " BEHIND BEH. PREVIOUS SITE
 SLIGHT COOR. NOTED & SLIGHT SITES ON LIQUID SITE
 NO APPARENT CHANGES SYSTEM

FOR MORE PAN AM. DETAILS

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. —

From Page No. —

2/0.26

13.00

~~Accessed~~ ~~Accessed~~ #2085 - 7 L. 60 min. out
 150 Brown moccasins over thick deposit ~ 5" water
 = 1' Brown Muds 5 ft. 5 min. below in thick but main
 Outcrop of over surface to sample

02:31

THINK Cuckoos nest: 4mm base 8.9 x 7.6 ~ 760.0 cm³
 1. 3 x 9 x 5 deep
 1. 1250 g egg
 1. 100 g egg

11.50 / Arrived @ A12 730k for Lucas
12.20 Set up to sample A12 milk. This will be second sample of
400g. 1st discarded. A12-17-1, 5

Witnessed & Und

Witnessed & Understood by me,

Date _____

invented by

Date _____

To Page No.

 $\approx \sim$

From Page No. _____

13:00

Colours ALZ-TZ-L Yellow

13:20

" " " - 5. Dik Bkn/Bkn mao. dove

DSP: TO WAGE ~ 35' Below thm

THANK TO THE DEPT. ~ 9' w/ ~ 1.5' SLICES

Presence to Sample A124 West Tank Tank w/ cur. P.P.E
Leading into it with BG Sampled A124-TW2-1, S.
(A124-T2-1 ES)

610210 - C. L. S. M. NO. 21 BT. S. S.

Fl. out - Back m. door ~ 9.5-9' (limbo answer)

TOTAL tank DESK ~ 9'

~15.10 RESAMPLE A124-T-E-L; 1 L COLLECTED FOR OIL & GASES
ANALYSIS. DUE TO PREVIOUS SAMPLE BEING BROKEN DURING TRANSFER
ON SITE.

To Page No._____

To Page No._____

Witnessed & Understood by me,

Date _____

Invented by

Date _____

Recorded by ✓

From Page No. _____

From Page No. _____

~15:45 collect Liquid Samples from ALES CWSOBR Tank #4
 SAMPLED Tank #3 was DRY. Could not find Bottom from
 Tanks 1 & 2. Tank 4 Liquid was close to DOP;
 Port 6. Getting inside; Solid on Bottom BUT can't
 ~6" & 15. Location near manhole where dirt hit
 Light. Faint in S. 15 manhole is unsecured. Since
 content too dangerous to sample.

SAMPLES Collected today

A25 PAN-T-4, S
 A25 BRE-T-L
 A121-T2-L, S
 A124-T2-L (POTENTIAL LOSS)
 A124-T2-L, S (WEST TANK CWSOBR)
 A125-T2-L

CROSS TAG A1334 ISSUED

17:05

Back at office

[Signature]

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Witnessed & Und

9-1-

8:20

8:50

10:00

10:40

10:00

11:45

12:10

12:55

13:15

14:15

TITLE _____

From Page No. _____

9-1-94

8:20 LEAVE THE ALZ FOR HOME SCENE SAMPLES

8:50 - 9:30 TIRE SHRODDER HAD TO GET BACK TOGETHER @ ALZ SCENE YARD

10:00 ARRIVE @ SITE TOM P. @ SITE TO SAMPLE

ATTEND TO GET ACCESS TO TANK 1 & 2 (BOLTS L.O.S.) Could not get
Bolts of Tank 1

10:40 SHRODDER 3 BOLTS OF TANK 2 - PASSAGE TO SAMPLE

11:00 SAMPLE A125-T3-L CLEAR LIQUID, NO OOR

DRAIN TO WATER ~ 4' BELOW TANK SP

SLUDGE ENCOUNTERED @ BOTTOM AS DEPT. DRILLING FROM ~ 7-8' BOTTOM SP

11:45 SAMPLED SLUDGE - BLK w/ OOR GEN & YOUNG STAINING, SLIGHT OOR

PLEASE LARGE SANDPAGES & BACK ON LID TO KEEP SECURE

12:10 MOVE TO A5

12:55 ARRIVE @ A5 FOR SAMPLE COLLECTION OF ASTRA-TZ-L; SAMPLE WILL
BE COLLECTED FROM TANK #1 & WILL REPRESENT 50%
OF TANK'S SAMPLES

13:15 SAMPLE FROM TANK 1 COLLECTED - NO SLUDGE; LIQUID CLEAR

NO OOR; DRAIN TO LIQUID ~ 3' BELOW TANK BOTTOM

14:15 RETURN TO MECHANIC - WORK ON BULB TO RPT

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

To Page No. _____

9/1/94

From Page No. _____

From Page No. _____

9/16/94 SEED BACKGROUND SAMPLES
CLEAR, CALM, ~100°F

10:1

9:00 ARRIVE @ AZSS FOR SEED BACKGROUND SAMPLE
COLLECTION. TOM. PARAZOLA TO SAMPLE. LINDA WILL
ASSIST IN EXCAVATING ~1.5' DEEP HOLE FOR SAMPLE

BACKGROUND SAMPLE. AZSS BG TO BE COLLECTED ~50'
NORTH EAST OF SEED TANK IN VICINITY OF LARGE
CREOSOTE BUSH.

~9:30 SAMPLE COLLECTED.

9:42 ARRIVE TO SAMPLE AZSS RAD-BG

10

9:50 COLLECT AZSS RAD-BG ~35' NE OF TANK
~1.5' DEEP.

Witnessed & Understood by me,

Date

Invented by

Date

To Page No. _____

Recorded by

Witnessed & Und.

1. 2. 3.

Q.2.

Witnessed & Understood by me,

Date _____

invented by

Recorded by

Date _____

To Page No.

6794209

Revised Form

20-5-21

P.

--	--

✓

७

Colemans AZJIS-BE, San Rile collection ~ 60' NE
of Austin Pass. I think location likely same as Lumbro.
Shank & co. given 21" tall white growth above
San Rile height was smaller. Type near the minor site.
I believe. Soil Sampled was not stained & analyzed.
Reinforced concrete.

From Page No. —

From Page No. _____

$\sim 1/15$ Colours A75 red BC = Co N.W of Ingham Mt S.O.
3m Rte C - 1/15, 3C3.

San Jose, C.R. 12/15/85.

1. French - French
 2. French - French

A-25 TPA

X.

✕

1. *Handwritten signature*

N

~ 1/35 - Collected #25 Abt. in 60' west of Tank 3
~ 27' west of Abt. from #15 / MSD sections
from this sample

From: Jhs. Santos.

(2) 50000

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

121234

Recorded by

Invented by

Date _____

Date _____

To Page No.

Witnessed & Und

TITLE _____

From Page No. _____

13.02 Collect A25 ETS-BG ~1.5' BG S. Sample Core
- 75' WEST of SEPOC & ~15' EAST of Pano K.

13.35 - Collect Samples A.25 3240-BG ~1.5' BG S, ~35' WEST of TANK DISTRIBUTION BOX.

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No.____

14:00 PRES. OS - will press in A.M. TO CONTINUE BACKGROUND
SAMPLE

14:30 Review to M. Schuyt.

ALL SAMPLES WERE COLLECTED BY BEST DIGGING
~1.5' BGS WITH BREAKER BAR & SHOVEL. SAMPLES WERE
COLLECTED USING SHAPLEIGH STEEL DRAWING
UPON SAMPLE COLLECTION, THE HOLE WAS BACKFILLED
& A MARKER STAKED PLACED AT LOCATION WERE
WITHIN 100' OF THE SURFACE TANK & AWAY
FROM THE TANKS ASSOCIATED LEACHFIELD.

Short first DAY DUE to GREY BUSSES (Voting Day)

14:40 - 15:40 6.50 RPO

Jerry Ben 9/6/94

9.7-9.4

- CLAC, Camp. ~ 850 -

8:40 ARRIVE @ TCC FOR CONTINUED BACKGROUNDS. SEEING SOME
WILL START @ AUSTECI-BG.

БЖНН 60.

To Page No.

Witnessed & Understood by me,

Date _____

Invented by

Date

Recorded by

TITLE

From Page No.____

~ 4

~ 9!

-10:

Witnessed & Unde

TITLE _____

From Page No. _____

ck Ground

~9:00 TCC1-BG collected @ ~1.5' B.G.S., SILTY SAND, SAND
w/ fine to coarse GRAIN, OCC. COBBLE, DRY

DIGGING

SS. W/SSS

lower

KALUBO

SUS

-AT

'NOTING DAY)

194

A. sh.

~9:30 SAMPLE AZTECA-BG collected @ 1.5' B.G.S. @ 42' EAST
OF SKIN MARK. SOIL DRY, MISO BRN., SILTY SAND w/
FINE TO COARSE GRAIN.

LENGTHENED

~10:05 COLLECT AZTECA-BG @ 1.5' B.G.S., MISO BRN., DRY,
SILTY FINE GRAIN w/ COBBLE. SAMPLE LOC. ~2.2' N.W. OF
THICK MARSH

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

~ 10:40 Sam Pls. A25 B2E-B2C collected ~ 1.5' BGS. Sand Silt, Just Sand.
 Trace fine gravel, med. B2C, DRY. Collected ~ 53' East of
 5500 Tank.

CANE SPRINGS RD.

~ 11:10 Collect A26CS-B2G @ ~ 1.5' BGS; SANDY SILT, med. B2C, FINE GRAVEL.
 Collected ~ 75' N. of 5500 Tank.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

TITLE _____

From Page No. _____

11:40

1230

13:3

~ 13:4
North

Witnessed & Unc

TITLE _____

From Page No. _____

11:40 COLLECT ALBERT-BG @ -1.5' BGS @ ~70° EAST
OF SLOPE TANK; SAND, SILT, FINE GRAVEL, DRX, MBO BEN
MS/MSP TO BE FROM THIS SAMPLE

12:30 - 13:00 LUNCH AB

13:30 ARRIVE @ GRA FROM PORTABLE SAMPLE LOCATION - 8.5' NORTH
OF SLOPE TANK. HOLE 7.5' BGS; SILT, SAND w/ SAND & FINE
TO COARSE GRAVEL; DRX TO DRX; MBO BEN

~13:45 ALBERT-BG COLLECTED - SEE LOG MAP ON P. 104.
NOTE: CHECKED SLOPE TANK FWD LOG - NOTED THAT FLUID WAS MUCH CLEANEER & NO SILT LIKE WORK 93

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No.____

$\sim 1.6:1.5$

8/8

9/

8:00

~8:40

9100

9:40

10500

~ 15:26

Sample X
100

Corrected A5-TRA-BG + 60' SE of SENE Cuvette. So. S. 1/4 w/ 1600, Dry, Great Bend. Sp. Pl. corrected ~ 1.5' Bas

To Page No.

Witnessed & Under

Recorded by

TITLE _____

From Page No. _____

~15:40 HYDRA-EP COLLECTED BELOW METAL PIPE OF #2 TANK
 SAMPLE DEPTH ~ 1'4" BELOW G.S. & ~1.5' BELOW V.R. OUTSIDE P.P.E.

ALL EXCAVATIONS FROM DITS SAMPLES WERE BACKFILLED
 & MARKED/LOCATED IN/WARD STAKES.

~16:15 RETURN TO MISCELLANEOUS SAMPLES COLLECTED TODAY. COMPLETE
 ALL BACKGROUND SAMPLES REQUIRED FOR THE SITE
 PROGRAM

John B. 9/7/94

9/8/94 3 HAS SITE, 7 HAS GSD RPT

9/12/94

8:00 THE PATROL MET AT OFFICE LEFT FOR AIRCRAFT FARM.

~8:40 PICKED UP FOR LATE RESPIRATORS AT CP-2 FOR SHALING

9:00 ARRIVE @ ECA FARM. STAFF: HEAVY TH/RA SAGE & S. BUBO
 @ SITE.

PREPARE DITS & P.P.E. SET UP DIRT FOR SAMPLING & TRASH
 9:40 TANK ABOVE PREPARED FOR VOCS & RAD - NO RESPIRATORS
 COLLECTION AIS-T-L. SAMPLES BECAUSE OF CLEVER MIND
 FROM THE PROCEEDING ON SITE. DITCH TO LADDER ~ 1' BELOW TANK
 STEEL TUNNEL USED TO HELP CLIMB - OVER SPILL. BOB TOOK PHOTOGRAPHS
 DURING

10:00 SWAGE SAMPLES COLLECTED AIS-T-S. NO VOCS (O.P.P.) NO
 RAD. COLLECTIONS. SWAGE DIRT BEG TO BURST FROM VISCOUS. DESCEND
 TO SWAGE ~ 3' BELOW TANK. TANK BOTTOM ~ 5' DEEP.
 SAMPLES WERE COLLECTED BY REMOVING SWAGE FROM SCAL
 ON BOTTOM OF 6' HOLE. SWAGE REMOVED WITH STAINLESS STEEL
 TROWEL.

Witnessed & Understood by me, _____

Date _____

Invented by *John B.*

Date _____

Recorded by _____

To Page No. _____

To Page No. _____

From Page No. 9/12/94 CONTINUED

AFTER SAMPLE COLLECTION THE SAMPLES WERE SPRAYED W/ ANVEX
 & LATER SOAKED FOR CLEANING PRIOR TO INSURECTION. SAMPLES
 WERE SUBSEQUENTLY LABELED & PLACED IN ICE FOR TRANSFER
 TO ASD. THE MS/MSD WAS SECURED ON THE SURUS SAMPLES.

THE TRUCK WAS DECONTAMINATED WITH THE STEEL PLATE & CROW
 DOTTED PPE. ALL PPE, ^{TRASH} TUNNEL & TROWEL SOIL WERE
 PLACED IN A PLASTIC BAG WITHIN A STEEL 55G DRUM.
 THE DRUM WAS LABELED W/ A BIOHazard LABEL & SECURED
 ON SITE.

PPE AS DIRECTED BY ITH PRIOR TO SITE WORK INCLUDED:

- TYVEK SUITS; FULL FACE HEPA RESPIRATORS, NEOPRENE
 GLOVES, MYSELF & THE SAMPLE. ADDITIONALLY WERE
 BIO HAZARD COVERALS FOR SPLASH PROTECTION.

ITH & RAO SAFE INSTRUMENTATION INCLUDED MSA PHOTOGRAPHS
 DETECTOR, LUDLOW PNEUMATIC GM, O₂/CO₂ METER.

NO HAZARDOUS ENVIRONMENTS WERE DETECTED. RESPIRATOR
 A5715 WAS PROVIDED TO ASD FOR SAMPLE TRANSFER.

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

Witnessed & U

From Page No. _____

TITLE _____

9:26

1.

12

4/5

9/

TITLE _____

From Page No. _____

2-8-95 WEDNESDAY 3754041

LEACHFIELD GOLDMINE

0900 MEET ELECTRICIANS AT SITE (EDWARD E. MGL) WILL CLEAR
AS BEST AS POSSIBLE FOR ANY UNDERGROUND UTILITIES.1000 ASSESS CLEAR OF UTILITIES & APPROX. LOC. OF GULF LEACHFIELD
MARKED W/RED POINT.1045 FINISH METEOR AT AZTEC SITE. LEACHFIELD BARRIERS
APPROXIMATELY 100' N. GULF.- WALKED APPROXIMATE REGION OF AZTEC. PICKED UP
SIGNAL TO INVESTIGATE POTENTIAL TANK LOCATION. NOT
SAMPLED PRIOR SINCE UNABLE TO LOCATE.1100 FINISH CLEARING AZTEC AREA. ONE 2" DIAM. POWER
CABLE IDENTIFIED BUT IS ABOVE DISTRIBUTION BOX
AREA, THEREFORE WILL NOT BE AFFECTED BY
PROPOSED EXCAVATION ACTIVITY.1125 FINISH CLEARING AZTEC AREA. CLEARED APPROX 40' X 40'
AREA SOUTH OF DIST. BOX. NO UTILITY CONTACT.1140 CLEARED AZTEC AREA. LOCATED BOUNDARY OF CHEVRON
SNAPED LEACHFIELD. NO UTILITY CONTACT. 1305 CLEARED AZTEC AREA & LOCATED LEACHFIELD PARAMETERS
NO UTILITY CONTACT.1325 CLEARED AZTEC AREA & LOCATED LINE TO DIST. BOX &
LEACHFIELD.1345 CLEARED AZTEC AREA - LOCATED LEACHFIELD OUTSIDE &
INSIDE WEST FENCE LINE. ALSO LOCATED POTENTIAL
TANK BOUNDARY. EFFLUENT END OF TANK MAY BE
ACCESSIBLE W/O CUTTING INTO CONCRETE & REMOVING
ABOVE GROUND POINT.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

- 1410 LOCATE FOR AUSTIN - POTENTIALLY LOCATE DIST. BOX &
GET APPROX. BOUNDARY FOR LEACHFIELD. NO UTILITY CONTACT.
- 1430 LOCATE @ AUSTIN - NO UTILITY CONTACT - DIST. LINE
MARKED & APPROX. LEACHFIELD BOUNDARY INDICATED.

ELECTRICIANS CALLED TO ANOTHER JOB. WILL RESUME
IN A.M. WITH SAME CREW.

1515 - RETURN TO MERCURY.

12-9-94 THURSDAY

- 0800 MEET W/ ELECTRICIANS & GO TO POTENTIAL UST SITE
@ ALFA 5 TRAILER HOUSING LOCATED. POTENTIAL TANK
LINE & TANK AREA. NOT ABLE TO CONFIRM W/O EXCAVATION.
AREA WAS MARKED WITH PAINT, STAKES & FLAGGED.
HAND EXCAVATION WILL BE USED TO CONFIRM TANK LOCATION
ONCE BIOLOGISTS HAVE BEEN NOTIFIED.

- 0915 ARRIVE @ BUILDING 5-6 TO ATTEMPT TO LOCATE UST
LINE. VERY MINIMAL SIGNAL FOUND HOWEVER LINE FOLLOWED
APPROXIMATE LOCATION ON DRAWING. WAS ABLE TO BE MARKED
OUT & PAINTED. IN ADDITION AN APPROXIMATE 4'x4'
AREA IN THE MIDDLE OF PARKING AREA WAS MARKED.
HAND EXCAVATION RECOMMENDED TO CONFIRM TANK
LOCATION OFF SITE 1010 - RECOMMENDED TO CONTACT DRUGS
BOOKER RE. BUD MORGAN PRIOR TO DOING ANY SITE
WORK. LINE EXTENDS AT ~ 45° TO SE BLDG CORNER
LINE IS ~ 145-150'.

5-6

~ 145-150'

4'
4'

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

TITLE _____

From Page No. _____

1115

1320

1340

Witnessed & Understood by me,

TITLE _____

From Page No. _____

115

Visit Locality @ A.T.E.P.A. : Locality Line &
 APPROXIMATE LEACHFIELD PERMANENCE. NO UTILITY
 CONFLICT.

1320

Visit @ AZ66EP - NO UTILITY CONFLICT. LEACHFIELD
 FENCE - NO PAINTING REQ'D.

1340

Visit @ AZ6CS - NO UTILITY CONFLICT IN AREA
 OF LEACHFIELD. LEACHFIELD FENCE.

Also called to AZ66EP SITE. Locality COMPLETE
 NO CONFLICT OBSERVED OR IDENTIFIED WITH PRESENT
 COMMENCEMENT OF LEACHFIELD SAMPLING. BIOLOGISTS
 WILL NEED TO BE IDENTIFIED PRIOR TO EXCAVATION WORK.

To Page No. _____

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

From Page No. _____

3-6-95 MONDAY. CLEAR, -55°F, SE WIND 5-10 mph

W.O.
[3754-041]

0830. ARRIVE @ A25 EMAD FACILITY. FINISH UP WORK ON GROUND.
 PAVING OF UST 21-5800-1. TANK IS 20,000 GAL. FOOT DRAINAGE
 DIVERTED & SOIL PILE COVERED AREA FENCED

1000. SET UP AT A25 AREA. CREW ON SITE CONSISTS OF:
 Jim McCusker - IH/PAO; Jim Fischer - OPERATING; NEDDART - STATION CLERK;
 STEVE BOBO - ERS; JERRY BART - ERS; BOB SEWELL & MIAMI GILES - LABOR SUPPORT.

1015. REVIEWED SCOPE OF WORK & CONDUCTED TRAIL GATE SURVEY
 DRILLING SITE. PRESENTED BY PAO GAG.

1030. AREA'S EXCAVATION STARTED IN AREA PREVIOUSLY COLLECTED.
 TRENCH EXCAVATED - 12" WIDE, 7' DEEP & 25' LONG. NO INDICATION
 OF SEPTIC SYSTEM. TRENCH BACKFILLED. PLANS OVER TO
 EXCAVATE DIAGONAL TRENCH IN APPROXIMATE ALTERNATE LOCATION.
 NO INDICATION AT THIS TIME OF SEPTIC SYSTEM.

1130. SECOND TRENCH AT 75' LONG. NO INDICATION OF SEPTIC SYSTEM
 DEPT. FROM 6-8'. ENCOUNTERED UNDISTURBED "HARD" SOIL. A.W.G.
 ENTIRE TRENCH BOTTOM. BACKFILLED EXCAVATION. RELATED PHOTOS TAKEN.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Recorded by _____

Date _____

3/6/95

TITLE _____

From Page No. _____

12-12
1230

1330

1340

PID
O.C
HBO'SBRA
Z

Witnessed & Un _____

TITLE _____

From Page No. 3-6-95 (Cont.)12-1230 - Lined

1230 Equip. set up on A25 RAD. Location. Picked up down face Soil. Pile.
 DIST. LINE LOCATED. FOUND SO. LINE GOING EAST OF DIST. BOX &
 CHASED OUT "T" LOCATION WHERE LINE WENT SOUTH. DEPTH OF
 "ORANGE BELL" DIST. LINE @ ~ 3.5' BGS.

~ 3.5 BGS
 ORANGE BELL
 PILING
 PETTS STREET AT
 "T" CONNECTION. ~ 6-8" of 3/4" TO
 2" DIAMETER BLOW
 POTENTIAL

1330 DECON BACKHOE BUCKET SAMPLE WILL BE COLLECTED ACCORDANT TO
 PIPE & BLOWN GRAVEL. DEPTH OF SAMPLE @ 4.5' BGS.

1340 SAMPLE COLLECTED FROM DECON BACKHOE BUCKET USING
 STAINLESS STEEL TROWEL. SOIL PLACED INTO LAB. CLEANED SAMPLE
 JARS. SOIL CONSISTED OF GRAVELLY SILT, MGO. BARI, NO VOC'S DETECTED
 DAMP TO MOIST SAMPLE I.D. A25 RAD - Lf = 1. SAMPLES WERE
 ANALYZED FOR THE FOLLOWING:

P.D. D.O.P.P. HAB. ANAL.	TOT. HUMIC ACID	250 ml.
	TOT. METALS	250 ml.
	TOT. VOA	120 ml. (2)
	ORIG. GRAV. S.	250 ml.
	PCBS	250 ml.
	TOT. DNA	500 ml.
	PH	250 ml.
	MSI/MSO	250 ml. (2)
	GRAVITY	500 ml. measure.

BRADY # 592-343 ASSIGNED TO DRUM RTN WITH PENSACOLA. APPROXIMATELY
 20 GALLONS GENERATED FROM BACKHOE & EQUIP. IN DECON. (STOVE, SAMPLE SCOOP)

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

W.O.
754-041B.SING
DRAINAGE1 - SUBCONTRACTOR;
2 - LABOR SUPPORT
SATE. SAFETYD.H.K.S.A.
O INDICATION
SR TO
TE LOCATIONSYSTEM
ING
S TAKEN
To Page No. _____

From Page No. 3-6-91 (Cont.) (CLAR, Cam 0-3 mph., 70°F)

1435: SET UP AT A.T.S. R.C.P.A.

1530 Located 45° off. main line. USBO 1" LONG. RESCUE PIPES UNDERMAIN
 30" PAPER FOR WASTE LEACHING. SAMPLES WILL BE UNDER 1ST 45°
 CUTTER BELOW (1') THE FIRST 1' PIPE. 1ST 45° CUTTER IS ~ 3.5' TO
 4' BGS & IS 16' FROM SOUTH EDGE OF DIST. BOX. 1-2" GRASS
 ~ 16" thick BRAN PIPING

1600 SAMPLES COLLECTED. SAMPLES FOR SAME PARAMETERS AS
 PREVIOUS. SOIL CONSISTED OF GRAVELLY SAND/SILT, MISO DRN,
 MOIST. HEADSPACE 0.6 ppm
 1H/RO. SARE OFF SITE = NO VOCs or RAD ABOVE BACKGROUND
 LEVELS DETECTED. GRUBBING 45731. ISSUED FOR SAMPLE
 EXCAVATION BACKFILL. WILL BRING AT SITE IN A.M.
 TO REPAIR EQUIP. & MOVE TO NEXT STA.

1610 OFF SITE

1640 RETURN TO MBRUNT

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

From Page No. _____

0830

0900

0915

1035

1045

1120

1150

12-1230

Witnessed & Un

TITLE _____

From Page No. _____

3-7-95 TUESDAY; CLEAR, CLOUDY, ~55°F

0830 ARRIVE @ AZURE REPAIR SITE; CROWN AT SITE. HAD TO GET LADDER SWAYING

SUN BEING BURNING; SUN W/LOW WIND 10/100; 10/100

CONDUCTED TRAILING SALTY DRILLING

HADIT DRILLING @ SITE. AROUND 5000 GALLONS

BRACK 592-344 ASSIGNED TO DRILL W/DEAN PENSACOLA (~15 GALLONS)

0900 STEAM CHANGE NEARS ~15 GALLONS GENERATED

PUMPED TO MOB TO AZURA

0915 BEGAN EXCAVATING AZURA-LF

1035 SPILL ATTEMPTED TO LOCATE PELLETTES OR PIPE SECTIONS. 200 GALLONS

TURNED @ 90° W/ BULK. AROUND 200 GALLONS. NO BOTTLES IN DEBRIS-BURG. FOUND YET.

1045 LOCATE 1ST PELLETTES IN DEBRIS-BURG. PIPE FROM BUCKET & PELLETTES TO SAMPLE

PIPE @ ~3.5' DEPT; ~6" 1-2" DIAM. GRAVEL; SAMPLE DEPTH ~5' B.G.S.

SOIL BELOW GRAVEL CONSISTS OF GRAVEL, SAND/SILT, MED. BAY DIRT; NO ADAMS

OR VOCs DETECTED; NO STAINING. SAMPLE T.D. AZURA-LF-1. P.D. PENDING. 2000

BRACK 592-345 ASSIGNED TO DRILL @ DEAN PENSACOLA W/ATSK

~15 GALLONS

1120 EXCAVATION DEBRIS-BURG; BUCKET & TROW. DEBRIS

1150 BEGAN EXCAVATION AT 425 PAV-LF. START AT "Y" JUNCTION (APPROXIMATE LOCATION

OF BACKFIELD

12-1230 LUNCH

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

From Page No. _____

From Page No. _____

1500 LOCATED PERFORATED ORANGEBURG AFTER EXTENSIVE SEARCHING. EXCAVATED TRENCH BACK TO CONCRETE SEPTIC TANK. NO DIST. BOX ENCOUNTERED. PEO. CLAY PIPE EXTENDED FROM TANK & DISCONTINUED AFTER 2.5'. LOCATED A NUMBER OF ORANGEBURG & CLAY PIPE FRAGMENTS. DURING TRENCHING LOCATED ORANGEBURG TO THE SOUTH OF THE ^{WEST} TANK END. PIPE HAD PERFORATIONS RUNNING DOWN BUT NOT MUCH OF A ORANG. BASE. SSS. SO MORE LIKE NATIVE GRAVELLY SAND / SANDY GRAVEL. SAND. ORANGEBURG WAS ALSO DISCONTINUOUS HEADS TO TANK. IT APPEARS AT SOME POINT WORK MAY HAVE BEEN DONE WHICH DESTROYED THE "T" CONNECTION. I DECIDED TO SAMPLE AT THE FIRST LOCATION THAT I OBSERVED THE PERFORATED ORANGEBURG.

1515 SAMPLE COLLECTED ASPAN-UF-1 @ A DEPTH OF 6' BGS. PIPE WAS AT ~ 5' BGS & 6' WEST OF THE TANK. SOILS WERE GRAVELLY SAND / SANDY GRAVEL, LT. BRN, DRY, NO STRATIFICATION. NO PORE, NO VACS DETECTED. PID 0.0 ppm (KBRASAC)

1540 ITH/RAD SACS DECTOS; GWS TAG A5732 ISSUED FOR SAMPLES.

BRADY #592-346 ASSIGNED TO DECON. FURTHER ~ 15 GWS

GENERATED

1410 CROW OFFSITE

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Un _____

TITLE _____

From Page No. _____

3-8-95

WEDNESDAY; HIGH CLOUDS; LG WIND 1-3 mph; ~60°F

0830 ARRIVE @ TEST CAN A. ANTENNAE PARAFF

0845 PARAFF AGAIN. SPARE CROW @ SITE. NO SAFETY ISSUES. FROM PREVIOUS DAY.
NO TRILGATE BRIBING. UNWANTED TODAY.

11/RAO CUBAESP ALISA

0915 LOCATED LG DISTRIBUTION BOX WHICH APPEARS TO BE ASSOCIATED WITH
ASTCA. SPARE TANK ONE RSO CLAY LINE EXPOSED AT NORTH BOTTOM OF
BOX. SPARE LINE FOUND SPAN ABOVE. BOX LINES APPROX 3-3.5' BGS.
DIST. BOX IS CONCRETE W/STEEL MOUNTING CONCRETE PIERCED IN PLACE.
BOX IS ~5' WIDE X ~3.5' DEEP.

0950 APPROXIMATE 45' CONCRETE EXPOSED TO MAKE 90° TURN

1000 EXCAVATE LONGER DISCHARGE AREA. ~1' SEPARANT OF RSO CLAY L.
DIST. CONCRETE EXPOSED. THIS IS FIRST IDENTIFIED LOCAT. POINT. SOIL
UNDER EXCAVATION ~1' DEEP. PIPE & GRAVEL. DEPTH OF PIPE IS 35'
IDENTICAL SAMPLE IS ~5' BGS. (6\"/>
1010 SAMPLE T.D IS ASTCA-LF-1. COLLECTED SAMPLES FOR
STANDARD PARAMETERS AS PREVIOUS SITES. GREEN TAG AS 733 ISSUED.

1015 BEGIN BREAKING EXCAVATION & WILL DEEPEN EXCAVATION & TOWNS

1020 SOIL CLAY APPEARS AGAIN. BRADY 597-347 ASSIGNED TO
EQUIP. DECON. PARAFF. ~1.5 GAL. CONCRETE. SAMPLE P.D. PARAFF. ~6.0 OFF

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No. —

3-8-95 (cont)

04THB60 ACCESS TO 2 AND 71 LISTS NAMES FORMER U.S.I.

✓ in Bk Distal like core Lipid mass 50 $\delta S + 20 pm$.

NO ESTADO RESOLVIDO: em 19 de julho de 1978, 5.ª T. Criminal

3-7-95 By Dr. Moss & Eusterman, Ltr. OO O2 0209

Depth to Mark Bottom 8.0' Below Highest Tides

Exatamento mais fácil de se "ler" e ~ 2,5' pouco preciso.

Steve Thank. Will convert to 256k and 512k

(~ Attributes) of Task

1200. 455, 5175 to 7000 in. Lenticular Shale to ASD. Clay

Episaxis furcata

1330. ~~Revised~~ to R-MAD EXCISEMENT to locate WEST TRAIL END

$500 \pm 10580 \text{ MW/L} \times 0.05 \text{ MW} \times 1.5 \sim 5 \times 5 \times 6 \times 10^6 \text{ J} \times 1.0 \times 10^4 \text{ s}$
 $550 \text{ Gms. [Calc. rate} \sim 8.10 \times 10^4 \text{ (} 11.25^2 \times 6 = 4 \times 2.4 \times 10^4 \text{ Gms.)}$

[illegible]

1640 Review to MSc 57

To Page No.

Witnessed & Understood by me, _____
Date _____

invented by

Date _____

Recorded by

Witnessed & Unwitnessed

0580

0071

12-1230
1320

From Page No. _____

From Page No. _____

- 0830 Arrive @ Site. A25. TCCZ
- 0800 THALASSEUS MESSINAE. CPON. LENSEN D. SITE CLEARER BY
144/PAD (STEVE HANSEN) & BIOLOGIST (TIM LENSEN).
- 0915 Located Peltostoma S. & LARVA LARVA. ORANGE-BULL PILING w/ BEHAVIOR
First Down. ALK. 1.2" GRAVEL BED. GRAVEL BED ~ 1.5' THICK.
Below THE PIPE. PILE. ^{BEHIND} TO P. OF ORANGE-BULL @ ~ 2' BGS. SAMPLES
~ 4.5' BGS.
- 0930 Sample Collected for PLAMERGES AS PREVIOUS. TRAP BANKS
CO. DRAWN @ 0800 THIS MORNING. SOIL CONSISTS OF SILTY SAND
w/ GRAVEL. MGO. DRIP. DAMP. NO OIL/STAINING. NO VOC. OR
RAC. ABOVE. RICKLAND DETECTED. HANDSPACE 0.0 ppm.
- BRADY 572-349 ASSIGNED TO DECON. PASSAGE. ~ 5 GAL
CONDENSED.
- 1005 - MOVE TO AFTER SITE LOCATION.

T.C.C.Z. SITE LOCATION

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Understood by me, _____

4 LI
OF
GAL
w/LE
W666
DIST.

1055

1100

1150

1200

1250

1300

1325

1330

TITLE _____

From Page No. _____

BT. w/ PERMITS
 HICK
 SAMPLES
 KS
 TR. SAND
 OR
 T. GATE

TCC1 LOCATION

SOUTH FENCE LINE

TCC1 TANK

4 LINES ON EAST SIDE OF DIST. BOX. GRABED EAST LINES & DETEC. W/ LEACH THAT LINES WERE RUNNING INTO DIST. BOX.

APPROXIMATE LOCATION

PERFORATIONS LOCATED

HANDSPACE 8.0 ppm

1055 MOVE TO WEST SIDE TO EXPOSE LINES.

1100 CREW CAUSED OFF SITE. TEMPORARILY.

1150 CREW RETURNS CONTINUE EXCAVATION.

1200 PERMITS FOR LUNCH

1250 LOCATED 1ST PERFORATIONS IN S.W. DISCHARGE LINE. DISCHARGE LINES ARE RED CLAY PIPE W/ 1/8" PERFORATIONS ON BOTTOM SIDES OF PIPE. PIPE IS OVER 1-2" DIAM. GRAVEL. GRAVEL BED IS 6" THICK. PIPE IS IN 2' BED. SAMPLE LOCATION WILL BE AT A DEPTH OF 3.5'. DISTANCE FROM DIST. BOX TO 90° CONNECTION IS ~3.5'.

1300 COLLECTED SOIL SAMPLE. SOIL IS SILTY SAND W/ SOME MED. BRN. MDIST. NO WOODS/STRAW, NO V.D.C.S. OR P.O. ABOVE BACKGROUND.

1325 592-350 ASSIGNED TO DECON. P.O. - 2.0 GR. GRABBED EXCAVATION BACKGROUND. MOVE TO ALI 5.20.

1330 EXCAVATE 12' SOUTH OF SEPTIC TANK 1ST. LINE LOCATED ~3' BG. 5' RED CLAY PIPE FOLLOWED LINE. ~16' & ENCOUNTERED CONCRETE. TANK TANK IS UNDER ~5'x6' CONCRETE PAD WITH OLD DEBRIS UNIT. HAD EXCAVATE PART WAY UNDER CONCRETE TO CONFIRM TANK. NEED TO MOVE CONCRETE TO EXPOSE TANK AND TH. CONCRETE W/ ASBESTOS IN CONCRETE BUT SAID IT SHOULD BE OK W/ MINOR BREAKAGE. CHECK W/ ART SITE INSURANCES LGE (KEEGER) TO OBTAIN PERMISSION TO MOVE CONCRETE. SAID IT SHOULD BE NO PROBLEM BUT BE CAUTIOUS OF ASBESTOS.

To Page No. _____

To Page No. _____

Witnessed & Understood by me, .

Date

Invented by

Date

Recorded by

From Page No. _____

From Page No. _____

1510 Arrive Back At Site. Crew Excavated Pileheads
 of 150' High Well Collect Samples & Compounds to
 expose tank. Distribution is ~6' South of Dist.
 Box & At 90°. Pipe is Red Clay w/ 1/8" Diameter
 Longitudinal Rib 1-2" Diameter Groove

1520 Collect Samples A253210-LF-1. P.D. 8:00 PM
 Prep Area for moving concrete in A.M. Discontinue
 water pump & move drainage system.

1600 Long. Sine. Crewing. At 5:22 15560 Excavated
 Soil consisted of fine sand w/ gravel, m.b. Benj.
 Damp, no odors, staining, no VOCs or PAHs
 Detected Above Background. Biol. to Return
 in A.M.

1640 Return to M. B. C. U. T.

3/13/95

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & Understood by me, _____

0830

0900

0915

0940

1020

1110

NO

TITLE _____

From Page No. _____

3-14-95 Tuesday: High Clouds, Clear, -70°F

0830 ARRIVED TO CONTINUE EXCAVATION ON A253210 SEPTIC TANK.

CREW @ SITE. PACKED FROM E.C.G. & SITE BIOLOGIST.

BRIGGS DEAL ON H&S ISSUES

0900 MOVED CONCRETE SLAB AWAY FROM TANK AREA. SLAB MOVED
1.0 METER.

0915 LOCATED A253210 SEPTIC TANK. TANK ACCESS 3/4 COMPLETED BY CHUCK. PAD OF FASULT. MAINWAY COVER IS RE-EXPOSED. WAS ABLE TO BREAK THROUGH WOOD & DETERMINE THAT TANK IS APPROXIMATELY 1,000 GAL TO 1,500 GAL. TANK IS MADE OF CONCRETE - DEPTH FROM MAINWAY TO TANK BOTTOM IS ~8'. APPEARS TO CONTAIN CLEAR WATER ~8" DEEP. NO SLUDGE. S. BOGA WAS CAUTIONED TO COME OUT TO SAMPLE TANK CONTENTS. EXCAVATION TRENCH BEING BACKFILLING LEAVING TANK ACCESS EXPOSED.

0940 DECON BACKHOG BUCKET - BRAND 592-5511 ISCUISO
~10 G GENERATORS, TOOLS DECONTAMINATED ALSO.
PAD SAFE OK'D TANK CONTENTS FOR SAMPLING.

1020 MOVED TO ASSETS - BIOLOGIST & H/R/ROSAFE CLEARED AREA.

1110 COLLECT SAMPLES FOR ASSETS-CFL-1. SOIL CONSISTED OF SILTY SAND/SANDY SILT W/ GRAVEL, MGO BRN, DAMP, NO VOCS. NO ODOORS & STAIN. NO MOLD IN SOIL. MINOR BLACK STAINING NOTED AROUND GROUND PAPER. HEADSPACE 1.60 PM

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

Frc

From Page No. _____

DISTRIBUTION LINE 12.11' SOUTH OF SECT. 90' ABOVE 12.3 WEST
OF LINE. TOP OF BED CLAY LINE IS 7.5' TO 8" OF 1-3"
DIAM. GRAVEL BELOW LINE. SAMPLES COLLECTED AT ~4.5' BGS.

BED 582-352 ASSIGNED TO DEEP FINESTRASS - ~1.5' GR.
GSS - 352

11.40 CREW MOVES TO RCP TO DRILL DR. DRILL
WILL BREAK FOR LUNCH @ 12:00 & MOVE TO AZ5 BREN

12-1230 LUNCH

1245 OBTAINED ACCESS TO BED CLAY (31-9-35) SITE CLEARED BY

14/PAD SAFE & BIOLOGIST

1310 LOCATED DIST. BOX for AZ5 BREN - NOT INDICATED ON
AS-BUILT EGG. DRAWINGS. BOX IS CONCRETE ~1.5' X 1.5'
& HAS LINES BEING EAST, WEST, & SOUTH. CHASSED OUT
SOUTH LINE @ ~3' SOUTH OF DIST. BOX LOCATION
OPENED UP CONCRETE TO BED CLAY PIPE. PREPARATIONS AT
BOTTOM OVER 6" OF 1-3" GRAVEL GRAVEL OVERLIES
TUFF BED VERY DENSE. COLLECTED SAMPLE INTO TUBE
BED USING TROWEL. SOIL WAS SILTY, LT. GRAY/BROWN, DRY,
NO STAINING/ODORS, NO VOCs/PAD ABOVE BACKGROUND.

1335 AZ5 BREN (L.F.) SAMPLE COLLECTED. HEADSPACE 0.1 ppm

To Page No. _____

From Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Witnessed & I

1500
AZ5 BREN
ACCESS MARK
BED CLAY
PIPE
OPENED
UP
PIPE
PREPARATIONS

TITLE _____

From Page No. _____

3. WEST
 1-3"
 15' BGS.

5' Gm.

Sample DEPTH - 5.0' BGS

1400 DISF. LINE
 EXCAVATION & TANK EXCAVATION BACKFILLED FENCE
 REMAINS MOBE CRSS TO AZSS.

— BRADY # 592-353 ISSUED TO FINISSE DEPT. ~ 1.56
 GENERATED

1425 SET UP AT AZSS. S. BOB BY SITE & CONFIRMED SAMPLES
 OF AZS3210.

1450 LOCATED PERFORATED PIPE @ AZSS. R60 CONNECTION
 FROM R60 CLAY LINS (COMING FROM TANK) TO ORANGEBURG.
 PIPE IS OVER 6" OF 1/4" TO 1" DIA. GRAVEL
 ~ 8"

1500 COLLECT SAMPLE AZSS-LF-1. SOIL SILTY SAND, MED
 BRN., MOIST, NO ODOUR/STAINING, NO VOCs/PAD ABOVE
 BACK GROUND. PID 0.0 ppm.

LINE CONNECTION IS 9.5' S. OF TANK LID, T.P. OF ORANGEBURG
 IS 4' BGS. OVER 8" GRAVEL SAMPLE DEPTH IN 6' BGS.

BRADY # 592-354 ASSIGNED TO DEPT. FINISSE ~ 1.56
 GENERATED

1600 CLEAN UP SITE - WILL MOBE TO A26 IN A.M.
 GIVE THE AS 774 ISSUED

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

Project No. _____
Book No. _____

TITLE _____

TITLE _____

From Page No. _____

0815 At A26CS SITE. Awaiting crew to move

Backhoe

0900 Backhoe @ SITE. Cut backhoe for access. Area

Dist. Below Box 2. Lined CHAIN

@ ~6' Below Thistle. Begin excavation of ALPHAS

Line

0920 Locate 90' below as NORMAN Line. Line is

Res. cut RPS & DISTRIBUTION INTO GROUND. Line is

1' Line. Res. cut LINES WITH NO SOLID CONSTRUCTION (Tie

LINE IS 15' 1/4 - 3/4" DIAMETER CEMENT

0930 Samples A26CS-1. Core is 15' 1/4 - 3/4" DIAMETER CEMENT

SILT. 1/4 - 3/4" DIAMETER. No. 1000

of sample observed. Sample location is 16' WEST

of LOCATE 90' DIST. Box. Res. cut LINE 15' 1/4 - 3/4"

Box. 15' 1/4 - 3/4" THICK. Sample collected

@ ~4.5' BGS. P.D. 4.6 ppm

Explosive

A26CS TANK

Backhoe

Explosive

Backhoe

Backhoe

Backhoe

Backhoe

Backhoe

Backhoe

From Page No. _____

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

10.30

TITLE _____

From Page No. _____

1030 LOCATE LEAST TILE FROM A26 HCF. DISTRIBUTION IS FROM
RED CLAY LINE TILE 1" LONG SECTION ABOVE 1/4 TO 1" DIAMETER.
RED GRASS. SOIL CONSISTS OF SILT SAND w/ 6% GRASS, NO
BRN, DAMP; NO ODR/SPRUNK, NO LOGS/RA ABOVE ADJACENT
BACKGROUND.

1050 SAMPLE A26 HCF-1 COLLECTED 45° T' OF LINE
LOCATED ~12' NORTH OF DISTRIBUTION BOX EDGE. TOP OF CLAY
PILE ~2' BGS. ~6' OF GRAVEL BELOW. PILE SAMPLE COLLECTED
AT ~3.5'-4.0' BGS. PID 0.0 ppm

PROOF #592-356 ISSUED TO EQUIP DETON ~15 GM GELCASE
DRUMS FROM BOTH A26 SITES ARE STORED AT CHECK STATION.

- GESS TAG # 5978 ISSUED FOR SAMPLES.

1300 NEW 1/2 SAMPLES TO ASD - LNO BRK'S SAME SAMPLES FROM A26 SITE
HAD BROUGHT IN OVER 200 TO ANALYSE FOR ANALYSES AS REQUIRED BY
J. DUGAS (ASD) & DATA CHSM.

1500 ARREVE @ UIC TO SOLIDIFY PILES DRUMS IN PREPARATION
FOR DISPOSAL AT A/G HYDROCARBON EMPLOY.

To Page No. _____

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

TITLE _____

From Page No. 350-85 CEAR, N. 100° E-20; -60° F

0940 1965 W/ROUND DRUMS @ A5 UNDER GROUND. DRIVER
W/KNOWLEDGE ON ARRIVAL. (E)

1030 ARRIVED @ VIOC. TO PUMP 12-B-1 PROVER FROM 11 DUMPS. DRIVER
WEIGHED IN EMPTY DRUMS HAVE AVE OF 406 GACH. BRADY
#S ON DRUMS ARE 582-332-THRU 582-342 (N 440 GACH)

1105 Completed Prover Form - Reams. L.O.S. & P.W.G.S. PRIME TO MOVE
TO 25-3900-1 G-M-HO SITE

1240 ARRIVE @ 25-3900-1 DUMPS - E. C. G. (WOOD) IN SITE W/ TRUCK. 1ST TRUCK
FILL @ 1225.

1330 TANK G.M.HO, ~1.5" PROVER LEFT IN TANK.

1430 RETURN TO MESQUER. REBECCA WIFE L. W. ESCORT FIRST TANKER
OUT G.M.HO. ROB WIFE W/DRIVE OUT SECOND TANKER & IS GOING TO
PUMP OUT AN ADDITIONAL ~800 GACHS OF LIQUID. AVE FROM FIRST OPS.
BUMP WITH BE KEPT 5 SECONDS. ESTIMATED LIQ. A SECOND TANKER
W/AVE FROM 12-B-1 & 25-3900-1 IS ~2,000 G.

4-B-95 MONDAY: CEAR, Conn., -65° F

0830 MEET W/TRANSPORT @ VIOC FOR DISPOSAL OF 6 DRUMS
TO ALC. C. LANDON. PROVIDES DRIVER W/ CERT. TAG, BILL
OF LADING & LANDON ACCESSANCE SHEET FROM W. O. L.
DRIVER OBTAINED EMPTY & FULL WEIGHT

DRUMS LOADED FOR DISPOSAL ARE 582-128, 130, 129, 149, 150,
157.

0910 CONTRACTOR D. WARRER TO INFORM HON. THAT DRUMS WERE IN PANSO
CONDENSED DRUM STORAGE - SECURSO SITE

0945 ARRIVE @ 12 CAMP FOR SOME SAMPLING. PREPARE LABS
& PARTIES TO BEGIN SAMPLING @ 1124 AT 3-L.

1100 COMPLETE LIQ. SAMPLE FROM AVE 4-T3-L. TOP OF LIQ. D
IS ~2' BELOW TOP OF TANK. SLIGHT DISCOLORATION OF LIQ. &
ORGANIC/SOLUBLE O.D.R. ~1.5' OF SLUDGE NOTED ON BOTTOM
ALSO SURFACE HAS MODERATELY HARD "CAKE" MATERIAL. SAMPLES
LIQ. FROM OUTER PERIMETER OF CAKE.

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

OTS 105

-357

US:

H3 SAND

SAND

WIL

To Page No. _____

From Page No. _____

4.3-85 (Cont)

SAMPLES WERE COLLECTED USING 1.2' POLY SCOOP & POURING.
DIRECTLY INTO SAMPLE CONTAINERS. IN PLACES. SAMPLES WERE
LABELED & PLACED IN ICE CHEST FOR COOLING TO ~4°C.

SAMPLES WERE PLACED INTO THE FOLLOWING CONTAINERS FOR ANALYSIS

VDA - 3-40ml
SEMI-VDA - 1 LT
PCBS - 1 LT
TPH - 2-LT & 1-120ml } LIQUID SAMPLES
METALS - 1 LT
PH - 250ml
OIL & GREASE - 1 LT
H₂, P_u, GAMMA - 500ml

1210 COLLECTED JUMP SAMPLES A124-TE2-S. SURGE WAS
MGO - DK BRN & BLACK. SOME GREENS; ROBBER, fair. STRONG
SEWAGE odor

COLLECTED THE FOLLOWING:

TECP VDA 2-120ml
TECP BVA 51-500ml
PCBS 1-250
TPH 1-350 USED 500
TECP METALS 1-250
PH 1-250
OIL & GREASE 1-250
H₂, P_u, GAMMA 1-500

1300

1240 COLLECTED A124-TE2-L - LT YELLOW, MINOR odor
5 BARS AT SITE TO ASSIST W/ SAMPLING. PREVIOUS SAME
AS PREVIOUS SAMPLES. LIQUID ~ 25' BELOW TANK SURFACE; MGO/MGO COLLECTED

1350

COLLECTED A124-TE2-S. STRONG odor - Black Sludge ~ 15-2'
THICK. MINOR GREEN. SAMPLES COLLECTED FOR SAME AS PREVIOUS.

To Page No. _____

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

TITLE _____

From Page No. _____

1405

1435

1450

1530

1630

Witnessed & Ur _____

TITLE _____

From Page No. _____

1405 PREPARE TO SAMPLE A121-T3-L/S (SAMPLED 4-3-95)

X = SAMPLE PER

A121-T4-L/S (SAMPLED 4-4-95)

1435 COLLECTED A121-T3-L/S; LT. AMBER COLOR, NO SOLIDICAN
ODOR. DEPT. TO TOP OF LIQUID ~ 5' BELOW TANK SURFACE1450 COLLECTED A121-T3-S; BLACK, MOSKATE SEWAGE ODOR,
GREENISH, SLURRY VISCOS.1530 SAMPLES LABORED, BAGGED & PLACED IN ICE (1505) TRUCK. ORGANIZED
IN PAIL FOR ADDITIONAL A.M. SAMPLING.

1630 RETURN TO MISERER

To Page No. _____

To Page No. _____

Witnessed & Understood by me,

Date

Invented by

Date

Recorded by

From Page No. _____

4-4-95 TUESDAY CLEAR, CALM, ~65°F

0845 ARRIVE w/ AUGUST OILING TO CONTINUE SAMPLING AT
AIR SEEDS. WITH SAMPLES A121-T4-2/5.0915 COLLECT A121-T4-L USING SAME METHOD & FOR
SAME PARAMETERS AS PREVIOUS. DEPTH TO TOP OF
LIQUID ~5' BELOW TANK BOTTOM. SAMPLE COLOR WAS
LIGHT BROWN - NO OIL.0935 COLLECTED A121-T4-S (SURFACE) SAMPLES FOR SAME
PARAMETERS AS PREVIOUS. DEPTH TO TOP OF SURFACE ~1.5'
THICK. DARK BRY TO BLACK. SLIGHT TO MODERATE OIL -
SOME GRAVEL.0950 CLEANED, LABELED & PLACED SAMPLES AND ICE PREPARE
TO GO TO ASTRA SEEDS. AFTER OBTAINING GREEN TAG.
- GREEN TAG A1731 ISSUED.1110 ARRIVE TO SAMPLE ASTRA TANKS. TWO TANKS REMAIN
TO BE SAMPLED. 1140 COLLECTED ASTRA-T3-L. DEPTH TO LIQUID ~3' BELOW TANK
SURFACE. WATER - CLEAR, SLIGHT STAIN OIL. MODERATE SURFAC
APPROX. BELOW FRI. PIPE BUT NOT AT SURFACENT. QUANTITY TO SAMPLE
& CONTAINERS PREPARED. ROCK & GRAVEL. REMARKS OR TANK HOP NO
SLUDGE AT ALL.1150 COLLECTED ASTRA-T4-L. WATER ~3' BELOW TANK SURFACE.
WATER - CLEAR - SLIGHT STAIN OIL. MODERATE SURFAC AS NOTED IN T4.
NO SURFAC SAMPLE TAKEN.

1300 RAD. MATH CALCULATIONS. SAMPLES ISSUED.

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No. _____

0
23
50
A
23
2

~1300

4

0800

1300 L

E

T

20

1415 T

T

Witnessed & Und _____

Monday 3/27/95

0700 Mobilize to sample at EPA farm + Area 12 for
J. Bonn. (3754-041)

5 0830 EPA farm - Cold, windy, partly cloudy
Will sample leachfield
Rad Safe slow to get here - Jerry had to
take off.

10 1015 Jerry conducted Tailgate Health + Safety meeting
before he left. In attendance:

Jerry Bonn } EE
Angela Olson }

James Fisher * - Equip Operator

Roger Crane - IH

5 Spot Rozell - Sampler

Gene Noyes } Laborers

Leon Champion }

Rad Safe arrived - Sharon Laster - Gave her
Tailgate Safety Briefing.

20 1020 Begin excavation - hit concrete tank at 3 feet.
Started excavating to the south following tank. Found
steel top of distribution box. Found 6-inch vitrious
clay pipe at 3.5'. Came off at angle from box then
angled back south - See drawing. Followed pipe -
25 found butt-to-butt perforations after second bend
in pipe. Sampled at this location ~ 5' deep.

Soil is brown, silty sand with cobbles, moist, large
gravel placed under pipe for drainage. See Spot's
notes for analyses + descriptions.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Made in USA

Work continued to Page _____

SIGNATURE		DATE	
DISCLOSED TO AND UNDERSTOOD BY	DATE	WITNESS	DATE

Work continued from Page _____

Because of the angle of the pipe coming out of the box we excavated along edge of steel lid & found a second pipe. Assume it also angles in same manner as other pipe.

All headspace & soil readings during excavation were zero. No rad above background. Screening was conducted prior to & during excavation & sampling.

Equipment was decontaminated. Water was contained in 55-gallon drum Brady label 592-290. Excavation was backfilled with excavated soils.

210 Lunch

240 Gene & Leon took me to Area 12 Camp to show us where the septic tanks are to sample

320 Set up to sample at Warehouse L location.

Three tanks to sample.

1410 Completed sampling A125-T4-L $\Rightarrow$ liquid out of southwesternmost tank.

Work continued to Page _____

NATURE

DATE

CLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

1500 Completed sludge sampling out of same tank
See Spot's notes for analysis - Complete
suite taken for each sample set.

1530 Completed decon, paperwork, labeling, etc. - Head
back to Mercury

Note: Water at T4 location - clear, no odor
- Slight oil sheen on surface gravel

Sludge consisted of black, sandy, rounded, large
grains.

Tuesday, 3/28/95

Worked on Mercury Gas Station tank closure report
until 8:30 when we had a staff meeting.

1000 Met with Terry Lyons, REECO security, Had my security
briefing & got my O-clearance.

SIGNATURE

DATE

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

1300 Met Spot at Area 12: He was already done sampling A125-T5-L + A125-T5-S which were completed at 1020 + 1200, respectively.

1310 Collected A125-T6-S L

1340 Collected A125-T6-S

Note: Depth to water in tanks T4 + T6 was approximately 4 feet (half full) with at least one foot of sludge on bottom of all tanks. T5 had less liquid in it, ~ 6 feet to liquid surface. All liquids were clear - T5 had a lot of particles floating in it - Spot described it as rust flakes.

→ Sludge in general description:

Sandy gravel with silt, black sand with white, pink + gray gravel, rounded to angular, oily odor.

No oily sheen noticed on T5 or T6

1430 Checked out other sites with Spot in case I can't make it tomorrow. He had to get back to Mercury today so we knocked off early.

Angela Johnson

From Page No. _____

4-4-95 TUESDAY CLEAR, CALM, ~65°F

0845 ARRIVE w/ ANGEL OILSK TO CONTINUE SAMPLING AT
A12 SEEDS. W/ SAMPLE A12-T4-2/5.0915 COLLECT A12-T4-L USING SAME METHOD & FOR
SAME PARAMETERS AS PREVIOUS. DEPTH TO TOP OF
LIQUID ~5' BELOW TANK BOTTOM. SAMPLE COOL WAS
LIGHT BROWN - NO OIL.0935 COLLECTED A12-T4-S (SURFACE) SAMPLES FOR SAME
PARAMETERS AS PREVIOUS. DEPTH TO OF SURFACE ~1.5'
THICK. DARK BROWN TO BLACK. SLIGHT TO MODERATE OIL -
SOME GRASS.0950 CLEARED, LABELED & PLACED SAMPLES ON ICE. PREPARE
TO GO TO ASTRA SEEDS. AFTER OBTAINING GREEN TAG.
- GREEN TAG: A1731 ISSUED1110 ARRIVE TO SAMPLE ASTRA TANKS. TWO TANKS REMAIN
TO BE SAMPLED. 1140 COLLECTED ASTRA-T3-L. DEPTH TO LIQUID ~3' BELOW TANK
SURFACE. WATER - CLEAR, SLIGHT STAIN OIL. MINOR SURFAC
APPEARED BELOW FILL PIPE BUT NOT AT SUFFICIENT QUANTITY TO SAMPLE.
& CONTAINS PLENTY OF ROCK & GRAVEL. REMOVED AT TANK HAD NO
SLUDGE AT ALL.1150 COLLECTED ASTRA-T4-L. WATER ~3' BELOW TANK SURFACE.
WATER - CLEAR - SLIGHT STAIN OIL. MINOR SURFAC AS NOTED IN "T4".
NO SURFAC SAMPLE TAKEN.

1300 RAD. MATH CLEARANCE. SAMPLES ISSUED.

Witnessed & Understood by me, _____

Date _____

Invented by _____

Date _____

Recorded by _____

To Page No. _____

From Page No. _____

0
23.
50
A
23
2.

~1300

4.

0800

1300 6.

1415 T

Witnessed & Understood by me, _____

4-18-95; ~55°F, Rain, no wind

0700 - SET UP WORK CREW FOR BACKFILLING FY95 UST SITES. 23-600-1 & 23-W7-1. A. OLSON WILL SUPERVISE CREW. IN ADDITION, FY93 SITE 26-2104-1 WAS EXCAVATED FOR REMEDIATION OF PAST HYDROCARBON RELEASE. A. OLSON TO DIRECT WORK CREW.

↑ 3754-038 3754-041 ↓

J. BOND & D. ENGBL CONDUCT MAGNETOMETER SURVEY AT AREA 25 FORMER JS WAREHOUSE IN SEARCH OF ABANDONED SEPTIC SYSTEM. GRID60 - 100' X 100' AREA IN APPROXIMATE AREA OF TANK LOCATION. DEFINING DEFINITE LOCATION VERY DIFFICULT DUE TO CONCRETE SLABS W/REBAR & STEEL PLATFORMS ALONG W/ MISC. UNDERGROUND PIPING FOR ABANDONED UTILITIES. HOWEVER, SUSPECT AREAS WERE MARKED & CREW WILL BE SET UP TO EXCAVATE IN A.M.

~~4-18-95~~ 4-19-95

0715 SET UP CREW TO MEET AT A25JS LOCATION. A. OLSON TURNS 26-2104 SAMPLES TO ASD (TPH-D & VOCs).

0815 ARRIVE @ A25JS SITE W/BACKHOE. WILL BEGIN EXCAVATING @ 20S 20E GRID AREA AS SHOWN ON MAG. SURVEY GRADIENT MAP.

1030 CONTINUING TRENCH EXCAVATION. NO SIGNS OF SEPTIC SYSTEM LOCATED AT PREDICTED SPOTS 1-D. ON MAG. SURVEY.

1130 CONTINUED TRENCH WEST ACROSS APPROXIMATE AREA OF JS WAREHOUSE. NO SIGN OF CLAY PIPING OR SEPTIC.

CONTINUED TRENCH WHERE IT INTERSECTED W/ A25RAO SEPTIC CLAY PIPING & REDIRECTED TRENCH NORTH TO SEE IF A "T" EXIST WHICH WOULD HAVE TIED JS TO RAO SYSTEM (P62).

Work continued to Page

NTIC LIBRARY EDITIONS DISCLOSED BY THE U.S.A.

DISCLOSED TO AND UNDERSTOOD BY

SIGNATURE

SCIENTIFIC BINDER PRODUCTIONS CHICAGO 60625, IL.

25

52575

for my _____

1500 T8204

7/11/66

07-1460-1200

HR/1051m

~~1520-2117 A7~~

המחיר הנמוך ביותר

✓ - 0914507

~~1250 - Ck 5~~

21157

14-5

13-01

03/11

[illegible]

2-14-1964

100

1

5

2011

1000

18

~17.0% ~

ON VO. 1.

ON 20.

FILE

Work continues from page

00:21~

D. M. Stanton Q 5, 7E. Dean found a 57E2 ~ 300G tank

up at Elmo 5, mva above ground at an angle and

At Pineda to Hues 1140 a minor lake. Dam Thout 17

WAS auf der 100. Pousse. I left to British mark

[Handwritten signature]

1. What is the purpose of the experiment?

PHOTOS & OLD DEAN WE SHOULD KNOW OF, SI GAIN TO

DRABKA JOBLEG ABOUT 1/2 MILE FROM THE 15

Dispersed use could use class in ASAT to SCAN 75

LIMITED - 578650-5012 3 MNS at 57861218-TXK.HZ

Will attempt to stop BT bacteria this ss $\frac{2}{2}$

5th D.I. will forward to W/3. Mark it 0.14055N. As usual

At 3:00 PM, I left the office.

$\frac{d}{dt} \left(\frac{1}{2} m v^2 + U(r) \right) = 0$

I have been thinking about you a lot lately.

Will be coming.

מחיר: 150 ₪

STATO. N. 5765 OF PHOSPHATE - LIME. NO. 2 "T" COMPOUND - LIME.

THIS WORLD FILMS, INC. WAREHOUSE.

Will attempt and last request Guide 6 to W. A. Ross.

10/10/1919 The first of these was the first of the

1. What is the purpose of the experiment?
 2. What are the variables in the experiment?
 3. What is the hypothesis of the experiment?
 4. What are the materials and equipment used in the experiment?
 5. What are the steps of the experiment?
 6. What are the results of the experiment?
 7. What are the conclusions of the experiment?
 8. What are the limitations of the experiment?
 9. What are the sources of error in the experiment?
 10. What are the safety precautions in the experiment?

[illegible]

1. ANAL. INTR. IN EXCAVATION. 2. DEPT. OF CULTURAL HERITAGE.

7. Kowalski, D. J. 1980. Localities and localities of the Kowalski family.

from mt. Jura - north of Fano - Gussano, no 5577.

52376-Placeo-Ave #2555 W 45th St. Mo 88 52376.

04/14/92

[illegible]

2012

Not continued to Page

DATE _____

[illegible]

DATE: _____ WITNESS: _____ DATE: _____ 1

8

TITLE

Work continued from Page

PROJECT NO.

BOOK NO.

7-17-75 Cloudy, LT Rain, Calm, ~75-80°F

0820 ARRIVE @ AZ TO LOAD & HAVE LENGTHENED PENSABE

WATER TO A23 SEWAGE LAGOON AMOUNTING TO LATER &

OPEATER SUPPORT.

0830 CREW ARRIVES - REDIRECT TO STAFF @ E-MAD. DRUMS w/ DIGGER FOR WILL

BE TRANSPORTED FROM G-MAD TO P-MAD TO RECOVER # OF STOPS FOR

FUEL TRUCK SCHEDULED IN A.M. Awaiting fuel lift & CREW (WINDS

1.5 mph - 5-15 mph)

0845 CREW INTO OFFICE & CONFERENCE THAT ALL PENSABE WAS

OK FOR DISPOSAL. SPECIAL PERMITTEE (HSD) WAS REQUESTED TO CHECK

THAT EADON WOULD BE REQUESTED FROM LATER LENGTHENED SA RE

WHERE OK. PENSABE WILL BE DISPOSED w/ OTHER RESIDUAL INTO

SEWAGE LAGOON.

0910 CREW ARRIVES @ E-MAD

0940 LOAD DRUMS, PENSABE, & SNOBROS. NOTHING CASE PENSABE OR SNOB

FROM TANK PUL ACTIVITIES

0955 ARRIVE @ P-MAD TO VISUAL DRUMS. INNER GATE LOCKED TO

COMPOUND. WHICH HAS ABOVE GROUND TANK & DRUMS. WILL NEED

KEY FOR "BEST 400 1" LOCK FOR ACCESS IN A.M.

1020 OFFLOADING E-MAD DAY TANK DRUMS. COMBING BRADY &

DRUMS 592-374 & 379 (~1 GALLON EACH PENSABE WATER)

TO DISSER. DRAIN FROM DAY TANK. WILL CROSS OUT IT'S

ALSO MODES 592-371 FROM DECON PENSABE FROM 25-PUR HOUSE.

~ 5-15 mph. MAY COMBING w/ DISSER.

1120 LF PENSABE DRUMS COMBING & ALL DRUMS COME TO ONTO FUEL TRUCK.

MOVE TO ALL CHECK STATION TO PICK UP PENSABE DRUMS.

TITLE

Work continued from Page

1145 ARRIVE @ C

1155 SET DRUM

1200 CREW BREAK

WITH CREW

1410 MEET AT S

UNLONA DRIVE

AT PENSABE

1.5 mph - 5-15 mph

1510 PENSABE &

10 MEET AT S

CREW TO C

W/ SNOB

15

20

25

NATURE

DATE

LOUSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

SIGNATURE

DISCLOSED TO AND UNDERSTOOD BY

- 1145 Arrive @ Chase Station - Arriving Crew & Equipment
1155 Set Drums on Alert. Combine 2 Leachfield Drums.
1200 Crew Breaks for Lunch. I leave site & will meet w/
with crew @ A23 after lunch.
1410 Meet at Searles Lagoon, Crew to obtain fuel tank to
unload drums. Rinseate will be poured into impoundment
at former Pumper Truck Dump Station. Location
identified by Sandy Suppe (wood).
1510 Rinseate from Leachfield Rinseate, as identified on
Memo DARGO 6-27-95 to WOD, poured into A23 Searles Lagoon.
Crew to unload plastic & sandbags at bypass then drop
off empty drums at UIC Storage Area.

APPENDIX C
REVIEW OF RADIOANALYTICAL DATA

Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

To J. F. Bonn
From S. L. Pfeuffer
Date January 23, 1995
Subject REVIEW OF RADIOANALYTICAL DATA FROM SEPTIC TANK SAMPLES

The radioanalytical data received from you, compared to the DOE ORERP Study and EPA Drinking Water Regulations, showed the following samples to be at or below acceptable levels.

<u>Sample Id.</u>	<u>Laboratory Id.</u>
A25 PAN-T-L	G0675-0-82258
A25 BRE-T-L	G0675-1-82259
A121-T2-L	G0675-2-82260
A124-T2-L	G0675-3-82261
A125-T2-L	G0675-4-82262
A125-T3-L	G0676-0-82263
A5 TRA-T2-L	G0676-1-82264
A25 PAN-T-S	G0677-0-25039
	25040
A121-T2-S	G0677-1-25041
	25042
A124-T2-S	G0677-2-25043
	25044
A125-T3-S	G0678-0-25045
	25046
A121-T-L	82037
A124-TW-L	82038
A124-TE-L	82039
A125-T-L	82040
A25-TCC1-T-L	82041
A25-TCC2-T-L	82042
A121-T-S	85034
A124-TW-S	25035
A25-TCC2-T-S	25036
A25-TCA-T-S	25037
A15 EPA-T-L	82443
A15 EPA-T-S	82444
A25 SS-BG	25047
A25 RAD-BG	25048
A25 J5-BG	25049
A25 RCPGA-BG	25050
A25 TRA-BG	25051
A25 PAN-BG	25052
A25 ETS-BG	25053

TOTAL QUALITY IS OUR BUSINESS

REECO

AN **EG&G** COMPANY

J. F. Bonn
REVIEW OF RADIOANALYTICA ANALYTICAL DATA ...
January 23, 1995
Page 2

<u>Sample Id.</u>	<u>Laboratory Id.</u>
A25 BREN-BG	25058
A26 CS-BG	25059
A26 HCF-BG	25060
A5 TRA-BG	25062
A5 TRA-EP	25063
A25 TRA-T-S	80888
A25 ETS-T-S	25021
	25022
	25023
A25 RCPGA-T-L	G0449-0-72988
	72989
A25 RCPGA-T-S	G0449-1-72990
	72991
A26 CS-T-L	G0449-2-72992
	72993
A5 TRA-T-L	G0449-3-72994
	72996
A26 HCF-T-S	G0450-0-72922
	72923

Using the same criteria as above, the following samples showed amounts of the stated isotope and are above the acceptable levels.

<u>Sample Id.</u>	<u>Laboratory Id.</u>	<u>Isotope</u>
A25 3210-BG	25054	Eu-152
A25 TCC1-BG	25055	Eu-152
A25 TCC2-BG	25056	Eu-152
A25 TCCA-BG	25057	Eu-152
A15 EPA-BG	25061	Pu-239
A25 SS-T-L	80887	Cs-137
A25 RAD-T-S	25020	Pu-239

Enclosed for your information is a Service Statement that reflects the time spent on reviewing this data. If any further information is needed, feel free to call me at 295-5680.

SLP:36:bv

Enclosure as stated

cy: w/o encl.

Central Files, M/S 530

J. L. Cowley, M/S 774

A. R. Latham, M/S 708

E. G. Vigilia, M/S 774

Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

JUN 14 3 54 PM '95

To J. F. Bonn

From S. L. Pfeuffer

Date June 13, 1995

Subject REVIEW OF RADIOANALYTICAL DATA FROM SEPTIC SYSTEM SAMPLES

The radioanalytical data received from you, compared to the Department of Energy Offsite Radiation Exposure Review Project Study, and Environmental Protection Agency Drinking Water Regulations, showed the following samples to be at or below acceptable levels.

<u>Sample Id.</u>	<u>Laboratory Id.</u>
A25PAN-LF-1	G1869-3-25113
	G1869-3-25118
A25RAD-LF-1	G1869-0-25110
	G1869-0-25115
A25RCPGA-LF-1	G1869-1-25111
	G1869-1-25116
A25TCA-LF-1	G1869-4-25114
	G1869-4-25119
A25TRA-LF-1	G1869-2-25112
	G1869-2-25117
A25-3210-1	G1974-0-84971
	G1975-0-84972
A253210-LF-1	G1909-2-25123
	G1912-2-25131
A25ETS-LF-1	G1910-0-25124
	G1913-0-25132
A25TCC1-LF-1	G1909-1-25122
	G1912-1-25130
A25TCC2-LF-1	G1909-0-25121
	G1912-0-25129
A25BRE-LF-1	G1910-1-25125
	G1913-1-25133
A25SS-LF-1	G1910-1-25126
	G1913-2-25134
A26CS-LF-1	G1911-0-25127
	G1914-0-25135
A26HCF-LF-1	G1911-1-25128
	G1914-1-25136

TOTAL QUALITY IS OUR BUSINESS

REECO

AN EG&G COMPANY

J. F. Bonn
June 14, 1995
REVIEW OF RADIOANALYTICAL DATA . . .
Page 2

Enclosed for your information is a Service Statement that reflects the time spent on reviewing this data and charged to Work Order Number 3754-041. If any further information is needed, feel free to call me at 295-5680.

SLP:77:bv

Enclosure
As stated

cy: w/o encl.
Central Files, M/S 530
A. R. Latham, M/S 708
D. D. Madsen, M/S 969
S. J. Nacht, M/S 969
C. J. Slotemaker, M/S 774

Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

JUL 20 10 21 AM '95

To J. F. Bonn
From S. L. Pfeuffer
Date July 20, 1995
Subject REVIEW OF RADIOANALYTICAL DATA FROM SEPTIC SYSTEM SAMPLES

The radioanalytical data received from you, compared to the DOE Offsite Radiological Evaluation and Review Project Study and EPA Drinking Water Regulations, showed the following samples to be at or below acceptable levels.

<u>Sample Id.</u>	<u>Laboratory Id.</u>
A125-T4-L	G1994-0-84978
	G1996-0-84981
A125-T4-S	G1993-1-25138
	G1995-1-25140
A15EPA-LF-1	G1993-0-25137
	G1995-0-25139

Enclosed for your information is a Service Statement that reflects the time spent on reviewing this data and charged to Work Order Number 3754-041. If any further information is needed, feel free to call me at 295-5680.

SLP:83:bv

Enclosure
As stated

cy w/o encl.

Central Files, M/S 530
J. E. Henderson, M/S 580
A. R. Latham, M/S 708
D. D. Madsen, M/S 969
S. J. Nacht, M/S 969
L. S. Sygitowicz, M/S 612
C. J. Slotemaker, M/S 774

TOTAL QUALITY IS OUR BUSINESS

REECO

AN EG&G COMPANY

Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

AUG 31 10 45 AM '95

To J. F. Bonn
From S. L. Pfeuffer
Date August 31, 1995
Subject REVIEW OF RADIOANALYTICAL DATA FROM SEPTIC SYSTEM SAMPLES

The radioanalytical data received from you, compared to the Department of Energy Offsite Radiological Evaluation and Review Project Study and Environmental Protection Agency Drinking Water Regulations, showed the following samples to be at or below acceptable levels.

<u>Sample ID.</u>	<u>Laboratory ID.</u>
A121-T3-L	G2082-2-25004
A121-T3-S	G2084-2-25014
	G2084-2-25021
A121-T4-L	G2082-3-25005
A121-T4-S	G2084-3-25015
	G2084-3-25022
A124-T3-L	G2082-0-25001
A124-T3-S	G2084-0-25012
	G2084-0-25018
A124-TE2-L	G2082-1-25002
A124-TE2-S	G2084-1-25013
	G2084-1-25019
A5TRA-T3-L	G2082-4-25007
A5TRA-T4-L	G2082-5-25008
A125-T5-L	G2019-0-83814
	G2020-0-83816
	G2020-0-25170
A125-T5-S	G2018-0-83812
	G2021-0-83818
	G2021-0-25172
A125-T6-L	G2019-1-83815
	G2020-1-83817
	G2020-1-25171
A125-T6-S	G2018-1-83813
	G2021-1-83819
	G2021-1-25173

Enclosed for your information is a Service Statement that reflects the time spent on reviewing this data and charged to Work Order Number 3754-041.

TOTAL QUALITY IS OUR BUSINESS

REEC

AN **EG&G** COMPANY

J. F. Bonn
August 31, 1995
REVIEW OF RADIOANALYTICAL DATA . . .
Page 2

If any further information is needed, feel free to call me at 295-5680.

SLP:95135:mm

Enclosure
As stated

cy w/o encl.

Central Files, M/S 530
J. E. Henderson, M/S 580
A. R. Latham, M/S 708
D. D. Madsen, M/S 969
S. J. Nacht, M/S 969
L. S. Sygitowicz, M/S 612
C. J. Slotemaker, M/S 774