NM2 - 6

GENERAL CORRESPONDENCE YEAR(S):

1984-2002

Kieling, Martyne

From: Phillips, Dorothy
Sent: Thursday, January 24, 2002 7:31 AM
To: EMNRD OCD - ARTESIA; EMNRD OCD - AZTEC; EMNRD OCD - HOBBS; EMNRD OCD - SANTA FE
Subject: Change of Name

We have two change of names that have just been completed

Amoco Production Company OGRID 778 is now BP America Production Company

Hallwood Production Company OGRID 9812 is now HEC Petroleum Inc.
Thanks

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-134
Revised March 17, 1999
Submit 4 Copies to appropriate District Office

Permit No.NM-02-0006
(For Division Use Only)

APPLICATION FOR EXCEPTION TO DIVISION ORDER R-8952

FOR PROTECTION OF MIGRATORY BIRDS Rule 8(b), Rule 105(b), Rule 312(h), Rule 313, or Rule711(I)

Operator Name: Hallwood Petroleum, Inc

Operator Address: P.O. Box 378111

Lease or Facility Name Centralized Surface Waste Management Facility Location NW/4 SE/4 Sec. 25 – T32N – R13W
Ut. Ltr. Sec. Twp. Rge

Size of pit or tank: 6.71 Acre Feet (150' X 150')

Operator requests exception from the requirement to screen, net or cover the pit or tank at the above-described facility.

__X__ The pit or tank is not hazardous to migratory waterfowl. Describe completely the reason pit is non-hazardous.

This evaporation pond is strictly used for emergency purposes when the lease injection well experiences mechanical difficulties. Wells that utilize this facility are not known to produced crude oil or condensate.

1) If any oil or hydrocarbons should reach this facility, give method and time required for removal:

If by chance, oil or hydrocarbons reach this facility, we would immediately notify On-Site Technologies, Ltd of Farmington, NM and have them come out to the site and start removing any oil accumulation which may be present on the surface of the water in the evaporation pond.

2) If any oil or hydrocarbons reach the above-described facility, the operator is required to notify the appropriate District Office of the OCD with 24 hours.

__X__ Operator proposes the following alternate protective measures: Hallwood Petroleum, Inc. will ensure that the trailers of any transport truck used to transport water to this facility is clean of oil prior to use on this lease.

CERTIFICATION BY OPERATOR: I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature Chris R. Williams Title Environmental/Safety Mgr. Date 15-Sept-00

Printed Name: Chris R. Williams Telephone No. (303) 850-6305

FOR OIL CONSERVATION DIVISION USE

Date Facility Inspected 10/5/2000

Inspected by DG

Approved by Denny Foust

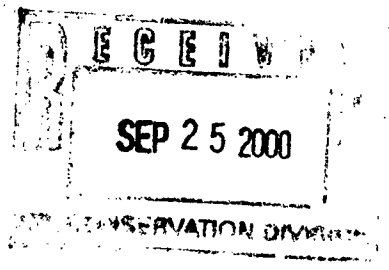
Title Geologist

Date 10/5/2000

Hallwood Petroleum, Inc.

4610 S. Ulster Street • Suite 200 • P.O. Box 378111
Denver, Colorado 80237 • (303) 850-7373

September 15, 2000



Ms. Martyne J. Kieling
Environmental Geologist
New Mexico Energy, Mineral and
Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, NM 87505

Subject: *OCD Rule 711 Permit Conditions*
Permit No. NM-02-0006
Hallwood Petroleum, Inc.
Centralized Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West NMPM,
San Juan County, New Mexico

Dear Ms. Keiling:

Hallwood Petroleum, Inc. recently completed a review of the operating conditions of the permit issued for the above referenced facility. Based upon this review, Hallwood Petroleum, Inc. respectfully requests that several item in the operating conditions be modified. These items specifically include Items #11 & 12.

Item # 11 requires that ambient H_2S measurements be conducted on a weekly basis from four (4) locations throughout the life of the facility and that if H_2S is detected above a certain concentration, Hallwood is to implement a more vigorous monitoring program and possibly contact various regulatory agencies regarding the H_2S readings.

Although Hallwood Petroleum, Inc. understands the intent of the OCD regarding the inclusion of this condition in the permit; we believe that continued H_2S monitoring is not warranted over the life of the facility. This opinion is based on our knowledge and experience of the field in which the facility is located, the formation (Fruitland Basin Coal Field) from which the wells in the field produce, which is not known to be a producer of H_2S, and ambient field measurements of H_2S taken by site personnel at various time at the facility. In addition to the above, the facility is not in operation on a continuous basis and is currently only used for emergency purposes in case the existing lease injection well experiences mechanical difficulties or an upset.

If after taking weekly ambient measurements at the facility for 2-months with no detection of H_2S, Hallwood respectfully requests that no additional monitoring be required until an upset condition or mechanical problem occurs with the lease injection well which requires the use of

Ms. Martyne Keiling
Environmental Geologist
15-September-00

the evaporation pond. At that time, Hallwood Petroleum, Inc. would operate the pit in accordance with the current condition of Item 11 until emergency use of the pit is no longer required for a particular upset event and the evaporation pond is put back in a standby position.

In addition to the above, Item #12 states that Hallwood is to implement a regular treatment program to prevent the development of harmful concentrations of H_2S. As stated earlier, no hydrogen sulfide has ever been detected at the facility. As a result, we be believe the first sentence of Item #12 should be changed to read as follows:

"The following procedures must be followed to prevent the development of harmful concentrations of H_2S, if detected at the facility"

Hallwood Petroleum, Inc is also requesting an exception to Item #8 of the operation condition, which requires that the evaporation pond be screened, netted, covered or otherwise rendered nonhazardous to migratory birds. We believe the pit has been rendered nonhazardous to migratory birds. Produced water that is discharged to the pit is derived from the Basin Fruitland Coal Formation, which is of good quality and totally free of oil. The TDS of the water is also low enough that no encrustation of salt will develop on any migratory bird that may land on the water surface preventing such birds from taking flight after landing in the pond. A Form C-134 Application for Exception to Division Order R-8952 is attached. I have also submitted 4 copies to the Aztec District Office.

If you have any question regarding the proposed modification to the permit, please do hesitate to contact me at (303) 850-6305.

Sincerely,

HALLWOOD PETROLEUM, INC.

Chris R. Williams
Environmental/Safety Manager

Enclosure

cc: Jim Bonaventura
Well File

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
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Revised March 17, 1999

Submit 4 Copies to
appropriate District Office

No.NM-02-0006 Permit ___ (For Division Use Only)

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If by chance, oil or hydrocarbons reach this facility, we would immediately notify On-Site Technologies, Ltd of Farmington, NM and have them come out to the site and start removing any oil accumulation which may be present on the surface of the water in the evaporation pond.

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__X__ Operator proposes the following alternate protective measures: Hallwood Petroleum, Inc. will ensure that the trailers of any transport truck used to transport water to this facility is clean of oil prior to use on this lease.

CERTIFICATION BY OPERATOR: I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature Chris R. Williams Title Environmental/Safety Mgr. Date 15-Sept-00

Printed Name: Chris R. Williams Telephone No. (303) 850-6305

FOR OIL CONSERVATION DIVISION USE

Date Facility Inspected _____ Approved by _____

Inspected by _____ Title _____

Date _____

On Site Technologies, Ltd.

Office (505) 325-5667 Fax (505) 327-1496

Letter of Transmittal

ATTENTION: **DATE:** March 31, 1998

Mr. Chris Williams
Hallwood Energy Company
P. O. Box 378111.
Denver, CO 80237

RE: Sample results La Plata Evaporation Pond and Sump.

REMARKS:

Dear Mr. Willams

Please find enclosed the above referenced reports. If there are any questions, concerns, or if we may be of any further assistance, please feel free to contact Myke Lane or myself at (505) 325-5667.

Thank you for your time and consideration.

We are sending you:

No. Originals	No. Copies	Description
1		Laboratory results, QA/QC/ Chain of Custody

Respectfully,

L. E. Trujillo
Sr. Environmental Technician

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn:	*Larry Trujillo*	Date:	31-Mar-98
Company:	*On Site Technologies Ltd.*	*COC No.:*	*9803035*
Address:	*612 E. Murray Dr.*	*Sample ID:*	*02A*
City, State:	*Farmington, NM 87401*	*Job No.:*	*4-1463*

Project Name:	***Hallwood; La Plata***				
Project Location:	***Pond Sample***				
Sampled by:	LT	Date:	11-Mar-98	Time:	10:30
Analyzed by:	HR	Date:	18-Mar-98		

API RP-45 Laboratory Analysis

Parameter		*Result*	*Unit of Measure*		*Result*	*Unit of Measure*	
Cations							
Sodium	*Na*	8900	mg/L		387.13	me/L	
Calcium	*Ca*	5.1	mg/L		0.25	me/L	
Magnesium	*Mg*	59	mg/L		4.87	me/L	
Potassium	*K*	3.3	mg/L		0.08	me/L	
Anions							
Chloride	*Cl*	4422	mg/L		124.73	me/L	
Sulfate	*SO4*	10	mg/L		0.21	me/L	
Carbonate	*CO3*	2696	mg/L		44.93	me/L	
Bicarbonate	*HCO3*	11070	mg/L		181.42	me/L	
Hydroxide	*OH*	<1	mg/L		<0.01	me/L	
Sulfide	*S2*	NA	mg/L		NA	me/L	
Iron	*Fe*	0.4	mg/L		0.01	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		27165	mg/L				
pH		8.86					
Resistivity		0.3460	ohm-m				
Specific Gravity		1.0206					
Total Hardness as CaCO3		257	mg/L				

Cation-Anion Balance

41.06 *Difference Cation-Anion, me/L*

743.64 *Total Cation-Anion, me/L*

5.5 *% Difference Cation-Anion*

Comments

NA: *Not Analyzed*

Approved by:

Date: 3/31/98

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn:	*Larry Trujillo*	Date:	31-Mar-98
Company:	*On Site Technologies Ltd.*	*COC No.:*	*9803035*
Address:	*612 E. Murray Dr.*	*Sample ID:*	*01A*
City, State:	*Farmington, NM 87401*	*Job No.:*	*4-1463*

Project Name:	***Hallwood; La Plata***				
Project Location:	***Sump Sample***				
Sampled by:	LT	Date:	11-Mar-98	Time:	10:15
Analyzed by:	HR	Date:	18-Mar-98		

API RP-45 Laboratory Analysis

Parameter		*Result*	*Unit of Measure*		*Result*	*Unit of Measure*	
Cations							
Sodium	*Na*	5100	mg/L		221.84	me/L	
Calcium	*Ca*	2.8	mg/L		0.14	me/L	
Magnesium	*Mg*	40	mg/L		3.29	me/L	
Potassium	*K*	2.4	mg/L		0.06	me/L	
Anions							
Chloride	*Cl*	2008	mg/L		56.64	me/L	
Sulfate	*SO4*	5	mg/L		0.10	me/L	
Carbonate	*CO3*	2124	mg/L		35.39	me/L	
Bicarbonate	*HCO3*	6829	mg/L		111.92	me/L	
Hydroxide	*OH*	<1	mg/L		<0.01	me/L	
Sulfide	*S2*	NA	mg/L		NA	me/L	
Iron	*Fe*	0.8	mg/L		0.03	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		16111	mg/L				
pH		9.16					
Resistivity		0.5727	ohm-m				
Specific Gravity		1.0129					
Total Hardness as CaCO3		172	mg/L				

Cation-Anion Balance

21.30 *Difference Cation-Anion, me/L*

429.41 *Total Cation-Anion, me/L*

5.0 *% Difference Cation-Anion*

Comments

NA: *Not Analyzed*

Approved by:

Date: 3/31/98

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK-Alk** Batch ID: **API H2O_980** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5									
Alkalinity, Carbonate (As CaCO3)	ND	5									
Alkalinity, Total (As CaCO3)	2.7	5									J

Sample ID: **MBLK-Ca** Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.05									

Sample ID: **MBLK-Cl** Batch ID: **API H2O_980** Test Code: **M4500-Cl C.** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1									

Sample ID: **MBLK-Fe** Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1019**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	.04	0.1									

Sample ID: **MBLK-K** Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	0.05									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK-Mg**	Batch ID: **API H2O_980**	Test Code: **SW7450**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **993**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	ND	0.05									

Sample ID: **MBLK-Na**	Batch ID: **API H2O_980**	Test Code: **SW7770**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **975**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	0.2									

Sample ID: **MBLK-Sul**	Batch ID: **API H2O_980**	Test Code: **M4500-SO4 D**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **1004**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

Sample ID: **MBLK-TDS**	Batch ID: **API H2O_980**	Test Code: **E160.1**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **1014**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS-Alk** Batch ID: **API H2O_980** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	176	5	163	0	108.0%	91	116				

Sample ID: **LCS-Cl** Batch ID: **API H2O_980** Test Code: **M4500-Cl C.** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	197	1	200	0	98.5%	90	114				

Sample ID: **LCS-pH** Batch ID: **API H2O_980** Test Code: **E150.1** Units: **pH units** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.005	2									

Sample ID: **LCS-Res** Batch ID: **API H2O_980** Test Code: **M2510 C** Units: **ohm-m** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	11.36	0.0001									

Sample ID: **LCS-Sul** Batch ID: **API H2O_980** Test Code: **M4500-SO4 D** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	95.5	5	96.3	0	99.2%	83	113				

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B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **LCS-TDS**	Batch ID: **API H2O_980**	Test Code: **E160.1**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **1015**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				

Sample ID: **LCS1-Ca**	Batch ID: **API H2O_980**	Test Code: **SW7140**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **982**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	3.2	0.05	3.46	0	92.5%	89	107				

Sample ID: **LCS1-Fe**	Batch ID: **API H2O_980**	Test Code: **SW7380**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **1020**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2	0.1	2	0	100.0%	87	111				

Sample ID: **LCS1-K**	Batch ID: **API H2O_980**	Test Code: **SW7610**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **988**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	1.98	0.05	1.97	0	100.5%	84	114				

Sample ID: **LCS1-Mg**	Batch ID: **API H2O_980**	Test Code: **SW7450**	Units: **mg/L**	Analysis Date:	Prep Date:
Client ID:	**9803035**	Run ID: **API H2O_980318A**		SeqNo: **994**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **LCS-TDS** Batch ID: **API H2O_980** Test Code: **E160.1** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1015**											
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				
Sample ID: **LCS1-Ca** Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **982**											
Calcium	3.2	0.05	3.46	0	92.5%	89	107				
Sample ID: **LCS1-Fe** Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1020**											
Iron	2	0.1	2	0	100.0%	87	111				
Sample ID: **LCS1-K** Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **988**											
Potassium	1.98	0.05	1.97	0	100.5%	84	114				
Sample ID: **LCS1-Mg** Batch ID: **API H2O_980** Test Code: **SW7450** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **994**											
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers:
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B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **LCS1-Na** Batch ID: **API H2O_980** Test Code: **SW7770** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **976**											
Sodium	2.78	0.2	2.6	0	106.9%	87	111				
Sample ID: **LCS2-Ca** Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **986**											
Calcium	3.32	0.05	3.46	0	96.0%	89	107	3.2	3.7%	15	
Sample ID: **LCS2-Fe** Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1024**											
Iron	2	0.1	2	0	100.0%	87	111	2	0.0%	15	
Sample ID: **LCS2-K** Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **992**											
Potassium	1.96	0.05	1.97	0	99.5%	84	114	1.98	1.0%	15	
Sample ID: **LCS2-Mg** Batch ID: **API H2O_980** Test Code: **SW7450** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **998**											
Magnesium	1.56	0.05	1.58	0	98.7%	96	114	1.66	6.2%	15	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **LCS2-Na** Batch ID: **API H2O_980** Test Code: **SW7770** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2.78	0.05	2.6	0	106.9%	87	111	2.78	0.0%	0	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9803035-01AD** Batch ID: **API H2O_980** Test Code: **M4500-Cl C.** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **Sump Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **1002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1999	20	0	0	0.0%	0	0	2014	0.7%	7	

Sample ID: **9803035-01AD** Batch ID: **API H2O_980** Test Code: **M4500-SO4 D** Units: **mg/L** Analysis Date: Prep Date:
Client ID: **Sump Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **1007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.9	5	0	0	0.0%	0	0	4.9	0.0%	6	J

Sample ID: **9803035-01AD** Batch ID: **API H2O_980** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: Prep Date:
Client ID: **Sump Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **1012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	6784	50	0	0	0.0%	0	0	6875	1.3%	3	
Alkalinity, Carbonate (As CaCO3)	2132	20	0	0	0.0%	0	0	2116	0.8%	3	
Alkalinity, Total (As CaCO3)	8916	50	0	0	0.0%	0	0	8991	0.8%	3	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Sample Matrix Spike

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **9803035-01AMS** Batch ID: **API H2O_980** Test Code: **SW7770** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **Sump Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **979**											
Sodium	1.78	0.2	0.5	1.26	104.0%	81	135				
Sample ID: **9803035-01AMS** Batch ID: **API H2O_980** Test Code: **SW7450** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **Sump Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **997**											
Magnesium	1.09	0.05	0.5	0.6	98.0%	78	126				
Sample ID: **9803035-02AMS** Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **Pond Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **985**											
Calcium	.8	0.05	0.5	0.26	108.0%	69	159				
Sample ID: **9803035-02AMS** Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **Pond Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **991**											
Potassium	1.36	0.05	0.5	0.7	132.0%	67	157				
Sample ID: **9803035-02AMS** Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **Pond Sample** **9803035** Run ID: **API H2O_980318A** SeqNo: **1023**											
Iron	.63	0.1	0.5	0.18	90.0%	66	126				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, Ltd.
612 East Murray Drive
Farmington, NM 87401

Fax Cover Sheet

DATE:	March 31, 1998		
TO:	Chris Willams	**PHONE:**	
	Hallwood Energy	**FAX:**	303-850-6290
FROM:	Larry Trujillo	**PHONE:**	505-325-5667
	On Site Technologies, Ltd.	**FAX:**	505-327-1496
RE:	La Plata Evaporation Pond Samples		
CC:			

Number of pages including cover sheet: 14

Message

Please find attached lab. results with lab. QA/QC and Chain of Custody for La Plata Evaporation pond and sump.

If there are any questions or concerns feel free to contact me at the above number.

Thank you for your time and consideration.

Larry Trujillo

On Site Technologies Limited Partnership

On Site Technologies, Ltd.
612 East Murray Drive
Farmington, NM 87401

Fax Cover Sheet

DATE:	March 31, 1998		
TO:	Jeff	PHONE:	(970) 259-1374
	Hallwood Energy	FAX:	(970) 259-1418
FROM:	Larry Trujillo	PHONE:	(505) 325-5667
	On Site Technologies, Ltd.	FAX:	(505) 327-1496
RE:	La Plata Evaporation Pond Samples		
CC:			

Number of pages including cover sheet: 14

Message

Please find attached lab. results with lab. QA/QC and Chain of Custody for La Plata Evaporation pond and sump.

If there are any questions or concerns feel free to contact me at the above number.

Thank you for your time and consideration.

Larry Trujillo

On Site Technologies Limited Partnership

ON SITE TECHNOLOGIES, LTD.

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

CHAIN OF CUSTODY RECORD

G901

Date: [illegible]/13

Page 1 of 1

Purchase Order No.: | Job No. [illegible]

SEND INVOICE TO
Name: Larry Trujillo
Company: [illegible] | Dept.
Address:
City, State, Zip:

REPORT RESULTS TO
Name: [illegible] | Title
Company: [illegible]
Mailing Address:
City, State, Zip:
Telephone No. | Telefax No.

Sampling Location: [illegible]

Sampler: [illegible]

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	ANALYSIS REQUESTED: API									LAB ID
[illegible]	[illegible]	[illegible]	H_2O	[illegible]	2	✓									
Pond Sample	[illegible]	[illegible]	H_2O	[illegible]	2	✓									[illegible]

Relinquished by: [illegible]	Date/Time [illegible]	Received by: [illegible]	Date/Time [illegible]
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | Special Instructions:

Authorized by: ______________________ Date ________
(Client Signature Must Accompany Request)

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

ON SITE TECHNOLOGIES, LTD.

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

CHAIN OF CUSTODY RECORD

6901

Date: 3/11/98

Page 1 of 1

Purchase Order No.: | Job No. 4-1462

SEND INVOICE TO
Name: Larry Trujillo
Company: Hallwood | Dept.
Address:
City, State, Zip:

REPORT RESULTS TO
Name: Larry Trujillo | Title:
Company: Hallwood
Mailing Address:
City, State, Zip:
Telephone No.: | Telefax No.:

Sampling Location: [illegible] - Sump

Sampler: Larry Trujillo

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	API								LAB ID
Sump Sample	3/11/98	1015	H_2O	None	2	✓								[illegible]
Pond Sample	3/11/98	1030	H_2O	None	2	✓								[illegible]

ANALYSIS REQUESTED

Relinquished by: Larry [illegible]	Date/Time [illegible]	Received by: [illegible]	Date/Time [illegible]
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Authorized by: ______ Date ______
(Client Signature Must Accompany Request)

Rush	24-48 Hours	10 Working Days	Special Instructions:

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

August 8, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. 7099-3220-0000-5051-0999

Mr. Jim Bonaventura
Hallwood Petroleum,Inc.
463 Turner Drive #101
Durango, Colorado 81301

RE: Surface Waste Management Facility Inspection Report: Permit NM-02-0006
Hallwood Petroleum,Inc.
Centralized Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico

Dear Mr. Bonaventura:

The New Mexico Oil Conservation Division (OCD) inspected the Hallwood Petroleum, Inc. (Hallwood) Centralized surface waste management facility at the above location on May 16, 2000.

Overall the OCD found Hallwood to have a well maintained evaporation pond with good security. The OCD has understood that the pond is currently being used for emergency backup to the Hallwood injection well. The inspection and file review of Hallwood indicates no permit deficiencies. Attachment 1 lists the permit requirements reviewed during the inspection and file review. Attachment 2 lists the photos taken. No response is necessary to this inspection report.

A review of financial assurance finds that Hallwood's $25,000 surety bond No.B2772099 is current and active.

If you have any questions please contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

Attachments
xc: Aztec OCD Office

Chris Williams

ATTACHMENT 1
INSPECTION REPORT
PERMIT NM-02-0006
HALLWOOD PETROLEUM, INC.
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico
(August 8, 2000)

1. Fencing and Signs: The facility will be fenced and have a sign at the entrance. The sign shall be maintained in good condition and shall be legible from at least fifty (50) feet and contain the following information : a) name of facility, b) location by section, township and range, and c) emergency phone number.

   Facility is secured with fence and locking gate and has a sign at the entrance (see photo 1).

2. Berming: An adequate berm will be constructed and maintained to prevent runoff and runon for that portion of the facility containing contaminated soils.

   Berms are in good condition.

3. Trash and Potentially Hazardous Materials: All trash and potentially hazardous materials should be properly disposed of.

   The facility was tidy there was no trash or debris present.

4. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable pad within the berm so that leaks can be identified.

   The above ground tanks located at the facility are bermed.

5. Sumps and Valve Catchments: All sumps and catchments must be kept empty so that leaks can be identified and to prevent overflow onto the ground. All pre-existing below grade sumps or catchments must demonstrate integrity on an annual basis. Integrity tests must include visual inspections of cleaned out sumps or catchments.

   N/A

6. Equipment Maintenance: Equipment, tanks, pipe valves and connections must be inspected on a regular basis and repairs made as needed.

   No leeks or spills were observed during this inspection.

7. Evaporation Pond Inspection and Maintanece: The pond must be inspected on a regular basis or immediately following any consequential rainstorm or windstorm. If any defects are noted repairs must be made as soon as possible .

The evaporation pond spray system was not running, the pond contained aproximately 2 feet of liquid (see photo 2).

8. Pond Freeboard: The pond shall have a minimum freeboard of 1½ feet. A device shall be installed or a marker painted on the pond liners to accurately measure freeboard.

Pond was well within freeboard (see photo 2).

9. Pond Sludge Thickness: Sludge thickness in the base of the pond will be measured annually. Any build-up in excess of 12 inches will be removed and landfarmed.

The pond contained some sludge. On May 4, 1998 Hallwood reported 3 inches of sludge. The pond has been operated only as an emergency back up over the past 2 years. Additional sludge build up is not expected.

10. Leak Detection System Inspection: The leak detection system must be inspected regularly and if fluid is present samples of the fluid will be compared with the fluids in the pond. Results must be recorded and maintained for OCD review.

System has been monitored every other month. The leak detection system monitoring should continue on a regular basis and results should be recorded.

11. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums should be stored on their sides with the bungs in and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets should also be stored on an impermeable pad and curb type containment.

No Drums were present.

All drums and chemical containers should be clearly labeled to identify their contents and other emergency information necessary if they were to rupture, spill or ignite.

N/A

12. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

No saddle tanks were present.

13. Tank Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill or ignite.

Tanks were clearly labeled.

14. Migratory Bird Protection: All tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered not hazardous to migratory birds.

There was no oil on the evaporation pond and no apparent hazard (see photo 2).

15. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 to the appropriate OCD District Office.

At the time of inspection, there were no spills evident at this facility.

16. Regular Facility Inspections: Facility inspections and maintenance must be regular basis and immediately following each consequential rainstorm or windstorm.

Regular facility inspections should continue.

17. H_2S Screening: H_2S screening must be recorded and maintained.

The current permit NM-02-0006 has not required H_2S screening and record keeping. The new permit for the Hallwood facility will include some frequency of H_2S screening.

Attachment 2:
Hallwood Petroleum, Inc. Permit NM-02-0006

Photo 1 05-16-00
Facility Sign

Photo 2 05-16-00
Evaporation Pond

~~KOCH~~ HALLWOOD

Ford #2

SHPCNo. 24110 21 524 80 NNNN 032

Hallwood

6/11/97

Hallwood
6/11/97

MEMORANDUM OF CONVERSATION

✓ TELEPHONE ___ PERSONAL TIME 11:36 DATE 3-16-98

ORIGINATTING PARTY Chris Williams Hallwood Pet.

OTHER PARTIES Marilyn Kisling

DISCUSSION Inspection Report: Questions on Requests.

1. NORM Source

2. Form C-144 Needs to be sent.

CONCLUSIONS

[redacted] Marilyn J. Kisling

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

February 4, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-392

Mr. Jim Bonaventura
Hallwood Petroleum, Inc.
463 Turner Drive # 101
Durango, Colorado 81301

RE: Centralized 711 Surface Waste Management Facility
Hallwood Petroleum, Inc.
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico

Dear Mr. Bonaventura:

The New Mexico Oil Conservation Division (OCD), inspected Hallwood Petroleum, Inc. (Hallwood) centralized waste management facility on June 11, 1997. The Hallwood evaporation pond is located in the NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico.

Overall the OCD found Hallwood to have a well maintained facility. The OCD inspection and current file review of Hallwood indicates some permit deficiencies. Attachment 1 lists the permit deficiencies found at Hallwood during the inspection and the new Rule 711 requirements that are not on file. Attachment 2 contains photographs taken during the inspection. Hallwood shall provide OCD with a detailed description of how the corrections will be made and a time table of when each of the corrections will be completed. A response is required by Hallwood to these deficiencies by April 6, 1997.

Pursuant to Order R-10411-B the OCD General Rule 711 has been revised. The OCD is currently in the process of re-permitting all surface waste management facilities under the new Rule 711. Hallwood's waste management facility is included under the new Rule 711. A copy of Order R-10411-B along with the new bond forms is included with this report. A permit application, Form C-137 (Attachment 3), shall be filed with the OCD according to the instructions in Attachment 1, Section 19. A copy of Order R-10609 the new rule on the disposal of naturally occurring radioactive materials (NORM) is also included within.

Please be advised that the bonding requirements have changed under the new Rule 711. The bonded amount will be $25,000 for centralized surface waste management facilities (see Rule

711.B.1.i and 711.B.3). Bond No. B2772099 was received from Hallwood for the amount of $25,000 and was approved By the OCD on October 31, 1997.

If you have any questions please do not hesitate to contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

Attachments
xc: Aztec OCD Office

ATTACHMENT 1
INSPECTION REPORT
JUNE 11, 1997
HALLWOOD PETROLEUM, INC.
(NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,)
SAN JUAN COUNTY, NEW MEXICO

1. Pond Freeboard: Liner markings or some other device shall be installed to accurately measure freeboard. Pond freeboard shall be a minimum one and a half (1 ½) feet below the top of the lowest point on the levee. The pond must be maintained below freeboard level at all times.

   The evaporation pond is lacking freeboard markers that accurately measure the one and one half (1 ½) foot freeboard height (see pictures 1 and 2). Water level was well below freeboard at the time of inspection.

2. Pond Levee: The top of the levee shall be level, ponding of water should not occur, and the outside grade of the levee should be maintained to minimize erosion and maintain proper levee width.

   The levee top and sides were in excellent condition.

3. Leak Detection System: The top of the leak detection sump must be above the top of the levee. The sump should be covered. In addition, the leak detection sump shall be inspected once a week.

   The top of the leak detection sump did not appear to be above the levee. The appearance of any fluids within the sump should be sampled and comparison analysis made to the contents within the pond.

4. Sludge Build-up: Any sludge build-up in the bottom of the pond in excess of twelve inches (12") will be removed and disposed of at an OCD approved disposal facility.

   Sludge thickness at the bottom of the pond should be routinely measured.

5. Security: The facility shall be secured when no attendant is present, to prevent any unauthorized dumping. Securing the facility may included locks on tank valves, a perimeter fence and locked gate or other similar security measures.

   The facility has a perimeter fence and locking gate. The unloading valve is outside of the fence and should be secured to prevent any unauthorized dumping.

6. Signs: The facility shall have a sign in a conspicuous place at the facility. The sign shall be maintained in legible condition and shall be legible from at least fifty (50) feet and contain the following information: a) name of facility, b) location by quarter-quarter section, township and range, and c) emergency phone number.

Facility has a clearly labeled sign posted within view.

7. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums should be stored on their sides with the bungs in and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets should also be stored on an impermeable pad and curb type containment.

There were no drums or containers stored on site.

All drums and chemical containers should be clearly labeled to identify their contents and other emergency information necessary if they were to rupture, spill or ignite.

8. Process Area: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

Overall yard maintenance practices at the facility were good.

9. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad within the berm so that leaks can be identified.

The berm around the above ground tank at the evaporation pond needs to be modified to hold the appropriate volume.

10. Open Top Tanks and Pits: To protect migratory birds, all tanks exceeding 16 feet in diameter, and exposed pits and ponds shall be screened, netted, covered or otherwise rendered nonhazardous to migratory birds. In addition, OCD Rule 310 prohibits oil from being stored or retained in earthen reservoir, or in open receptacles.

The evaporation pond was oil free (see picture 1).

11. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at

atmospheric temperature and pressure.

There were no saddle tanks at the facility.

12. Tank Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill or ignite.

The above ground tank must be labeled as to the contents. Depending upon the contents, hazard placards that identify the contents and the associated hazards may be needed.

13. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below grade tanks must demonstrate integrity on an annual basis. Integrity tests include pressure testing and/or visual inspection of cleaned out tanks or sumps, or other OCD approved methods.

There were no below grade tanks or sumps located at the facility.

14. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter. Companies may propose various methods for testing such as pressure testing or other OCD approved methods.

Any underground process/wastewater lines must have a mechanical integrity testing proposal.

15. Housekeeping: All systems designed for spill collection/prevention should be inspected frequently to ensure proper operation and to prevent overtopping or system failure.

The facility tanks were free of overtopping stains. Overall yard maintenance and spill prevention/cleanup was good.

16. Trash and Potentially Hazardous Materials: All trash and potentially hazardous materials should be properly disposed of.

There was very little trash at the facility.

17. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the appropriate OCD District Office.

There were no spills evident at this facility.

18. Naturally Occurring Radioactive Material (NORM): All generators submitting waste to a New Mexico Oil Conservation Division Permitted Commercial or Centralized 711 Waste Management Facility must include a Naturally Occurring Radioactive Material status declaration. The generator must declare that the waste was tested for Naturally Occurring Radioactive Material (NORM) and does not contain NORM at regulated levels pursuant to 20 NMAC 3.1 Subpart 1403.C and D.

Under the new 711 Waste Management Facility Permit all waste must be accompanied with a signed NORM declaration from the waste generator (See enclosed Order No. R-10609).

19. Application Requirements for Permit Under the New Rule 711: An application, Form C-137, for a permit renewal shall be filed in DUPLICATE with the Santa Fe Office of the Division and ONE COPY with the appropriate OCD district office. The application shall comply with Division guidelines and shall include:

(a) The names and addresses of the applicant and all principal officers of the business if different from the applicant;

Please submit with C-137 application.

(b) A plat and topographic map showing the location of the facility in relation to governmental surveys (1/4 1/4 section , township, and range), highways or roads giving access to the facility site, watercourses, water sources, and dwellings within one (1) mile of the site;

This is already on file with the OCD.

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site;

Please submit with C-137 application.

(d) A description of the facility with a diagram indicating location of fences and cattle guards, and detailed construction/installation diagrams of any pits, liner, dikes, piping, sprayers, and tanks on the facility;

This is already on file with the OCD.

(e) A plan for management of approved wastes;

Please include an updated description of how the facility handles its waste streams.

(f) A contingency plan for reporting a cleanup of spills or releases;

This is already on file with the OCD.

(g) A routine inspection and maintenance plan to ensure permit compliance;

This is already on file with the OCD.

(h) A Hydrogen Sulfide (H_2S) Prevention and Contingency Plan to protect public health;

This is already on file with the OCD.

(i) A closure Plan including a cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor;

Please submit with C-137 application.

(j) Geological/hydrological evidence, including depth to and quality of groundwater beneath the site, demonstrating that disposal of oil field wastes will not adversely impact fresh water;

This is already on file with the OCD.

(l) Certification by an authorized representative of the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

Please submit with C-137 application.

HALLWOOD PETROLEUM 711 FACILITY INSPECTION (PHOTOS BY OCD)

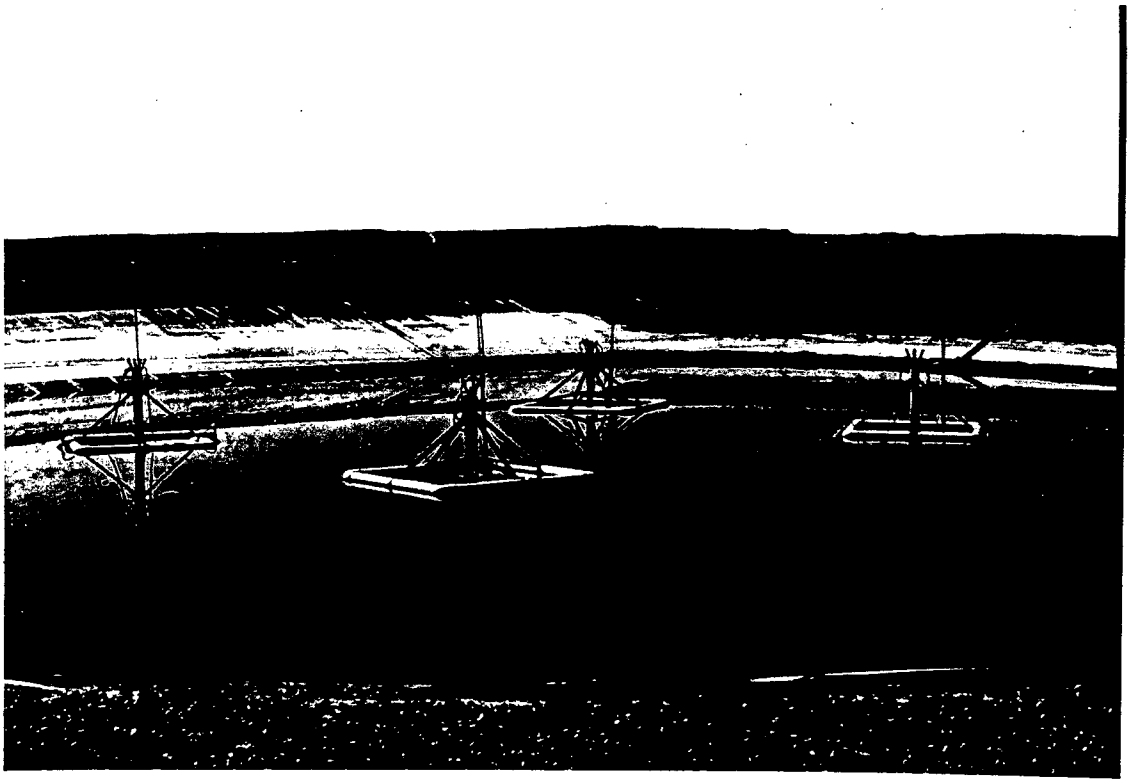

PHOTO NO. 1 DATE:06/11/97

PHOTO NO. 2 DATE:06/11/97

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

August 18, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-327

Ms. Jan Bloom
Hallwood Petroleum Inc.
P.O. Box 37811
Denver, Colorado 80237

RE: Financial Assurance Requirements for 711 Waste Management Facilities NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico.

Dear Ms. Bloom:

As per your request July 28, 1997 I am inclosing a copy of the Order amending Rule 711 and 3 (three) types of bond forms. A fourth type of bond that can be applied for is a bank letter of credit. Please be advised that the bonding requirements have changed under the new Rule 711. All centralized facilities are now required to submit acceptable financial assurance in the amount of $25,000. Hallwood Petroleum, Inc. must have a new bond in place for the amount prior to receiving a new waste management facility permit (see enclosed Rule 711.B.1.i. and 711.B.3).

The New Mexico Oil Conservation Division (OCD), inspected Hallwood centralized surface waste management facility on June 11, 1997. The Hallwood facility is located in the NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico. An inspection report will follow with additional requirements.

If you have any questions please do not hesitate to contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc: Aztec OCD Office
Jim Bonaventura, Hallwood Petroleum, Inc., 463 Turner Drive #101, Durango, Co 81301

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time	Date
	12:20	7/28

Originating Party	Other Parties
Jan Bloom Hallwood Energy (303) 850 6219	Marlyne Kicling

Subject: Bonding of Pit

Discussion:

Hallwood Petrolum Inc.
Send Bond Info Directly to Jan Bloom
P.O. Box 378111
Denver Co 80237

Send Complete Copy to Jim Bonaventura

Conclusions or Agreements

Distribution

Signed: Marlyne J Kicling

Hallwood Energy Companies
4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

August 30, 1995 **CERTIFIED MAIL NO. P 134 385 240**

Mr. Chris Eustice
Oil Conservation Division
P. O. Box 6429
Santa Fe, New Mexico 87505-6429

RE: North Glade Evaporation Pond
NW SE Section 25-T32N-R13W
San Juan County, New Mexico

Dear Mr. Eustice:

This letter is in response to your August 16, 1995 correspondence (copy enclosed) with some concerns pertaining to an August 1, 1995 inspection of Hallwood's evaporation pond.

An Anemometer is in use at the facility now and has been adjusted (reduced) to shut off with wind speeds of approximately 10-15 mph. We have also reduced the air compressor pressure to the sprayers which in turn has eliminated the overspray problem.

The "as-built" diagrams were mailed to you from our Durango Office on August 18, 1995 and should be in your possession by now. If not, please contact me.

I would also like to thank you for the copy of the October 17, 1990 permit letter which I had been unable to locate.

Hallwood is also in the process of reviewing the new Rule 711 (Case No. 11143, Order No. R-10411) with the amendments to surface waste disposal facilities. Hallwood will be submitting the required information in the very near future to the Aztec Office.

If you have any additional questions please contact me at (303) 850-6303.

Sincerely,

HALLWOOD PETROLEUM, INC.

Kevin E. O'Connell

Kevin E. O'Connell
Drilling & Production Manager
Rocky Mountain & Mid-Continent District

KEO/jea

cc: Eva Kardas
Jim Bonaventura - Durango
Well File (LaPlata Evaporation Facility)

KEO95.074

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

August 16, 1995

CERTIFIED MAIL
RETURN RECEIPT NO.P-176-012-170

RECEIVED RM & MC
AUG 21 1995
OPER. HPI DENVER

Mr. Kevin O'Oconnell
Hallwood Petroleum, Inc.
PO Box 378111
Denver, Colorado 80237

RE: North Glade Evaporation Pond
NW/4, SE/4 Section 25, T23N, R13W
San Juan County, New Mexico

NOTE: SHOULD BE T32N KEO

Dear Mr. O'Connell:

The New Mexico Oil Conservation Division (OCD) conducted an inspection of the above referenced facility August 1, 1995 and determined that overspray from the spray system is pooling on top of the berms, causing a potential threat to the integrity of the berms, and leaving the confines of the facility causing soil contamination. Hallwood Petroleum, Inc. (HP) will eliminate the overspray or the OCD will ask that HP either install an anemometer with an automatic shutoff or cease operating the sprayers.

Furthermore, the OCD has not received the "as-built" diagrams as permit condition #1 specifies. Please forward these by September 1, 1995.

Enclosed you will find a copy of the permit issued for this facility October 17, 1990.

If you have any questions don't hesitate to call me at (505) 827-7153.

Sincerely,

Chris Eustice
Geologist

cc: OCD Aztec Office, Denny Foust

Attachment

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

August 16, 1995

CERTIFIED MAIL
RETURN RECEIPT NO.P-176-012-170

Mr. Kevin O'Oconnell
Hallwood Petroleum, Inc.
PO Box 378111
Denver, Colorado 80237

RE: North Glade Evaporation Pond
NW/4, SE/4 Section 25, T23N, R13W
San Juan County, New Mexico

Dear Mr. O'Connell:

The New Mexico Oil Conservation Division (OCD) conducted an inspection of the above referenced facility August 1, 1995 and determined that overspray from the spray system is pooling on top of the berms, causing a potential threat to the integrity of the berms, and leaving the confines of the facility causing soil contamination. Hallwood Petroleum, Inc. (HP) will eliminate the overspray or the OCD will ask that HP either install an anemometer with an automatic shutoff or cease operating the sprayers.

Furthermore, the OCD has not received the "as-built" diagrams as permit condition #1 specifies. Please forward these by September 1, 1995.

Enclosed you will find a copy of the permit issued for this facility October 17, 1990.

If you have any questions don't hesitate to call me at (505) 827-7153.

Sincerely,

Chris Eustice
Geologist

cc: OCD Aztec Office, Denny Foust

Attachment

Hallwood Energy Companies
4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

January 19, 1994

State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088
Attn: Florence Davidson

RE: **C-133 Amended Information**
Hallwood Petroleum, Inc.

Dear Florence:

Enclosed for your review and files is a copy of Hallwood Petroleum's approved C-133 "Authorization to Move Produced Water". The original C-133 was approved on 2/20/91 for the six initial Fruitland Coal wells listed below (1-6). The produced water from our operated Fruitland Coal wells is trucked and piped to our North Glade water evaporation pond.

The wells involved are as follows:

I. Original Wells

	Well Name	Location
1.	B Montoya #25-1	Sec. 25-T32N-R13W
2.	Federal M2-1	Sec. 1-T31N-R13W
3.	Tafoya L2-35	Sec. 35-T32N-R13W
4.	Chavez #2-2	Sec. 2-T31N-R13W
5.	Pan Am State N2-36	Sec. 36-T32N-R13W
6.	Jacquez K2-2	Sec. 2-T31N-R13W

II. Amended Additional Wells

	Well Name	Location
7.	Montoya #25-2	Sec. 25-T32N-R13W
8.	USA #5	Sec. 24-T32N-R13W
9.	Ripley #26-3	Sec. 26-T32N-R13W
10.	Ripley N2-26	Sec. 26-T32N-R13W
11.	Montoya #27-1	Sec. 27-T32N-R13W
12.	Montoya B2-35	Sec. 35-T32N-R13W
13.	Freeman #11-3	Sec. 11 T31N-R13W
14.	Nickles #11-2	Sec. 11-T31N-R13W
15.	Kline #10-3	Sec. 10-T31N-R13W
16.	O'Shea #3-2	Sec. 3-T31N-R13W
17.	Baird #4-2	Sec. 4-T31N-R13W
18.	Wilmerding #9-2	Sec. 9-T31N-R13W
19.	Alberding #3-2	Sec. 3-T31N-R13W

All the above wells are located in San Juan County, New Mexico. The additional wells (7-19) are new Fruitland Coal wells that Hallwood Petroleum, Inc. operates. These wells have been drilled and completed since mid-1992 and are utilizing the previously mentioned evaporation pond via pipelines or trucked by a leased water hauler.

If you should have any questions regarding this letter please contact Kevin E. O'Connell of this office at (303)850-6303 or 1-800-382-4833.

Sincerely,

HALLWOOD PETROLEUM, INC.

Kevin E. O'Connell
Drilling & Production Manager
Western District

Enclosure

cc: Jim Bonaventura
Eva Kardas
Well Files
Aztec OCD Office - 1000 Rio Brazos Road
Aztec, NM 87410
Attn: Denny Foust

KEO\#184.pp

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

February 20, 1991

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

Hallwood Petroleum, Inc.
P. O. Box 378111
Denver, Colorado 80237

Attention: Holly S. Richardson

Dear Ms. Richardson:

Enclosed is an approved copy of your Form C-133 which you submitted on February 13, 1991.

Sincerely,

WILLIAM J. LEMAY
Director

WJL/fd
enc.

cc: Kevin O'Connell
Jim Bonaventura - Durango, Co
Lewis Blaylock - Fruita, Co

Submit in Triplicate to Santa Fe Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-133
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

AUTHORIZATION TO MOVE PRODUCED WATER

Transporter Name HALLWOOD PETROLEUM, INC.

Address	Office Location (If different)
4582 S. Ulster St. Pkwy., Suite 1700 P. O. Box 378111 Denver, CO 80237	434 Turner Drive, Unit #5 Durango, CO 81301
Phone Number (s) Denver (303)850-7373	Durango (303)259-1374

State Corporation Commission Permit No. non-commercial use

NOTE: It is the responsibility of each holder of an approved Form C-133 to familiarize its personnel with the content of Division Rules 709 and 710 and to assure operations in compliance therewith. Failure to move and dispose of produced water in accordance with Division Rules 709 and 710 are cause for cancellation of Form C-133 and the authority to move produced water.

I hereby certify that the information above is true and complete to the best of my knowledge and belief

Signature Holly S Richardson Date 2/13/91

Printed Name Holly S. Richardson Title Sr. Ops. Eng. Tech.

(This space for State Use)

Approved by [signature] Title Division Director

Date 2/20/91

Hallwood Energy Companies

4582 South Ulster Street Parkway Stanford Place III Suite 1700 Post Office Box 378111
Denver, Colorado 80237 (303) 850-7373

February 13, 1991

State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87504-2088

Attn: Florene Davidson

Re: C-133 Application
Hallwood Petroleum, Inc.

Dear Florene:

Enclosed for your review and consideratin is Hallwood Petroleum's application for "Authorization to Move Produced Water". Hallwood is planning to either purchase or lease a vehicle for transporting produced water from Hallwood operated Fruitland Coal wells to our recently installed North Glade water evaporation pond.

The wells involved are as follows:

Well Name	Location
B Montoya 25-1	Sec. 25-T32N-R13W
Federal M2-1	Sec. 1-T31N-R13W
Tafoya L2-35	Sec. 35-T32N-R13W
Chavez #2-2	Sec. 2-T31N-R13W
Pan Am State N2-36	Sec. 36-T32N-R13W
Jacquez K2-2	Sec. 2-T31N-R13W

As this application is for non-commercial water transporting, it is our understanding per conversations with Dennis Forest in the Aztec District Office, that a State Corporation Commission Permit No. is not required on the enclosed C-133.

If you should have any questions regarding this application, please contact Kevin E. O'Connell of this office at (303)850-7373 or 1-800-388-4833, extension 303.

Sincerely,

HALLWOOD PETROLEUM, INC.

Holly S. Richardson

Holly S. Richardson
Production Technician
Western District

Enclosure

cc: Kevin O'Connell
Jim Bonaventura - Durango, CO
Lewis Blaylock - Fruita, CO

HSR/#248.jp

Subrait in triplicate to
Santa Fe Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-133
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

AUTHORIZATION TO MOVE PRODUCED WATER

Transporter Name HALLWOOD PETROLEUM, INC.

Address	Office Location (If different)
4582 S. Ulster St. Pkwy., Suite 1700 P. O. Box 378111 Denver, CO 80237	434 Turner Drive, Unit #5 Durango, CO 81301

Phone Number (s) Denver (303)850-7373 Durango (303)259-1374

State Corporation Commission Permit No. non-commercial use

NOTE: It is the responsibility of each holder of an approved Form C-133 to familiarize its personnel with the content of Division Rules 709 and 710 and to assure operations in compliance therewith. Failure to move and dispose of produced water in accordance with Division Rules 709 and 710 are cause for cancellation of Form C-133 and the authority to move produced water.

I hereby certify that the information above is true and complete to the best of my knowledge and belief

Signature Holly S. Richardson Date 2/13/91

Printed Name Holly S. Richardson Title Sr. Ops. Eng. Tech.

(This space for State Use)

Approved by [signature] Title Division Director

Date 2/20/91

MEMO NAME : Hallwood Guarantee
DATE : 01-09-91

To: Roger Anderson
New Mexico Oil Conservation Division

From: Bob Frank
Hallwood Energy Co.

Subject: Central Disposal Facility
Section 25-T32N-R13W
San Juan County, New Mexico

I received the guarantee from Midessa Industrial Vinyl, the contractor for the liner installation. A copy of the same is attached for your records.

The only additional information required to complete the permit obligation is for Hallwood to supply an analysis of the McDermott Arroyo water. The sample has been collected and is being analysed at Inter-Mountain Laboratories. The results will be forwarded to you as soon as they are received.

Hallwood Energy Companies

4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

Midessa Industrial Vinyl Co.
Rt. 4, 5303 West 42nd Street
Odessa, Texas 79763

December 3, 1990

Subject: Guarantee of Liner Stability/Non-Movement
NW/4, SE/4 Section 25-T32N-R13W
San Juan County, New Mexico
Midessa Quote: 000776 ; Dated 10/9/90

Dear Sirs:

Pursuant to your request to eliminate the installation of the used casing anchor for the liner (s) Hallwood Energy Co. (Hallwood) contacted the New Mexico Oil Conservation Division (OCD). Hallwood asked the OCD if the used casing liner anchor could be eliminated and replaced with the liner anchor that Midessa Industrial Vinyl Co. (Midessa) requested.

The OCD reply indicated that the liner anchor Midessa requested would be satisfactory. However to protect ourselves in the event that the liner (s) should happen to move and or fail in any way Hallwood requests that Midessa unconditionally guarantee that the liner (s) or geotextile layers will not move and or fail in any way due to the liner (s) and geotextile layers not being anchored pursuant to the approved permit and the bid letter sent to Midessa. In addition the liner (s) and or geotextile layers will be guaranteed for the project life, not the liner warranty period.

With this in Mind Hallwood agrees to let Midessa install the liners and geotextile without the used casing anchor provided Midessa unconditionally guarantees and agrees to the following:

1. Each liner and layer of geotextile will be laid in the excavated key, separately, in a horizontal "J" fashion and the key then filled with soil and subsequently compacted so as to not jeopardize the liner integrity and to provide sufficient anchor to prohibit the movement / slipping of any liner (s) or geotextile for the life of the project.

2. The project life will be as long as 30 years.

3. If the liner (s) and or geotextile should move or fail due to improper anchoring, Midessa will, at its' option,

Hallwood Energy Companies
4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

either repair or replace the liner at its' sole cost. The cost may include removing water below the failure point, baling the sump until dry, transportation of said water and associated disposal costs of the produced water.

4. The guarantee and agreement is binding upon successors, heirs and assigns of both parties.

If you are in agreement with the above referenced four (4) conditions please acknowledge below. If I may be of any further assistance. please advise.

Very truly yours,

Robert C. Frank

Robert C. Frank
Agent
Hallwood Energy Company

ACKNOWLEDGEMENT:

Signature

RUBEN VELASQUEZ
Print Name

MIDESSA INDUSTRIAL VINYL
Company

PRESIDENT
Title

1-2-91
Date

WITNESS:

Dorothy Velasquez
Signature

DOROTHY VELASQUEZ
Print Name

MIDESSA
Company

SECRETARY
Title

1-2-91
Date

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

November 1, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-459

Mr. Robert C. Frank, Agent
Hallwood Energy Companies
P. O. Box 378111
Denver, Colorado 80237

RE: North Glade Water Disposal Facility
NW/4 SE/4 Section 25, T23N, R13W
San Juan County, New Mexico

Dear Mr. Frank:

The Oil Conservation Division (OCD) has received your request, dated October 24, 1990, to substitute a 200 mil geotextile fabric for the originally approved sand as the leak detection medium between the primary and secondary liners at the above referenced disposal pond.

The geotextile fabric is an acceptable substitute for sand and your request to install the fabric if onsite construction circumstances dictate is approved.

If you have any questions, please contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson
Environmental Engineer

RCA/sl

cc: OCD Aztec Office

Hallwood Energy Companies
4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

OIL CONSERVATION DIVISION
RECEIVED
'90 OCT 29 AM 9 16

New Mexico Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico
87501-2088

Attn: Roger Anderson

October 24, 1990

Subject: North Glade Water Disposal Facility
Central Evaporation Facility
NW/4, SE/4 Section 25-T32N-R13W
San Juan County, New Mexico

Dear Mr. Anderson,

As a follow up to our conversation of October 16, 1990, Hallwood Petroleum, Inc. is submitting a written request, subsequent to your verbal approval, to eliminate the sand fill and sand screen in the leak detection system. The sand fill and sand screen will be replaced with a 200 mil geotextile.

The actual determination of whether to utilize the geotextile or sand and sand screen will be made as the onsite characteristics dictate. At this time it is our opinion that the geotextile will be the most suitable medium to transport water if a leak occurs in the primary liner.

If I may be of any further assistance, please advise.

Very truly yours,

Robert C. Frank

Robert C. Frank
Authorized Agent

cc: K. O'Connell Hallwood (Denver)

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 17, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-449

Mr. Robert C. Frank
Southwest Water Disposal
P. O. Box 308
Farmington, New Mexico 87499

RE: Hallwood Petroleum, Inc.
North Glade Water Disposal Facility
NW/4, SE/4 Section 25, T23N, R13W
San Juan County, New Mexico

Dear Mr. Frank:

The Oil Conservation Division (OCD) has reviewed the plans and specifications in your application for the above referenced lined evaporation pond. The design specifications submitted are acceptable and your application is hereby approved with the following additional conditions:

1. Upon completion, as-built plans will be provided to OCD.

2. Records of dates, inspector and condition of the leak detection system shall be maintained.

3. The spray evaporation system shall operated such that spray-borne salts shall not leave the bermed area.

4. Only water from Hallwood leases shall be accepted for disposal, and

5. OCD shall be notified when operation of the facility is discontinued for a period in excess of six months or when the facility is to be dismantled.

To protect migratory birds, all tanks exceeding 16 feet in diameter, and exposed pits and ponds shall be screened, netted or covered. Upon written application by the operator, an exception to screening, neeting or covering of a facility may be granted by the district supervisor upon a showing that an alternative method will protect migratory birds or that the facility is not hazardous to migratory birds.

The approved application consists of the application dated August 27, 1990. The application was submitted pursuant to Oil Conservation Commission Order 7940-A and approved pursuant to that order. Any modification of the facility or disposal of wastes not identified in the application or specifically approved must be submitted to the OCD for review. Please be advised that the approval of this disposal facility does not relieve you of liability should your operation result in actual pollution of surface or ground waters, or the environment which may be actionable under laws and/or regulations.

On behalf of the staff of the OCD, I wish to thank you for your cooperation during this application review.

Sincerely,

William J. LeMay
Director

WJL/DGB/sl

cc: OCD Aztec Office

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 15, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-357

Mr. Thomas J. Hynes
Hynes, Hale and Thrower
1000 West Apache
Farmington, New Mexico 87401

RE: Centralized Evaporation Facility
Hallwood Petroleum Company
San Juan County, New Mexico

Dear Mr. Hynes:

The Oil Conservation Division (OCD) has received your letter dated October 5, 1990, protesting the construction of the above referenced facility.

All proposed centralized surface disposal facilities that receive oilfield exploration and production wastes must make application to the OCD for approval to construct and operate such facilities. The application is submitted to the OCD pursuant to Oil Conservation Commission Order R-7940-A (enclosed). An application will be approvable if the proposed facility will comply with the conditions stated in Order R-7940-A and the OCD's Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits. (Enclosed).

Approval of a specific oilfield facility does not constitute authority for access across any private or public lands. Access to the facility through private or public lands must be obtained by the facility owner through private settlement with the landowners.

Your concern over the gas contamination of ground water in portions of the Cedar Hill/Bondad area is well founded. This contamination is still under investigation, however, it is a result of production activities and not disposal activities. The proposed facility is a double lined pond equipped with leak detection which would preclude the contamination of the ground water from any direct disposal of produced water in the pond.

Under OCD rules, permitting review for these types of facilities is limited to proposed measures for ground water protection and general operating procedures to ensure that the facility is operated in a safe manner and receives only oil and gas waste fluids. The OCD does not have statutory authority over the specific location of a facility. Land use and zoning is the exclusive authority of the local and county governments.

A complete copy of the Hallwood application is on file at the District Office in Aztec. This file is open for public viewing.

If you have any questions, please contact Robert Stovall, General Counsel, at (505) 827-5805.

Sincerely,

William J. LeMay
Director

WJL/RCA/sl

Enclosure

cc: OCD Aztec District Office

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 15, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-354

Mr. Richard D. Ellis
1209 North Gibson
Farmington, New Mexico 87401

RE: Centralized Disposal Facility
Hallwood Petroleum Company
San Juan County, New Mexico

Dear Mr. Ellis:

The Oil Conservation Division (OCD) has received on October 11, 1990 your undated letter concerning the application for construction of the above referenced facility.

The application proposes construction of a synthetic double lined pond equipped with leak detection. This type of construction contains proper safeguards to preclude contamination of ground water from fluids disposed of in the pond.

Under OCD rules, permitting review for these types of facilities is limited to measures for ground water protection and operating procedures to ensure the facility is operated in a safe manner and receives only oil and gas waste fluids. The OCD does not have statutory authority over land use restrictions. Land use and zoning is the exclusive authority of the local and county governments.

If you have any questions, please contact Roger Stovall, General Counsel at (505) 827-5805.

Sincerely,

William J. LeMay
Director

WJL/RCA/sl

cc: OCD Aztec District Office

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 15, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-443

Ms. Cheryl Hargroves
3700 Bloomfield Highway
Farmington, New Mexico 87401

RE: Surface Disposal Facility
Hallwood Petroleum Company
San Juan County, New Mexico

Dear Ms. Hargroves:

The Oil Conservation Division (OCD) has received on October 9, 1990 your undated letter protesting the construction of the above referenced facility.

All proposed centralized surface disposal facilities that receive oilfield exploration and production wastes must make application to the OCD for approval to construct and operate such facilities. The application is submitted to the OCD pursuant to Oil Conservation Commission Order R-7940-A. An application will be approvable if the proposed facility will comply with the conditions stated in Order R-7940-A and the OCD's Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits.

The proposed facility is a double lined pond equipped with leak detection which will preclude the contamination of the ground water from any direct disposal of produced water in the pond.

Under OCD rules, permitting review for these types of facilities is limited to proposed measures for ground water protection and general operating procedures to ensure that the facility is operated in a safe manner and receives only oil and gas waste fluids. The OCD does not have statutory authority over the specific location of a facility. Land use and zoning is the exclusive authority of the local and county governments.

A complete copy of the Hallwood application is on file at the District Office in Aztec. This file is open for public viewing.

If you have any questions, please contact Robert Stovall, General Counsel, at (505) 827-5805.

Sincerely,

William J. LeMay
Director

WJL/RCA/sl

cc: OCD Aztec District Office

attn.

Mr. Willion Le May.

I wish to protest against the location of a evaporation pond that is to be built by Hallwood Pet. Inc. in the S/2 NW/2 and N/W 4 SE/4 Section 25 township 32 North Range 19 West N M P M San Juan Co. N. M.

Here in San Juan county we have thousands of acres where no one lives, lots of room for this pond. I can only hope that you would not even consider allowing this pond to be built in an area where people are dependant upon well water.

I seems a little common sense will go a long ways to find a solution that everyone

con line with

Sincerely
Richard D. Ellis

Richard D. Ellis
1209 N. Gilson
Farmington, N.M.
87401

OIL CONSER... ON DIVISION
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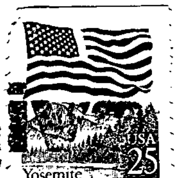

give The United Way

New Mexico Oil Conservation Div. Reg.
attn: Mr. William Le May
State Land Office Building
P.O. Box 2088
Santa Fe, New Mexico
87504-2088

Cheryl Hargroves
3700 Bloomfield Hwy.
Farmington, NM 87401
Oct. 3., 1990

William Lemay, Director
Oil Conservation Div.
State Land Office Bldg
Box 2088
Santa Fe, NM 87504-2088

Dear Mr. Lemay:

I am writing to protest the proposal by Hallwood Petroleum Inc. to construct a sludge pond uphill and north of my property here at La Plata, NM. My primary concern is for my water well which has good sweet drinking water. I live at the NE1/4,NE1/4, S.2,T31,R13W, and this will affect me.

As you know, this coal seam drilling causes the biggest mess of any drilling ever seen here in the San Juan Basin. They are bringing up gas, oil, wastewater, mud, sludge, and chemicals to the surface, or worse, forcing it back into other veins underground. If they let it evaporate, birds and other wildlife get into it. I've never seen one of these pits covered.

This is criminal to allow this activity in which out-of-state investors pocket millions and we are left with the toxic problems such as gas and toxins in our drinking water wells. By the time this begins to cause a problem, these companies have changed hands so many times, we won't know who to hold liable.

I would like to know if your office has any alternative solutions and who will be responsible if my water well is contaminated.

Sincerely,

Cheryl Hargroves

Cheryl Hargroves

HYNES, HALE, & THROWER
ATTORNEYS AT LAW
THOMAS J. HYNES • J. KEVIN HALE • LARRY T. THROWER

1000 West Apache
Farmington, New Mexico 87401
505/325-8813

October 5, 1990

Director, Oil Conservation Division
State Land Office Building
P.O. Box 2088
Santa Fe, NM 87504-2008

Dear Sir:

I am writing you on behalf of F.F. Montoya and Montoya Sheep and Cattle Company, regarding the request of Hallwood Petroleum Company, Inc. to construct a centralized evaporation facility in the vicinity of La Plata, New Mexico.

It is the purpose of this letter to request further information regarding the construction of the facility and to file an official protest regarding the construction of the evaporation facility.

It is of substantial concern to my clients that the facility not be constructed. Their primary concern is that there will be no access to the facility other than across the lands of my clients.

His specific concern is that there will be a substantial taking of his land to construct access to the facility. In addition, the lands upon which they would have to construct an access road have always had a very severe problem during the winter months. During this time, the mud, snow, rain and ice make the area inaccessible and their experience has been that oilfield equipment being transported across these lands create erosion.

My client would also contend that access across these lands has not been obtained and that the oil and gas companies have no legal right to go across his land without his permission, which has not been granted.

Another concern of my client is the problem which has occurred in the Cedar Hills, New Mexico - Bondad, Colorado area regarding the contamination of waterwells. It is my understanding that the New Mexico Oil Conservation Commission

has determined that the dewatering of the coal seams allows methane gas to migrate into existing gas wells and to contaminate the water table into which water wells are drilled. The experience in the Cedar Hill/Bondad area has shown that the dewatering of coal seams has caused an extreme hardship on those ~~individuals living in~~ the vicinity of the coal seam wells.

For the above reasons my client protests the building of the evaporation facility and would ask to be given the opportunity to present oral evidence and oral argument.

Sincerely yours,

HYNES, HALE & THROWER

Thomas J. Hynes

Thomas J. Hynes
/ll
CC: F.F. Montoya

STATE OF NEW MEXICO
ENERGY, MINERALS AND
NATURAL RESOURCES
DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following request to construct a centralized evaporation facility has been made to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

Hallwood Petroleum, Inc., Robert C. Frank, agent, P.O. Box 308, Farmington, New Mexico, 87499, has requested approval to construct centralized evaporation facility located in the S/2 NW/2 and the NW/4 SE/4, Section 25, Township 32 North, Range 19 West, NMPM, San Juan County, New Mexico. Produced water associated with the completion and production operations of oil and gas wells will be disposed of in synthetically double lined wastewater evaporation pond equipped with leak detection. The request addresses the construction, operations, spill/leak prevention and monitoring procedures to be utilized at the facility. The ground water most likely to be affected by any accidental discharges is at a depth of 88 feet with a total dissolved solids concentration of approximately 2000mg/l.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed permit or its modification, the director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 31st day of August 1990. To be published on or before September 7, 1990.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY
DIRECTOR

Journal, September 6, 1990

STATE OF NEW MEXICO
County of Bernalillo } ss

OIL CONSERVATION DIVISION
RECEIVED
90 SEP 11 AM 8 30

Thomas J. Smithson, being duly sworn declares and says that he is National Advertising manager of the **Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chaper 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, a copy of which is hereto attached, was published in said paper in the regular daily edition,

for 1 times, the first publication being on the 6 day of Sept, 1990, and the subsequent consecutive publications on ....., 1990.

Thomas J. Smithson

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this 6 day of Sept, 1990.

OFFICIAL SEAL
Bernadette Ortiz
BERNADETTE ORTIZ
NOTARY PUBLIC-NEW MEXICO
FILED WITH SECRETARY OF STATE
Expires 12-18-93

PRICE $17.13

Statement to come at end of month.

ACCOUNT NUMBER C 80932

EDJ-15 (R-12/89)

AFFIDAVIT OF PUBLICATION

No. 26422

STATE OF NEW MEXICO,
County of San Juan:

BETTY SHIPP being duly sworn, says: "That she is the NATIONAL AD MANAGER of The Farmington Daily Times, a daily newspaper of general circulation published in English in Farmington, said county and state, and that the hereto attached LEGAL NOTICE

was published in a regular and entire issue of the said Farmington Daily Times, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for ONE consecutive (days) (//////) on the same day as follows:

First Publication FRIDAY, SEPTEMBER 7, 1990

Second Publication

Third Publication

Fourth Publication

and that payment therefore in the amount of $ 29.69 has been made.

Betty Shipp

Subscribed and sworn to before me this 7TH day of SEPTEMBER 1990.

Notary Public, San Juan County, New Mexico

My Comm expires: July 5, 1994

COPY OF PUBLICATI

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DEPARTMENT

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following request to construct a centralized evaporation facility has been made to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505)827-5800.

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Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed permit or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 31st day of August, 1990.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY
Director

SEAL

Legal No. 26422 published in the Farmington Daily Times, Farmington, New Mexico on Friday, September 7, 1990.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following request to construct a centralized evaporation facility has been made to the Director of the Oil Conservation Division, State Land Office Building, P. O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

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GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 31st day of August, 1990. To be published on or before September 7, 1990.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

S E A L

Hallwood Energy Companies

4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

August 27, 1990

New Mexico Oil Conservation Division
Post Office Box 2120
Santa Fe, New Mexico 87501-2088

Attn: Roger Anderson

Subject: Central Evaporation Facility

Dear Mr. Anderson,

Attached please find a copy of a public notice for permission to construct and operate a central disposal facility. I've taken the liberty to rewrite as appropriate the notice so as to expedite the placement of said notice in the local paper.

Hallwood Petroleum, INC. is most anxious to have the entire facility completed this fall. If there is any thing that I may do to help in expediting the permit process please advise at your earliest convenience.

Very truly yours,

Robert C. Frank
Agent

cc: K. Volk Hallwood (Denver)

Hallwood Energy Companies
4582 South Ulster Street Parkway • Stanford Place III • Suite 1700 • Post Office Box 378111
Denver, Colorado 80237 • (303) 850-7373

August 27, 1990

New Mexico Oil Conservation Division
310 Old Santa Fe Trail, Room 206
Santa Fe, NM 87503

Attn: Roger Anderson

Subject: Administrative Approval
North Glade Water Disposal Facility
Central Evaporation Facility
NW/4, SE/4 Sec. 25-T32N-R13W
San Juan County, New Mexico

Dear Mr. Anderson:

Hallwood Petroleum, INC. (Hallwood) requests administrative approval to construct a double-lined, central disposal, evaporation facility. The revised August 1988 Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits will be used, as presented and as applicable, for the format of this application.

I. General Information

A. Owner: Hallwood Petroleum, INC.
P. O. Box 378111
Denver, Colorado 80237
(303) 850-7373

B. Contact Person: Robert C. Frank
P. O. Box 308
Farmington, NM 87401
(505) 325-8729

C. Location: NW 1/4, SE 1/4, Sec. 25-T32N-R13W
Attached please find a topo map and site plan for the proposed facility. The access will be gained from New Mexico 574 and private easements. The location of the unloading/holding tank is indicated on the site plan. The facility has been surveyed and actual plats are being drafted at this time. They will be forwarded as soon as possible.

D. The major purpose of this facility is for the disposal, by evaporation, of produced water from recently completed Hallwood Fruitland Coal wells in and around LaPlata, New Mexico. Some of the water will be trucked into location and unloaded into above ground tanks, and the water drained off the bottom into the main pond. Other water from the Montoya 25-1 will be piped directly from the separator into the main pond. The pond will be equipped with an aeration system and a spray system. The aeration system will be operable from start-up, and the sprayers will be utilized as production volumes / conditions dictate.

E. Three copies of the application have been provided.

F. I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate, and complete to the best of my knowledge and belief.

Kevin E. O'Connell
Signature

August 30, 1990
Date

KEVIN E. O'CONNELL
Print

HALLWOOD PETROLEUM, INC.
WESTERN DISTRICT - DRILLING AND PRODUCTION SUPERVISOR
Title

II. General Description

A. Proposed Operations

1. The facility will be built pursuant to the attached diagram. The complete facility will be equipped with two unloading tanks. At this time the only fluids to be accepted are produced water from Hallwoods' Fruitland Coal gas operations.

2. A. Surface Impoundments:
Produced water will be the only effluent stored. Below please find a tabulation of the pond specifications.

Evap. Rate (bwpd)	Area (sq.ft.)	Volume *(bbls)	Depth (ft.)	Slope (In & Out)
78	40,000	45,000	8.4	3:1

*approximate

The subsurface consists of a sandy loam material. The subgrade will be prepared, placed in 6" to 9" lifts and compacted to 95% of proctor and up to +4% of optimum moisture. The actual values will be determined by an independent laboratory testing firm.

The liner company to be used at this time is Palco Linings, Inc. The secondary liner will be made of 30 mil or greater PVC. The primary liner will be made of 30 mil or greater CPER or equivalent. The primary liner is resistant to sunlight, hydrocarbons, fungus, algae, bacteria and salt water. The secondary liner is resistant to hydrocarbons, fungus, algae, bacteria and salt water. Please see attached liner specifications and chemical compatibility data sheets. Each liner will be laid in the pond by rolls and then seamed together. The leak detection system will consist of 1" perforated lateral draining to a central 2" line, which will drain to a sump outside of the berm.

The freeboard will be 1.5', leaving the pond a maximum height of 8.4' of water. There will be no runoff or runon as the pond will be self-contained and the drainage diverted away from the pond. The pond is on a gentle slope with no major drainage problem.

B. There are no drying beds anticipated at this time. If the need arises, the OCD will be notified prior to any such work being implemented.

C. Nothing anticipated.

3. A. Ancillary Equipment

An aeration system will be placed in the pond bottom. This system will consist of a network of perforated 1" and 2" PVC pipe. The system will be able to circulate either a liquid or gaseous medium.

Previous certification of this system by a registered engineer in waste management has been given to the OCD in testimony presented at a hearing for a commercial disposal facility. The information is available as a matter of public record however a copy of the correspondence is attached for convenience.

The system will consist of 2" PVC trunk line and 1" laterals. The laterals will be perforated in gangs on 20' centers with eight 1/32" holes per gang (please see attached). The PVC pipe will be anchored to the bottom with sand tubes. This system will be capable of pumping gaseous and/or liquid mediums. The liquid will be pumped by splitting the sprayer pump and introducing the liquid through a Venturi type hopper. The air will be supplied by a Masport pump (130 cfm @ 6 psi hydrostatic backpressure). There will be a total of 288 holes. Each hole will allow 0.42 cfm to pass through it under 15 psi. pressure. The Masport delivers 20 psi. continuous. If necessary, the Masport pump can be replaced by a compressor.

The pond will be equipped with sprayers. The sprayers will be located on floating islands and along the banks. Please see attached diagram. The islands will be tethered to the sides of the pond. The islands will consist of at least one multi-head nozzle and eight jets. The exact configuration is not known at this time. The sprayers will be supplied by a centrifugal pump with a capacity of at least 600-1000 gpm. based upon backpressure. The power supply for the pump will be either a natural gas or electric motor.

The spray system will be operated continuously. During periods of high winds or gusts, the system will be turned off. An automatic shut down system will be installed concurrently with the spray system. The facility will for the most part be un-manned. The automatic system will be tied to an anemometer. The anemometer will trip a switch to shut down the pump when an as yet undetermined sustained wind velocity is reached. The wind velocity will have to remain for a period estimated at 20 seconds or multiple winds will have to occur within the 20 second window to turn off the pump. In addition the pump will be equipped with an automatic start up as well. The delay for start up or reset is estimated at 5 minutes. At this time no other ancillary equipment is anticipated.

B. Spill/Leak Prevention and Procedure

1. Inasmuch as the pond will be lined, and with the pond sloped to a sump, there will be no other containment or cleanup apparatus necessary. If a leak is detected, the leak detection system will be pumped into the pond and the pond will be lowered until such depth as the water depth is below the leak. Water will be hauled to other commercial disposal facilities. The liner will be repaired and the pond placed back into operation.

   The OCD will be notified within one working day of any leaks.

2. The leak detection system will be the only means in which leaks are to be detected. The sump will be inspected at least weekly. If leaks are detected, the procedure outlined above in B.1 will be followed.

C. Closure Plan

1. The holding capacity of the pond, as mentioned previously, is approximately 45,000 bbls or 252,667 cu.ft. Salt generation calculations, based upon Stanley Zygmunt's work with the the New Mexico Energy Research Development Institute, indicates that the salt generated by passive evaporation (78 bwpd) will be 3276 cu.ft. per year. The calculations were based on Sodium Chloride (NaCl) as the principle precipitate and an average TDS of 15000 ppm. At that rate, it will take approximately 77 years for the pond to fill with salt. With the spray system in operation, we expect up to a 10 fold increase in evaporation. That will decrease the life expectancy of the pond to 7.7 years. The numbers are approximate. The wells tested at a rate of 700 bwpd. With the sprayers on the enhanced evaporation rate will approach or exceed the daily production rate. The water production decline rate is unknown at this time. We do anticipate that the rate will drastically decline and therefore increase the life expectancy of the pond.

If the degasifaction of the Fruitland Coal is to continue at that time when the pond has filled with salt Hallwood will determine if the project warrants construction of a new facility, and abandoning this facility or vacuuming the salts from the old facility and disposing of them.

It is our intention to sell or bury the precipitated salts onsite in the plastic liner. The pond will then be covered with a PVC liner or clay to prevent any vertical leaching of salts by rain water. An analysis of the precipitated salts will be performed to ascertain if the salts may be buried onsite under the regulations existing at that time. If there are any concentrations of chemical compounds which are not permitted to be buried onsite, they will be extracted at that time. The extraction method will be determined at that time when the compounds are known.

The current regulations would allow the sludge/salt to be disposed of at the County Landfill if the sludge/salt had less than 30% liquid content and fell within the parameters of their permit.

The sludges/salts will be analyzed at the time of abandonment to determine if they will be acceptable at the onsite facility or the County Landfill. If the waste is not acceptable at the onsite facility or County Landfill, those unacceptable portions of the sludge/salt will be disposed of at the nearest hazardous waste disposal facility.

We do not anticipate, under the current regulations, that there will be any sludges/salts or chemical compounds evolve that will prohibit the disposal of these wastes at the onsite facility or the County Landfill. These are "solid wastes" going in and they will be solid wastes as they exit. The repeated evaporation of water may give concentrations of certain heavy metals that may have to be extracted; however, they cannot be qualified nor quantified at this time. Only at the time of abandonment will they become evident. At that time a determination will be made as to their final disposal.

During the drying period the leak detection sump will be monitored weekly and the pond will remain closed to any further dumping. If vandalism becomes a problem, the Sheriffs Department will be notified of the vandalism, breaking and entering of the facility. H2S emission are very unlikely as the pond will be open to the atmosphere, completely in an aerobic state. However, the pond will be monitored weekly for H2S emissions.

III. Site Characteristics

A. Hydrologic Features.

1. The nearest running water is the LaPlata River, which is approximately 1-1/2 miles West. There are no recorded water wells within 1 mile. The nearest recorded well is in the NE/4,NE/4, Sec. 2-T31N-R13W. The well is up gradient from the disposal facility. The McDermott Arroyo is located approximately 1/2 mile to the East/Southeast. The TDS of the water is estimated at 2000 ppm.

2. Not available at this time. A sample will be collected.

3. The flow direction of ground water most likely to be affected by any leak is Southeasterly, based upon topography.

4. Please see 2 above.

B. Geologic Description of Pit Site

1. The site is characterized by a gently sloping surface consisting of a silty loam material. There are no rock out-croppings nearby. The Fruitland Coal (upper member) is being strip mined approximately 2 miles to the Northwest. There has been no test holes drilled nor are any intended as the pond does not come under the State Engineers guidelines for dam construction.

2. The name and depth of the most shallow aquifer is unknown. Any discharges would most likely effect waters of the McDermott arroyo. The arroyo is approximately 1/2 mile to the East and is estimated to be 88' lower than the pond.

3. Sandy Silt and alluvium.

4. Not available

C. Flood Protection

1. The flooding potential at the pit site, with respect to major precipitation and/or runoff, is minimal at best as the pond will be maintained with at least a 1-1/2' freeboard. In any event, drainage away from the pond will be accomplished by diversion ditches cut on the uphill side of the facility.

2. The pond is well out of the 100 year flood plain.

3. The outside of the site will be checked after each major rainfall. The OCD will be notified of any significant erosion.

IV. Inasmuch as this pond is to be synthetically lined, no further information is necessary at this time.

V. General Construction Requirements

A. This pond will be out of any water courses.

B. 1. The natural evaporative capacity for the pond is approximately 78 BWPD. This is based on a net evaporation rate of 48"/year and 40,000 sq.ft. surface area. As mentioned earlier, sprayers will be installed as conditions warrant. The anticipated enhanced evaporation rate is 780 BWPD. The holding capacity of this pond is approximately 45,000 barrels of water. As mentioned earlier the sprayers will be installed immediately upon commencement of operations. With the sprayers on and the enhanced evaporation rate of 780 bwpd as compensated for in the net evaporation rate we believe that the holding capacity of 45,000 bbls will be sufficient to handle the months in which little evaporation potential is available.

2. Wave calculations for a pond with this small of a fetch is difficult. Interpolation of a graph supplied by the US Army Corp. of Engineers indicates that an unidirectional 40 mph sustained wind along the maximum fetch of 283' will generate a 6" wave. Sustained winds of this magnitude in this area are not common. The likelihood of a sustained wind along the maximum fetch is remote at best. The wave run-up is estimated at 3". The total wave action on the dike is 9". The average yearly rainfall for this area is 12". With the rainfall occurring over the entire year, we feel that an 18" freeboard is adequate.

3. Both the inside and outside slopes of the pond will be 3:1.

4. The traveling surface of the levee top will be twelve feet.

5. The aeration system will be a network of perforated PVC pipe laid in the bottom of the pond. This system will be able to circulate either a liquid or gaseous medium. See II-3-A above.

C. Synthetically Lined Evaporation Pits

1. Materials
   a. The liners will be flexible

   b. Not applicable

   c. The liners will be at least 30 mils thick

   d. Both the primary liner and secondary liner will be resistant to hydrocarbons, salts, acidic and alkaline solutions, fungus, bacteria, and rot. In addition, the primary liner will be resistant to ultraviolet light. See II-2-A above.

   e. The pond will be equipped with a leak detection system.

2. a. The OCD office in Aztec will be notified at least 24 hours in advance of the primary liner installation.

b. A drainage and sump leak detection system will be used.

c. Not applicable

d. The leak detection system will consist of 1" perforated PVC laterals draining at a 2% grade to a 2" PVC mainline. The 2" PVC main line will drain at 1% to a corrosion proof sump which will be located outside of the berm. No point in the pond bottom will be greater than 20' from a detection line.

3. a. The bed of the pit and the inside and outside grades of the levee will be smooth, compacted to 95% of proctor, free of holes, rocks, stumps, clods, or other debris which could rupture the liner. The onsite characteristics should allow for the liners to be placed directly on the finished berm.

b. An anchor trench will be excavated 6" wide, 12" deep, and set back from the slope break by 9". Sand tubes will be used to anchor the liner down.

4. a. The OCD office in Aztec will be notified at least 24 hours prior to secondary liner installation.

b. The liner will be installed and the joints sealed pursuant to the manufacturers specifications.

c. The liner will rest smoothly on the pit bed and inner face of the levey and shall be of sufficient size to extend to the bottom of the anchor trench and back out a minimum of two inches from the trench on the side furthest from the pond. Folds in the liner will be located in the pit corners to compensate for temperature fluctuations.

d. Two gas vents will be installed on each side of the pond. The vents will be completed through the clay liner. The liner will be resting on a sandy loam material which should be adequate for venting purposes. A sieve test will be run on the material to be certain no more than 5% of the material will pass through a 200 sieve. The vents will be located approximately 9" down from the berm break.

e. Used casing or equivalent will be used to anchor the liner in the liner trench.

f. Not applicable

g. All sand or gravel placement will be completed so as to not jeopardize the liner on which it is placed.

h. All siphons and discharge lines will be directed away from the liner.

E. Clay Lined Pits
Not applicable

F. Skimmer Ponds/Tanks

1. Skimmer tanks will be used. Water will be drained from the bottom of the tanks into the pond. The tanks will be used only for the separation of incidental hydrocarbons that may be brought in trucks that are not clean. The wells that produce to this pond do not make oil.

2. As mentioned above, water will be drained from the tanks.
   a. Not applicable.

   b. The skimmer tank will be corrosion resistant.

   c. Not applicable.

   d. The skimmer tank will be kept clean of appreciable oil.

   e. Not applicable

G. Fences and Signs

1. A fence will be constructed around the entire facility. The fence will be of sufficient strength to keep livestock out of the facility. The fence will be closed and locked at all times when the pond is not manned.

2. A sign at least 12" by 24" with 2" lettering will be placed at the facility entrance and will identify the owner/operator, location and emergency phone numbers.

H. 1. The leak detection sumps will be checked for leaks weekly.

2. The outside of the berms will be maintained so as to prevent erosion. After each rain the pond perimeters will be walked to inspect for washouts.

I. Contingency Plan

A. Immediately cease receiving fluids for disposal in the pond.

B. Immediately haul water to one of the three currently available commercial disposal facilities listed below:

Basin Disposal: Sec. 3-T29N-R11W
Hicks Disposal: Sec. 15-T28N-R13W
Southwest Water Disposal: Sec. 32-T30N-R9W

The leak detection sump will be continually pumped and recycled into the affected pond until such time as the sump dries out. This will indicate the level in the pond at which the leak is located.

C. The location and cause of the leak will be determined and repaired. The liner will be tested for multiple leaks upon fill-up. If a second or additional leaks are found, the pond will be evaporated below the level and repaired as above. The subsequent repairs will be completed within 30 days of detection.

D. The fluids in the leak detection system will be removed and placed back in the pond, to be evaporated. The OCD will be notified within 24 hours of the detection of fluids in the sump. At that time the remedial actions, as outlined above, will be implemented.

E. If required dissolved sulfides in the pond will be measured monthly and kept for review at Hallwoods Durango office.

F. If required air concentrations of H2S will be measured in tenths of a part per million and the ph will be measured weekly around the perimeter of the pond. The prevailing winds are Southwesterly; therefore, the sampling points will be located on the northeast sides of the pond and tanks.

G. If air concentrations of H2S reaches 1 ppm at the fence line for two consecutive monitor readings, or if dissolved sulfides in the pit water reaches 15 ppm, the OCD will be notified immediately; hourly H2S monitoring (24 hours per day, 7 days per week) will commence at the designated locations; pond water will be analysed for dissolved sulfides daily; and the below referenced treatment plan will be implemented so as to reduce dissolved sulfides in the pond and eliminate H2S emissions.

As mentioned previously, the pond will be maintained in an aerobic state by the aeration and sprayer systems. Previous certification of these systems by a registered engineer in waste management has been given to the OCD in testimony presented at a hearing for another commercial disposal facility. The information is available as a matter of public record however a copy of the correspondence is attached for convenience. If necessary liquid bleach will be introduced through the aeration system. However, bleach is unstable at these concentrations (12-16%) and, therefore, has a short shelf life. With the short shelf life(approximately 30 days), we cannot store any liquid chlorine.

If tanks are used material Safety Data Sheets (MSDS) will be located on the tanks containing the bleach. The employees will be properly trained in handling the bleach and proper safety equipment such as rubber gloves and safety goggles will be located near the tanks when handling the bleach.

Chemical Distributors, Inc., Farmington will be the supplier of the liquid bleach. They maintain 500 gallons of liquid bleach at their local yard. In addition, CDI has built a bleach plant in El Paso, Texas. The plant is scheduled to be on line August 30, 1990. Final approval from the El Paso City Council is scheduled for hearing August 7, 1990. The plant will have the capacity of 25,000 gallons of 12-16% bleach per day. They've indicated that they will maintain their own transportation equipment. They would be able to deliver 5000 gallons of 12-16% active bleach daily to the facility if necessary. They would require 24 hour notice.

If for some reason there should be H2S in the water, the active chlorine will react with the H2S as follows:

$$H2S + 4Cl2 + 4H2O > H2SO4 + 8HCl$$

The net effect is that the bleach will combine with the H2S and water to produce H2SO4 (sulfuric acid) and HCl (hydrochloric acid). This will in turn lower the ph of the pond, which further prohibits the growth of bacteria.

Inasmuch as the pond is equipped with two aeration systems, we do not believe there will be an H2S problem. Furthermore, the wells that will produce into the pond do not currently have H2S present in either the gas or water phase. As mentioned earlier they do not produce oil.

Treatment Plan

1. Determine chlorine demand for sulfides, H2S and organics.

2. Introduce liquid bleach from CDI yard.

3. Deliver and treat pond with sufficient bleach to reduce dissolved sulfides and prohibit the emission of H2S. The rate or treatment will be a maximum of 5000 gallons of 12-16% active bleach daily.

   If air concentrations of H2S reach 10 ppm at the fenceline, Hallwood will notify the County Fire Marshal, County Sheriffs Department, New Mexico State Police, and the OCD. The actions to be taken by Hallwood will be as follows.

Action Plan

1. Notify the parties as shown above.

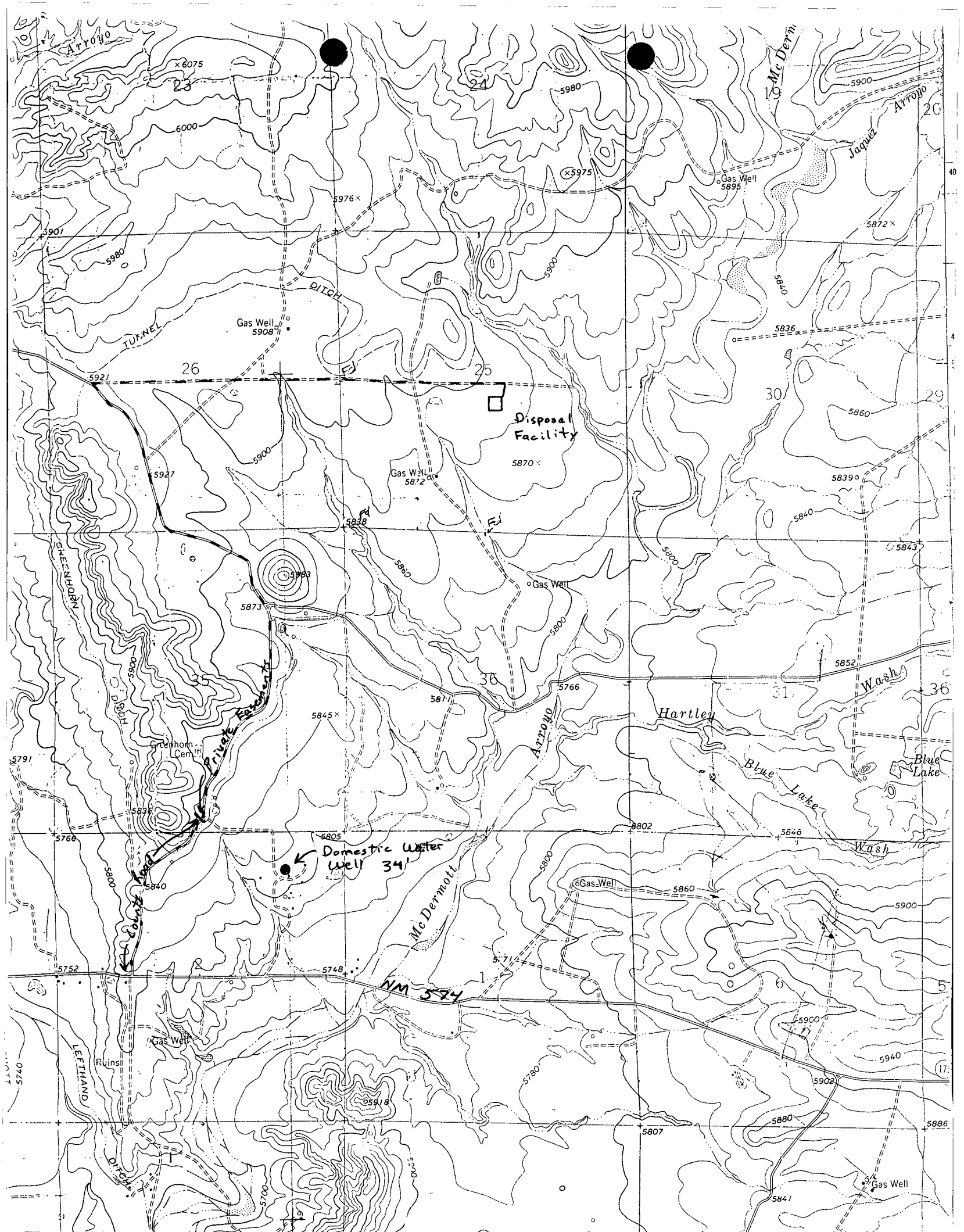
2. Evacuate those persons residing within 1/4 mile of the fence line. Provide temporary housing at the Motel 6, Farmington, or at another motel as approved by Hallwood. Each person requiring temporary housing will be provided a per diem for meals not to exceed $20.00. Temporary housing and the meal per diem to be provided as long as the H2S levels remain above 10 ppm at the fence line.

3. Any other actions or requirements imposed by the OCD after review of H2S emissions will be implemented after review of all alternatives and acceptance by Hallwood. Hallwood believes that protection of the general public is paramount and will take prudent actions to ensure the safety of the general public.

We would like to commence construction operations as soon as possible. If you have any questions or comments please contact me at your earliest convenience. I will expedite the response as the information requested is available.

Kevin E. O'Connell

Very truly yours,


Arroyo
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Gas Well
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Disposal
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Gas Well
5872
Gas Well
GREENHORN
DITCH
Private Easement
Greenhorn
Cem
Road
County
Domestic Water
Well 341
Arroyo
Hartley
Wash
Blue
Lake
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Lake
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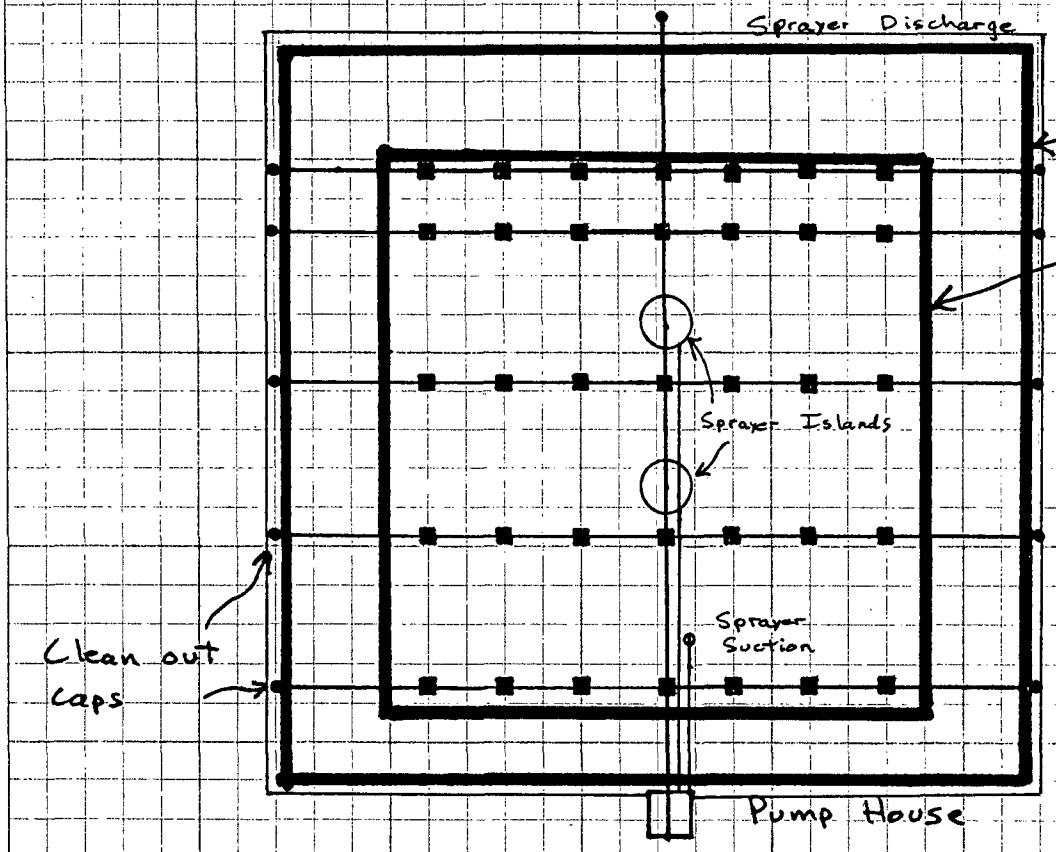
Mc Dermott
Gas Well
NM 574
Gas Well
Ruins
LEFTHAND
DITCH
Gas Well

Aeration System Schematic



■ Gangs 8; 1/32" hole = 0.420 cfm/hole @ 15 psi

Scale 1"=50'

Where R = Specific Gas Constant = 53.3 x °R for Air

$$M = \frac{14.696 \times 533 \times 144}{53.3 \times 528} = 40 \text{ lb. m/ min.}$$

$$Q_2 = MRT_1 / P_1$$

$$Q = \frac{40 \times 53.3 \times 550}{11.86 \times 144} = 687 \text{ I.C.F.M.}$$

Blower Brake Hp @ Average Inlet Conditions

$$BHP = \frac{0.227 \times Q_2 \times [(P_2/P_1)^{0.283} - 1]}{\text{Blower Efficiency}}$$

Use 2 Psi for Line Losses

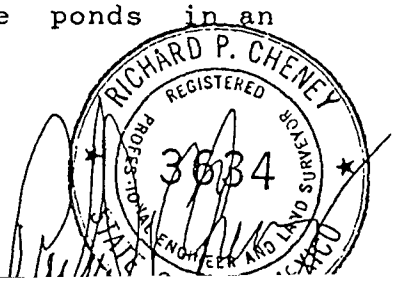
$$P_2 = 11.86 + (.4335 \times 12) + 2 = 19.06$$

Assume Blower Efficiency of 0.7

$$BHP = \frac{0.227 \times 687 \times [(\frac{19.06}{11.86})^{0.283} - 1]}{0.7} = 32 \text{ hp}$$

It is our opinion that incoming waters will have a very small oxygen demand. Therefor, mixing to assure complete dispersion of available oxygen, will be critical to the successful operation of the facility.

The operator proposes to enhance evaporation by installing a high pressure spray system. This system will have two intake points at approximate third points in the pond, and will discharge back to the pond through high pressure spray nozzles attached to an island in the center of the pond. The proposal is to provide a pump with the capability of circulating 50,000 barrels per day during a 10 to 12 hour operating period. Based on a 12 hour operating period this would be equivalent to approximately 3,000 gallons per minute. At this rate the operator would have the capability of moving the complete pond in approximately 36 hours. This turnover would also be enhanced by the operation of the air system. In addition, the spray/evaporation system will also add oxygen to the pond. Based on this set of operating conditions, it is our opinion that the operator will be able to maintain the pond in an aerobic condition or will be able to return it to an aerobic condition if so required. These calculations are based upon the assumption that incoming waters will have very little oxygen demand. It is my understanding that the operator will also have chemical injection capabilities and that the operator will maintain close control over the quality of incoming waters. With aeration, recirculation, and chemical injection capabilities, the operator should have sufficient redundancy to maintain the ponds in an odor free condition.



SUNCO TRUCKING AND WATER DISPOSAL
OXYGEN AND MIXING CALCULATIONS

Most criteria developed for oxygen uptake, relates to the treatment of municipal and domestic waste waters. These types of waste have been evaluated for many years and estimates of oxygen demand can be made for design purposes. The same theories and formulas should apply to the treatment of water produced from coal seams. However, very little is known about the oxygen demand of such waters. Generally, the power required to supply oxygen to a system is much less than the power required to provide adequate mixing. For many years waste water treatment design was based on maintaining a dissolved oxygen level of 2.0 mgl within the treatment basin. It was assumed at this level of dissolved oxygen, the oxygen demand would be supplied and there would be sufficient energy available to the waters to maintain adequate mixing. For purposes of this design and calculation we have assumed that the actual oxygen demand will be substantially less than that required in a domestic or municipal waste water treatment facility. The following calculations compute the Hp required to maintain a dissolved oxygen content of 0.5 mgl:

ASSUME THAT DISSOLVED O_2 RESIDUAL SHOULD EQUAL = 0.5 MGL

@ 6.5 mg Requires 27# O_2/Day

#O_2/Feet^3 Air = 0.0175

% Eff per foot of Immersion Depth = 1.0 for Coarse Bubble Diffusers. Use Immersion Depth of 12 feet.

S.O.R. = 1.12 # O_2/hour

$$\text{Air Q required} = \frac{1.12}{(0.0175 \times 0.01 \times 12)} / 60 = 533 \text{ cfm}$$

Corrections for Inlet Conditions

Elevation = 6,000 Feet P = 14.696 psia

P_1 = Inlet Pressure Due to Altitude

14.696 - (6,000/2116.2) = 11.86 psia

T = Air Temperature @ Standard Conditions in Degrees R

= 68 + 460 = 528° R

T_1 = Blower Inlet Air Temperature in Degrees R

= 90+ 460 = 550° R

Calculate Flow Rate From PQ = MRT

M = PQ/RT

PALCO LININGS, INC.

DYNALOY CHEMICAL EXPOSURE DATA

This chart reflects the results of field application experience and limited testing of Dynaloy with chemicals and solutions. Unless otherwise specified, concentrations are 100%. These results may not be applicable for use at elevated temperatures.

RATING SYSTEM

A. Effluent has little or no affect on the liner. Probably good for long term containment.

B. Effluent has a minor detrimental affect on the liner. Questionable for continuous long term containment (>5 years), probably good for short term containment.

C. Effluent has a detrimental affect on the liner. Successful long term service improbable. Good for temporary or emergency containment only.

X. Effluent quickly attacks the liner. Not to be used even for short term containment.

?. Following one of the above classifications indicates that the rating is based upon limited information.

Ammonium Nitrate (40%)	A
Benzene	X
Brine	A
Calcium Hydroxide (10%)	A
Cyanide solution (100 ppm, pH=11)	A
Detergents (2%)	A
Diesel Fuel	B
Gasoline	C
Glycols	A?
Hydrochloric Acid (10%)	A
Kerosine	B
Methyl Ethyl Ketone	X
Mineral Oil	A
Motor Oil (SAE 30)	A?
Nitric Acid (10%)	B
Olive Oil	A?
Phosphoric Acid (50%)	A?
Sodium Carbonate (2%)	A
Sodium Hydroxide (10%)	A?
Sodium Hypochlorite (5%)	C
Sulfuric Acid (30%)	A?
Trichlorocthylene	X
Transformer oil	B?
Transmission Fluid	B

These chemical exposure data are general in nature. It is recommended that the specific effluent be tested with the liner intended to be used for it's containment.

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PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title: Immersion Study, Dynaloy®in Petroleum	
Report No. PL-145-85	Submitted SH 1-14-85
Study No.	Approved SMK 1/14/85

Test Method

30 mil Dynaloy® was totally immersed in three types of crude oil at room temperature according to ASTM D471. Weight changes and physical appearance were periodically recorded during the 4-1/4 years exposure.

Days	Iranian Lite	Sahara	North Slope
62	+15.3%	+11.4%	+10.6%
312	+17.2%	+13.2%	+12.3%
734	+18.3%	+14.9%	+13.0%
1549	+17.6%	+16.2%	+14.3%

After over four years of immersion in the petroleum, the Dynaloy® appeared in good shape, was still very flexible, and did not appear to be losing strength. The petroleum was changed after the last measurement and the exposure is continuing.

Spencer Hampton
Laboratory Technician
Palco Linings, Inc.

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PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title: Immersion Study, Dynaloy® in Diesel Fuel #2	
Report No. PL-161-85	Submitted: SH 9-6-85
Study No. 224	Approved: RTHK 9/6/85

Test Method

Weighed tensile strips of 30 mil unreinforced Dynaloy® were exposed to diesel fuel #2 in accordance with ASTM D471. After the completion of an immersion period, a set of tensile strips were removed from the fuel, quickly wiped clean, weighed and tensile properties run according to ASTM D882. The percent weight and tensile property changes for 1, 3 and 9 days exposure are reported below.

Test Results

		1 day	3 days	9 days
Tensile Strength	MD	-8.1%	-6.2%	-5.9%
	TD	-8.3%	-10.0%	-10.5%
Elongation at Break	MD	-16.8%	-12.1%	-7.8%
	TD	-4.0%	-8.9%	-4.6%
Stress @ 100% Elongation	MD	-5.1%	-4.2%	-6.8%
	TD	-10.7%	-11.8%	-11.0%
Weight Change		+2.6%	+2.3%	+4.0%

Spencer Hampton
Laboratory Technician
PALCO LININGS, INC.

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PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title: Immersion Study, Dynaloy in Naphtha.	
Report No. PL-150-85	Submitted J.S. 9.26.85
Study No. 211	Approved JMK 4/24/85

Test Method

Unreinforced 30 mil Dynaloy was immersed in Fuel Grade Naphtha at room temperature according to ASTM D471. Weight and physical appearance changes were periodically recorded during the study.

Test Results

Days	Weight Change
11	+2.4%
48	+0.7%
82	+0.4%
218	+0.4%
374	+0.7%

Throughout the immersion, the Dynaloy did not appear to swell, change shape or deteriorate. The Naphtha was replaced with fresh fuel after 218 days exposure and the study is continuing.

PALCO LININGS, INC.

J. Stein

John Stein
Laboratory Technician

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PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title: Immersion Study, Dynaloy in Sulfuric Acid	
Report No. PL-149-85A	Submitted: SH 3-25-85
Study No. 215	Approved: GMK 3/25/85

INTRODUCTION

Laminated 30 mil unreinforced Dynaloy was immersed in 1% and 10% sulfuric acid according to ASTM D543. The immersion was conducted at 73°F, 122°F and 158°F for a period of five weeks with testing after one and five weeks. After an exposure period was complete, the specimens to be tested were removed from the exposure container, briefly rinsed with tap water, quickly dried, weighed and tested. Tensile properties were determined in accordance with ASTM D882.

Results

The percent weight changes, the average tensile property values and the percent change in tensile properties are listed on table one. Breaking factor and modulus at 100% elongation are in units of lbs/ in width. Elongation at break is expressed in percent. The weight changes are accurate to within 0.1% and the tensile properties to within 5%.

PALCO LININGS, INC.

Spencer Hampton

Spencer Hampton
Laboratory Technician

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TABLE 1, DYNALOY IN SULFURIC ACID

Temp. (°F)	Time (days)	Weight	Breaking Factor	Elongation at Break	Modulus at 100%
1% H_2SO_4					
73°	7	+1.6%	-1.4% 57.5	-2.4% 290	-7.3% 38.4
	35	+3.2%	-0.3% 58.1	3.0% 306	-5.8% 39.0
122°	7	+5.6%	-1.8% 57.3	-0.3% 296	-9.1% 37.6
	35	+10.2%	+1.6% 59.3	-3.6% 286	-4.3% 39.6
158°	7	+10.1%	-4.2% 55.9	-7.0% 276	-6.4% 38.8
	35	+18.6%	-3.7% 56.1	-13.3% 258	+1.4% 42.0
10% H_2SO_4					
73°	7	+0.8%	-2.2% 57.0	-2.8% 289	-8.5% 37.9
	35	+1.1%	-1.6% 57.4	-1.0% 295	-6.7% 38.6
122°	7	+1.0%	-4.6% 55.6	-7.0% 276	-5.8% 39.0
	35	+0.7%	-2.0% 57.1	-4.0% 285	+1.1% 41.9
158°	7	+0.7%	-5.4% 55.1	-4.0% 285	-5.5% 39.1
	35	-0.5%	+7.2% 62.5	-10.8% 265	+11.7% 46.3

PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title:	LINER WEIGHT CHANGES IN AQUEOUS SOLUTIONS, THE EFFECT OF DISSOLVED SOLIDS CONTENT ON DYNALOY AND PVC
Report No. PL-167-85	Submitted: R.O. 12/11/85
Study No. 232	Approved: GMK 12/11/85

INTRODUCTION

Samples of 30 mil Dynaloy, 20 mil PVC and 30 mil PVC were immersed in aqueous solutions having various dissolved solid contents in order to determine the effect on the water absorption of the liners. The three solutions used in this study were distilled water, tap water and a 5% sodium chloride solution. The immersion was conducted at 50°C for a period of 16 weeks. The weight changes were measured after 2, 4, 8 and 16 weeks.

TEST RESULTS

20 Mil PVC

	2 Weeks	4 Weeks	8 Weeks	16 Weeks
Distilled Water	+1.49%	+1.63%	+1.67%	+2.24%
Tap Water	+1.56%	+1.74%	+1.63%	+2.16%
5% Salt Water	+0.05%	+0.04%	+0.04%	-0.08%

30 Mil PVC

	2 Weeks	4 Weeks	8 Weeks	16 Weeks
Distilled Water	+1.76%	+1.94%	+2.01%	+2.59%
Tap Water	+1.66%	+1.89%	+1.96%	+2.55%
5% Salt Water	-0.07%	-0.03%	-0.03%	-0.10%

30 Mil Dynaloy

	2 Weeks	4 Weeks	8 Weeks	16 Weeks
Distilled Water	+2.12%	+2.17%	+2.11%	+2.44%
Tap Water	+1.80%	+1.74%	+1.56%	+1.78%
5% Salt Water	+0.06%	-0.03%	-0.05%	-0.50%

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PALCO LININGS, INC.

RESEARCH and DEVELOPMENT
LABORATORY REPORT

Title:	Effects of Cyanide Solution and Distilled Water on Palco 30 mil PVC Liner.
Report No. PL-129-83-C	Submitted: R.O. 10/22/86
Study No. 180	Approved: GMK 10/22/86

INTRODUCTION

This study evaluated the affect of a cyanide leach solution on Palco 30 mil Polyvinyl Chloride (PVC) liner at room temperature and 158°F. The US EPA stated in the October 1, 1984 Federal Register that exposure of a liner to a leachate at a temperature 72°F higher than the service temperature would accelerate chemical reactions by a factor of 75. A 28 day immersion study at 158°F would then be equivalent to 2100 days (5.75 years) of service in the field at 86°F. Distilled water was used as a standard for comparison. Tensile properties, tear resistance and weight were checked after 0, 7, 15 and 28 days immersion.

TEST PROCEDURES

A 20 ppm sodium cyanide solution was prepared by adding sodium cyanide to a dilute sodium hydroxide solution. The resulting solution had a pH of ~11.

One inch wide tensile specimens and die "C" tear specimens were cut from a sample of 30 mil PVC after the PVC had acclimated to standard laboratory temperature and humidity for not less than 40 hours. The machine direction tensile specimens were weighed prior to immersion. The specimens for each test period were immersed in separate containers.

At the conclusion of an exposure period, the samples were lightly rinsed with distilled water, gently dried with paper towels and allowed to acclimate to standard laboratory conditions for at least four days. The specimens were then weighed and tested. Tensile properties were tested according to ASTM D882. Tear resistance was tested according to ASTM D1004.

TEST RESULTS

The percent changes in the physical properties are reported on table 1, attached.

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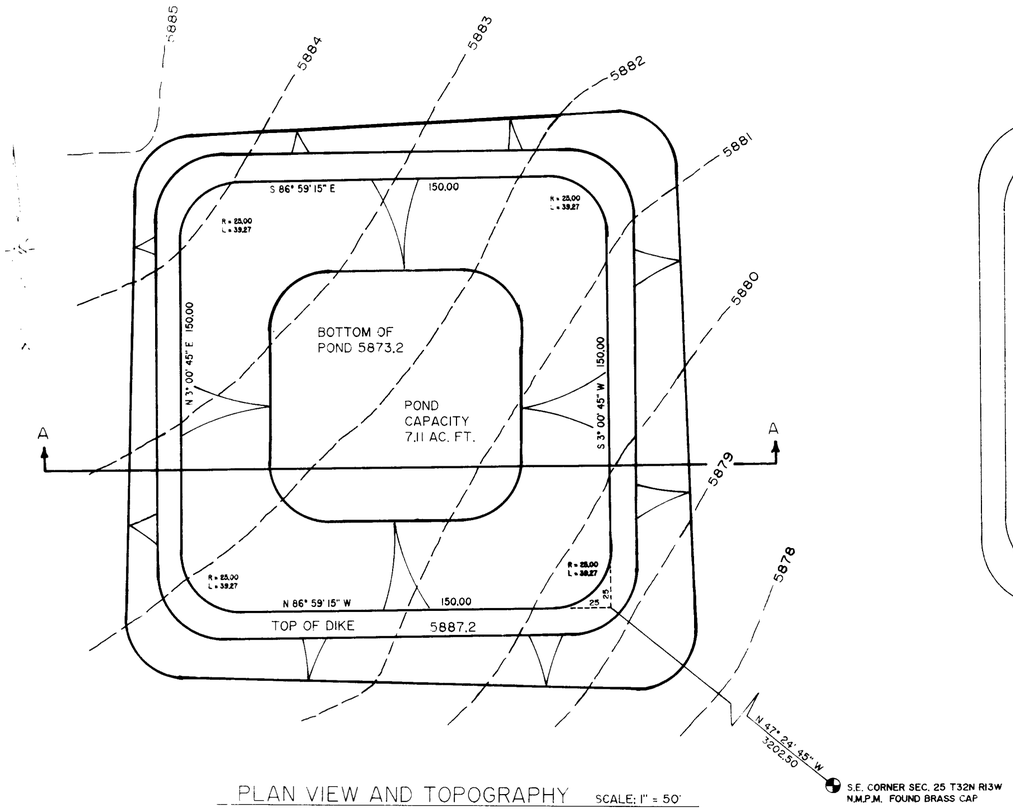
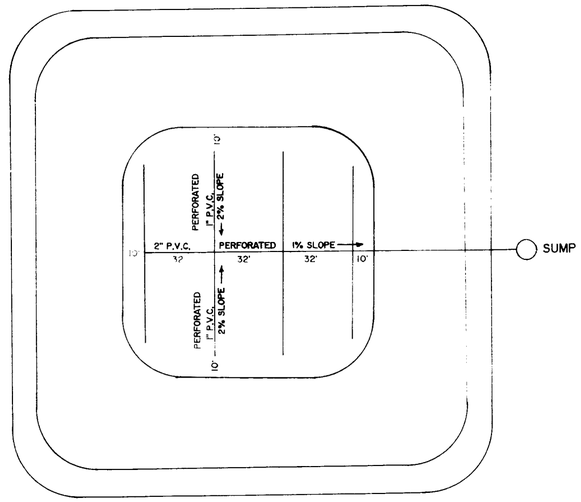
TABLE 1
PL-129-83-C

73°F	DAYS	DISTILLED WATER MD	DISTILLED WATER TD	SODIUM CYANIDE MD	SODIUM CYANIDE TD
Tear Resistance	7	+1%	+3%	+2%	-2%
	15	+5%	+7%	+6%	+9%
	28	+4%	+5%	+6%	+2%
Stress at 100% Elongation	7	-2%	-1%	-3%	-1%
	15	+1%	-2%	+2%	±0%
	28	+6%	+2%	+1%	+1%
Stress at Break	7	-1%	+2%	-2%	±0%
	15	-2%	+2%	-2%	+3%
	28	+6%	+2%	+1%	+1%
Strain at Break	7	-2%	-1%	+4%	-4%
	15	-1%	+1%	-3%	-4%
	28	-2%	±0%	-1%	-2%
Weight	7	±0.0%		-0.1%	
	15	-0.1%		-0.1%	
	28	-0.1%		±0.0%	

158°F	DAYS	DISTILLED WATER MD	DISTILLED WATER TD	SODIUM CYANIDE MD	SODIUM CYANIDE TD
Tear Resistance	7	+2%	+6%	+1%	+13%
	15	+2%	+9%	+1%	+3%
	28	+2%	+10%	+4%	+11%
Stress at 100% Elongation	7	+4%	+4%	+6%	+9%
	15	+5%	+9%	+7%	+8%
	28	+10%	+8%	+7%	+8%
Stress at Break	7	+1%	+2%	±0%	+3%
	15	-4%	+3%	-1%	±0%
	28	+3%	-1%	-2%	+5%
Strain at Break	7	+4%	+4%	+4%	±0%
	15	+2%	-3%	+4%	-5%
	28	-2%	-1%	+3%	-1%
Weight	7	-0.2%		-0.3%	
	15	-0.4%		-0.3%	
	28	-0.4%		-0.3%	

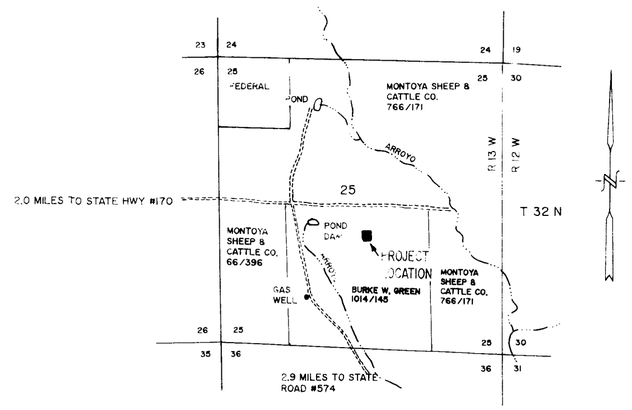


PLAN VIEW AND TOPOGRAPHY SCALE: 1" = 50'

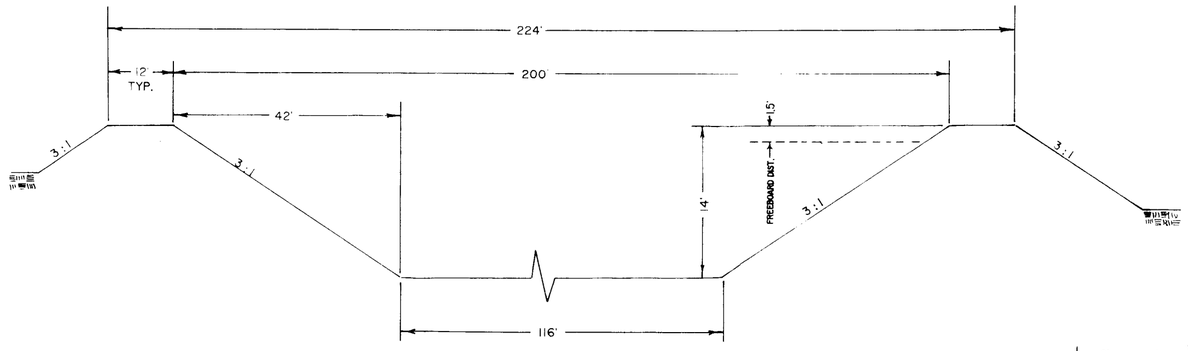


LEAK DETECTION SYSTEM PIPE SCHEMATIC

SCALE: 1" = 50'

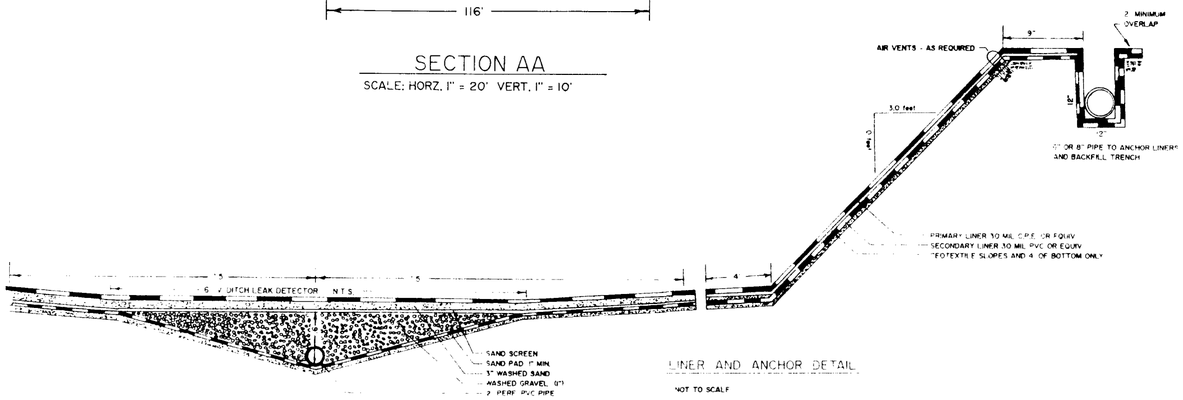


VICINITY MAP SCALE: 1" = 2000'



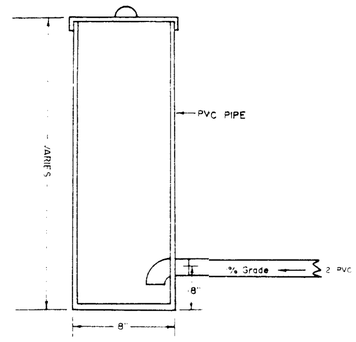
SECTION AA

SCALE: HORZ. 1" = 20' VERT. 1" = 10'



LINER AND ANCHOR DETAIL

NOT TO SCALE



SUMP DETAIL N.T.S

RECEIVED

SEP 19 1990

OIL CONSERVATION DIV.
SANTA FE

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT THIS SURVEY MEETS THE AMENDED MINIMUM STANDARDS FOR LAND SURVEYS IN NEW MEXICO.

Cecil B Tullis

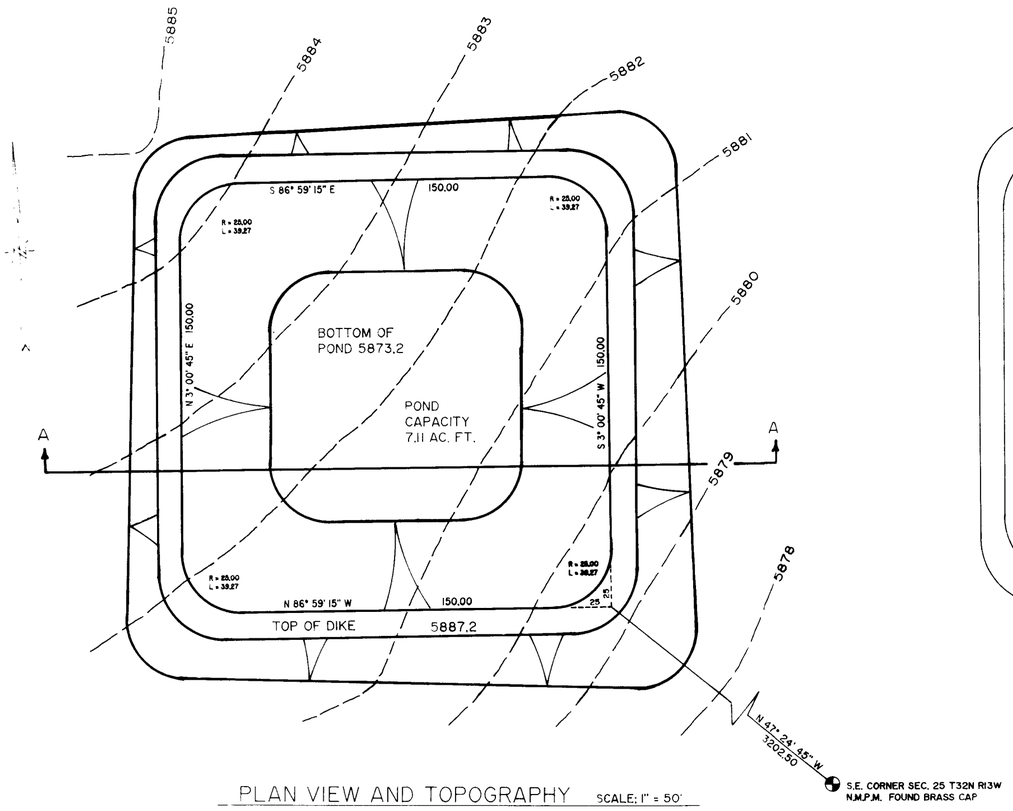
CECIL B TULLIS N.M. REG. NO. 9672

PROPOSED EVAPORATION POND FOR HALLWOOD PETROLEUM INC.

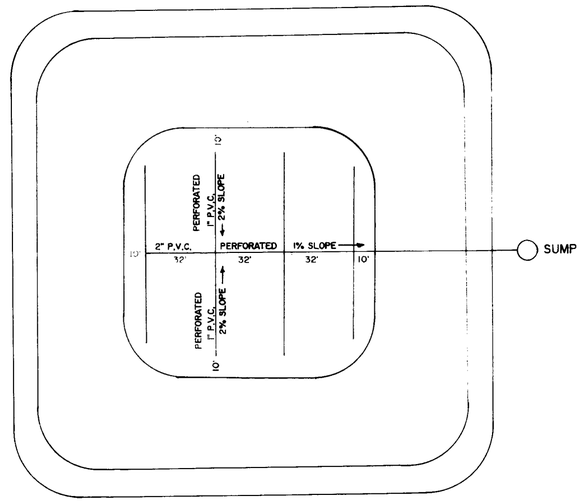
LOCATED IN THE SOUTH 1/2 OF THE NW 1/4, NW 1/4 ,SE 1/4 SECTION 25 T32N R13W N.M.P.M. SAN JUAN COUNTY, NEW MEXICO

DRAWN BY: C.R.T.	JOB. #202-90	SEPTEMBER 1, 1990

HIGH COUNTRY SURVEYS FARMINGTON, NEW MEXICO

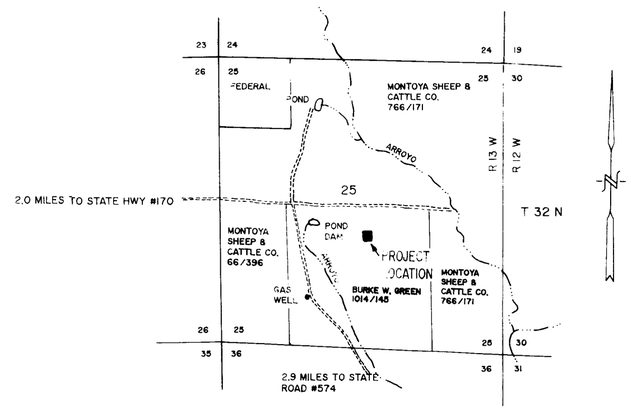


PLAN VIEW AND TOPOGRAPHY SCALE: 1" = 50'

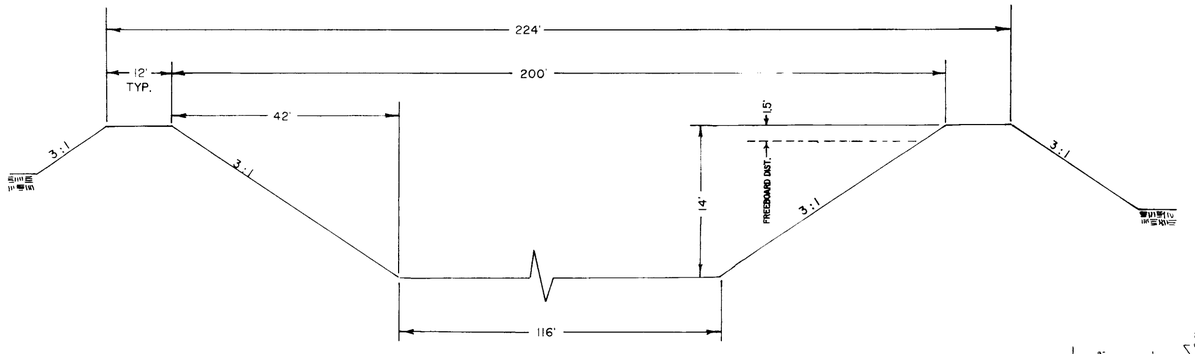


LEAK DETECTION SYSTEM PIPE SCHEMATIC

SCALE: 1" = 50'

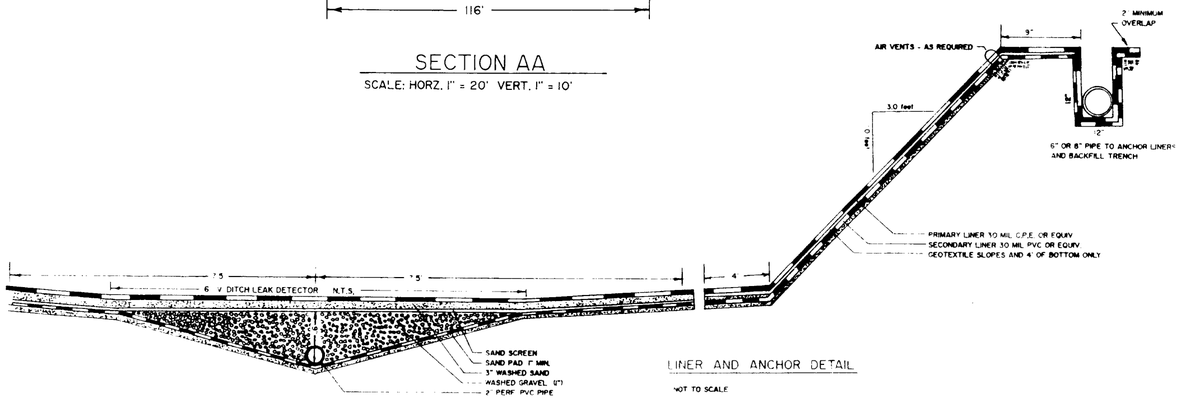


VICINITY MAP SCALE: 1" = 2000'



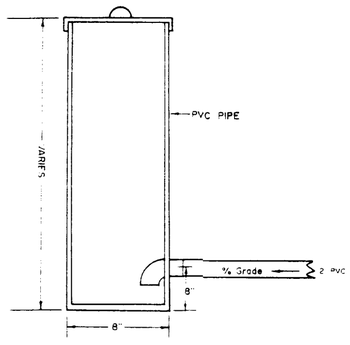
SECTION AA

SCALE: HORZ. 1" = 20' VERT. 1" = 10'



LINER AND ANCHOR DETAIL

NOT TO SCALE



SUMP DETAIL N.T.S.

RECEIVED

SEP 19 1990

OIL CONSERVATION DIV.
SANTA FE

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Cecil B Tullis

CECIL B TULLIS N.M. REG. NO. 9672

PROPOSED EVAPORATION POND FOR HALLWOOD PETROLEUM INC.

LOCATED IN THE SOUTH 1/2 OF THE NW 1/4, NW 1/4 ,SE 1/4 SECTION 25 T32N R13W N.M.P.M. SAN JUAN COUNTY, NEW MEXICO

DRAWN BY: C.R.T.	JOB. #202-90	SEPTEMBER 1, 1990

HIGH COUNTRY SURVEYS FARMINGTON, NEW MEXICO

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

September 18, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. 7099-3220-0000-5051-1026

Mr. Chris Williams
Hallwood Petroleum, Inc.
P.O. Box 378111
Denver, CO 80237

RE: OCD Rule 711 Permit Approval NM-02-0006
Hallwood Petroleum, Inc.
Centralized Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico.

Dear Mr. Williams:

The permit application for the Hallwood Petroleum, Inc (Hallwood) centralized surface waste management facility located in NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM, San Juan County, New Mexico **is hereby approved** in accordance with New Mexico Oil Conservation Division (OCD) Rule 711 under the conditions contained in the enclosed attachment. A $25,000 blanket bond, No. B2772099, has been submitted by Hallwood and approved by the Director. The application consists of the permit application Form C-137 dated April 3, 1998, inspection report response letter dated April 3, 1998, supplemental materials dated May 4, 1998, original permit application dated August 27, 1990, and original permit approval letter dated October 17, 1990.

The operation, monitoring and reporting shall be as specified in the enclosed attachment. All modifications and alternatives to the approved evaporation methods must receive prior OCD approval. Hallwood is required to notify the Director of any facility expansion or process modification and to file the appropriate materials with the Division.

Please be advised approval of this facility permit does not relieve Hallwood of liability should your operation result in actual pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Hallwood of responsibility for compliance with other federal, state or local laws and/or regulations.

Please be advised that all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted or otherwise rendered non-hazardous to migratory birds. In addition, OCD Rule 310 prohibits oil from being stored or retained in earthen reservoirs or open receptacles.

The facility is subject to periodic inspections by the OCD. The conditions of this permit will be reviewed by the OCD no later than five (5) years from the date of this approval and the facility will be inspected at least once a year.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the OCD Santa Fe Office within five working days of receipt of this letter.**

If you have any questions please do not hesitate to contact Martyne J. Kieling at (505) 827-7153.

Sincerely,

Lori Wrotenbery
Director

LW/mjk

xc with attachments:
Aztec OCD Office
Jim Bonaventura, Hallwood Petroleum, Inc.

ATTACHMENT TO OCD 711 PERMIT APPROVAL
PERMIT NM-02-0006
HALLWOOD PETROLEUM, INC.
CENTRALIZED WASTE MANAGEMENT FACILITY
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico.
(September 18, 2000)

EVAPORATION POND OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) location by section, township and range; and c) emergency phone number.

2. The pond must have a minimum freeboard of one and a half feet (1.5'). A device must be installed in the pond to accurately measure freeboard.

3. Pond inspection and maintenance must be conducted on a weekly basis or immediately following a consequential rainstorm or windstorm. If any defect is noted repairs must be made as soon as possible. If the defect will jeopardize the integrity of the pond additional wastes may not be placed into the pond until repairs have been completed. Records of such inspections must be made available to the OCD upon request.

4. The leak detection system must be inspected monthly and if fluid is present samples of the fluid must be compared with the fluids in the pond. Results must be recorded and maintained for OCD review. If analyses of pond and leak detection fluids are similar the OCD Santa Fe office must be notified within 48 hours. Within 72 hours of discovery Hallwood must submit a plan to the OCD Santa Fe and Aztec offices that describes what procedures will be taken to investigate and repair the leak.

5. Sludge thickness in the base of the pond must be measured annually. Any sludge build-up in the bottom of the pond in excess of twelve inches (12") must be removed and disposed of at an OCD-approved waste management facility.

6. All new or replacement above ground tanks located at the facility and containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks whichever is greater. All existing tanks must be labeled as to contents and hazards and must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks whichever is greater.

7. Below grade sumps must be cleaned and visually inspected annually. Results must be recorded and maintained for OCD review. If sump integrity has failed the OCD must be notified within 48 hours of discovery and the sump and contaminated soils must be removed and disposed of at an OCD-approved waste management facility. Soil remediation must follow OCD surface impoundment closure guidelines. Hallwood must submit a report to the OCD Santa Fe and Aztec offices that describes the investigation and remedial actions taken.

8. The produced water receiving and treatment area must be inspected weekly for tank, piping and berm integrity.

9. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.

10. Liquid reduction technologies that may be used to eliminate pond waters include evaporation and injection.

11. Tests of ambient H_2S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations around the pond at the top of the berm. The wind speed and direction must be recorded in conjunction with each test.

    a. If an H_2S reading of 1.0 ppm or greater is obtained:

        i. a second reading must be taken on the downwind berm within one hour;

        ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and

        iii. tests for H_2S levels must be made at the fence line down wind from the problem pond.

    b. If two (2) consecutive H_2S readings of 1.0 ppm or greater are obtained:

        i. the operator must notify the Aztec office of the OCD immediately;

        ii. the operator must commence hourly monitoring on a 24-hour basis; and

        iii. the operator must obtain a daily analysis of dissolved sulfides in the pond.

    c. If an H_2S reading of 10.0 ppm or greater at the facility fence line is obtained:

i. the operator must immediately notify the Aztec office of the OCD and the following public safety agencies:

New Mexico State Police
San Juan County Sheriff
San Juan County Fire Marshall; and

ii. the operator must initiate notification of all persons residing within one-half (½) mile of the fence line and assist public safety officials with evacuation as requested.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only produced waters that are generated in the State of New Mexico by Hallwood Petroleum, Inc.

2. The facility is authorized to accept only produced waters that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403.

3. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.

4. The transporter of any wastes to the facility must supply a certification that wastes delivered are those wastes received from the generator and that no additional materials have been added.

5. No produced water may be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water," on file with the Division.

6. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by the permit holder.

REPORTING AND RECORD KEEPING

1. Results of the weekly inspections of the pond and the produce water receiving and treatment area and monthly testing of the leak detection system must be recorded and maintained for OCD review.

2. Results of weekly testing of the evaporation pond for H_2S and additional testing for dissolved sulfides and dissolved oxygen must be recorded and maintained for OCD review.

3. Results of annual maintenance on below grade sumps and annual measurements of sludge thickness in the pond must be recorded and maintained for OCD review.

4. The applicant must notify the **OCD Aztec office within 24 hours** of any fire, break, leak, spill, blow out, or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.

5. All records of testing and monitoring must be retained for a period of five (5) years.

6. The OCD must be notified prior to the installation of any pipelines or wells or other structures within the boundaries of the facility.

FINANCIAL ASSURANCE

1. Pursuant to OCD Rule 711.B.3.a., financial assurance in a form approved by the Director is required from Hallwood Petroleum, Inc. in the amount of **$25,000** for this facility

2. Financial assurance must be submitted within thirty (30) days of this permit approval or on **October 18, 2000**.

3. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility may be reviewed by the OCD no later than five (5) years from the date of this approval.

CLOSURE

1. The OCD Santa Fe and Aztec offices must be notified when operation of the facility is to be discontinued for a period in excess of six (6) months or when the facility is to be dismantled. Within six (6) months after discontinuing use or within 30 days of deciding to dismantle the facility, a closure plan must be submitted to the OCD Santa Fe office for approval. The operator must complete cleanup of constructed facilities and restoration of the facility site within six (6) months of receiving the closure plan approval, unless an extension of time is granted by the Director.

2. The closure plan to be submitted must include the following procedures:

   a. When the facility is to be closed no new material will be accepted.

   b The soils beneath the evaporation pond and liquids receiving and treatment area will be characterized as to total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) content to determine potential migration of contamination.

   c. Contaminated soils exceeding OCD closure standards for the site will be removed or remediated.

   d. The area will be contoured, seeded with native grasses and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.

   e. Closure will be pursuant to all OCD requirements in effect at the time of closure, and any other applicable local, state and/or federal regulations.

CERTIFICATION

Hallwood Petroleum, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Hallwood Petroleum, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

HALLWOOD PETROLEUM, INC.

Signature _____ Title _____ Date _____

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

August 28, 2000

Mr. Chris Williams
Hallwood Petroleum, Inc.
P.O. Box 378111
Denver, CO 80237

RE: DRAFT OCD Rule 711 Permit Conditions
Hallwood Petroleum, Inc.
Centralized Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico.

Dear Mr. Williams:

The New Mexico Oil Conservation Division (OCD) has reviewed your application Form C-137 dated April 3, 1998 and has prepared draft permit conditions for the above referenced facility. Please review them and let me know if you have any comments or concerns regarding these conditions and your operations at the facility.

If you have any questions please do not hesitate to contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc with attachments:
Jim Bonaventura, Hallwood Petroleum, Inc.

DRAFT

HALLWOOD PETROLEUM, INC.
CENTRALIZED WASTE MANAGEMENT FACILITY
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico.
(August 30, 2000)

EVAPORATION POND OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) location by section, township and range; and c) emergency phone number.

2. The pond must have a minimum freeboard of one and a half feet (1.5'). A device must be installed in the pond to accurately measure freeboard.

3. Pond inspection and maintenance must be conducted on a weekly basis or immediately following a consequential rainstorm or windstorm. If any defect is noted repairs must be made as soon as possible. If the defect must jeopardize the integrity of the pond additional wastes may not be placed into the pond until repairs have been completed.

4. The leak detection system must be inspected monthly and if fluid is present samples of the fluid must be compared with the fluids in the pond. Results must be recorded and maintained for OCD review. If analyses of pond and leak detection fluids are similar the OCD Santa Fe office must be notified within 48 hours. Within 72 hours of discovery Hallwood must submit a plan to the OCD Santa Fe and appropriate District offices that describes what procedures will be taken to investigate and repair the leak.

5. Sludge thickness in the base of the pond must be measured annually. Any sludge build-up in the bottom of the pond in excess of twelve inches (12") must be removed and disposed of at an OCD-approved waste management facility.

6. All new or replacement above ground tanks located at the facility and containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks whichever is greater. All existing tanks must be labeled as to contents and hazards and must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks whichever is greater.

7. Below grade sumps must be cleaned and visually inspected annually. Results must be recorded and maintained for OCD review. If sump integrity has failed the OCD must be

notified within 48 hours of discovery and the sump and contaminated soils must be removed and disposed of at an OCD-approved waste management facility. Soil remediation must follow OCD surface impoundment closure guidelines. Hallwood must submit a report to the OCD Santa Fe and appropriate District offices that describes the investigation and remedial actions taken.

8. The produced water receiving and treatment area must be inspected weekly for tank, piping and berm integrity.

9. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.

10. Liquid reduction technologies that may be used to eliminate pond waters include evaporation and injection.

11. Tests of ambient H_2S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations around the pond at the top of the berm. The wind speed and direction must be recorded in conjunction with each test.

    a. If an H_2S reading of 1.0 ppm or greater is obtained:

        i. a second reading must be taken on the downwind berm within one hour;

        ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and

        iii. tests for H_2S levels must be made at the fence line down wind from the problem pond.

    b. If two (2) consecutive H_2S readings of 1.0 ppm or greater are obtained:

        i. the operator must notify the Aztec office of the OCD immediately;

        ii. the operator must commence hourly monitoring on a 24-hour basis; and

        iii. the operator must obtain daily analysis of dissolved sulfides in the pond.

    c. If an H_2S reading of 10.0 ppm or greater at the facility fence line is obtained:

        i. the operator must immediately notify the Aztec office of the OCD and the

following public safety agencies:

New Mexico State Police
San Juan County Sheriff
San Juan County Fire Marshall; and

ii. the operator must initiate notification of all persons residing with in one-half (½) mile of the fence line and assist public safety officials with evacuation as requested.

12. In order to prevent development of harmful concentrations of H_2S, the following procedures must be followed:

a. Regular treatment for bacterial control of the gunbarrel tank, produced water holding tank, and evaporation pond.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only produced waters that are generated in the State of New Mexico by Hallwood Petroleum, Inc.

2. The facility is authorized to accept only produced waters that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403.

3. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.

4. The transporter of any wastes to the facility must supply a certification that wastes delivered are those wastes received from the generator and that no additional materials have been added.

7. No produced water may be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water" on file with the Division.

8. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by the Permit holder.

DRAFT

REPORTING AND RECORD KEEPING

1. Results of monthly testing of the leak detection system must be recorded and submitted to the OCD Santa Fe office for annual review **by August 30 of each year**.

2. Results of weekly testing of the evaporation pond for H_2S and additional testing for dissolved sulfides, and dissolved oxygen must be recorded and maintained for OCD review.

3. Results of bacterial control treatment of the evaporation pond must be recorded and maintained for OCD review.

4. Results of annual maintenance on below grade sumps and annual measurements of sludge thickness in the pond must be recorded and maintained for OCD review.

5. The applicant must notify the **OCD Aztec District office within 24 hours** of any fire, break, leak, spill, blow out, or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.

6. All records of testing and monitoring must be retained for a period of five (5) years.

7. The OCD must be notified prior to the installation of any pipelines or wells or other structures within the boundaries of the facility.

8. The OCD Santa Fe and Aztec offices must be notified when operation of the facility is discontinued for a period in excess of six (6) months or when the facility is to be dismantled. A closure plan for the facility will be provided for OCD review and approval.

FINANCIAL ASSURANCE

1. Pursuant to OCD Rule 711.B.3.a., financial assurance in a form approved by the Director is required from Hallwood Petroleum, Inc. in the amount of **$25,000** for this facility

2. Financial assurance must be submitted within thirty (30) days of this permit approval or on **September 30, 2000**.

3. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility may be reviewed by the OCD no later than five (5) years from the date of this approval.

DRAFT

CLOSURE

1. The OCD Santa Fe and Aztec offices must be notified when operation of the facility is to be discontinued for a period in excess of six (6) months or when the facility is to be dismantled Within six (6) months after discontinuing use or within 30 days of deciding to dismantle the facility a closure plan must be submitted to the OCD Santa Fe office for approval. The operator must complete cleanup of constructed facilities and restoration of the facility site within six (6) months of receiving the closure plan approval, unless an extension of time is granted by the Director.

2. The closure plan to be submitted must include the following procedures:

   a. When the facility is to be closed no new material will be accepted.

   b The soils beneath the evaporation pond and liquids receiving and treatment area will be characterized as to total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) content to determine potential migration of contamination.

   c. Contaminated soils exceeding OCD closure standards for the site will be removed or remediated.

   d. The area will be contoured, seeded with native grasses and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.

   e. Closure will be pursuant to all OCD requirements in effect at the time of closure, and any other applicable local, state and/or federal regulations.

CERTIFICATION

Hallwood Petroleum, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Greystone Energy, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

HALLWOOD PETROLEUM, INC.

Signature _____ Title _____ Date _____

Hallwood Petroleum, Inc.

4582 S. Ulster St. Pkwy Suite 1700 Stanford Place III P.O. Box 378111
Denver, Colorado 80237 (303) 850-7373

May 4, 1998

Ms. Martyne J. Kieling
Environmental Geologist
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87506

Subject: *Result of Pit Sludge Measurements and Gathering Lines Pressure Testing*
Centralized 711 Surface Waste Management Facility
NW/4, SE/4 of Section 25 Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico.

Dear Ms. Kieling:

Hallwood Petroleum, Inc has measured the amount of sludge buildup in the bottom of the above reference facility. The measurements showed that only three (3) inches of sludge has accumulated in the pit.

The gathering system leading to the Surface Waste Management Facility consists of two 2-inch plastic lines. Both lines were pressure tested on April 22, 1998 to determine if any leaks were present. Both lines were pressured to 120 psi and then shut-in and monitored for any pressure loses using a chart recorder. Results of the tests indicated that both lined maintained mechanical integrity during the duration of testing. The charts of the tests are attached for your review.

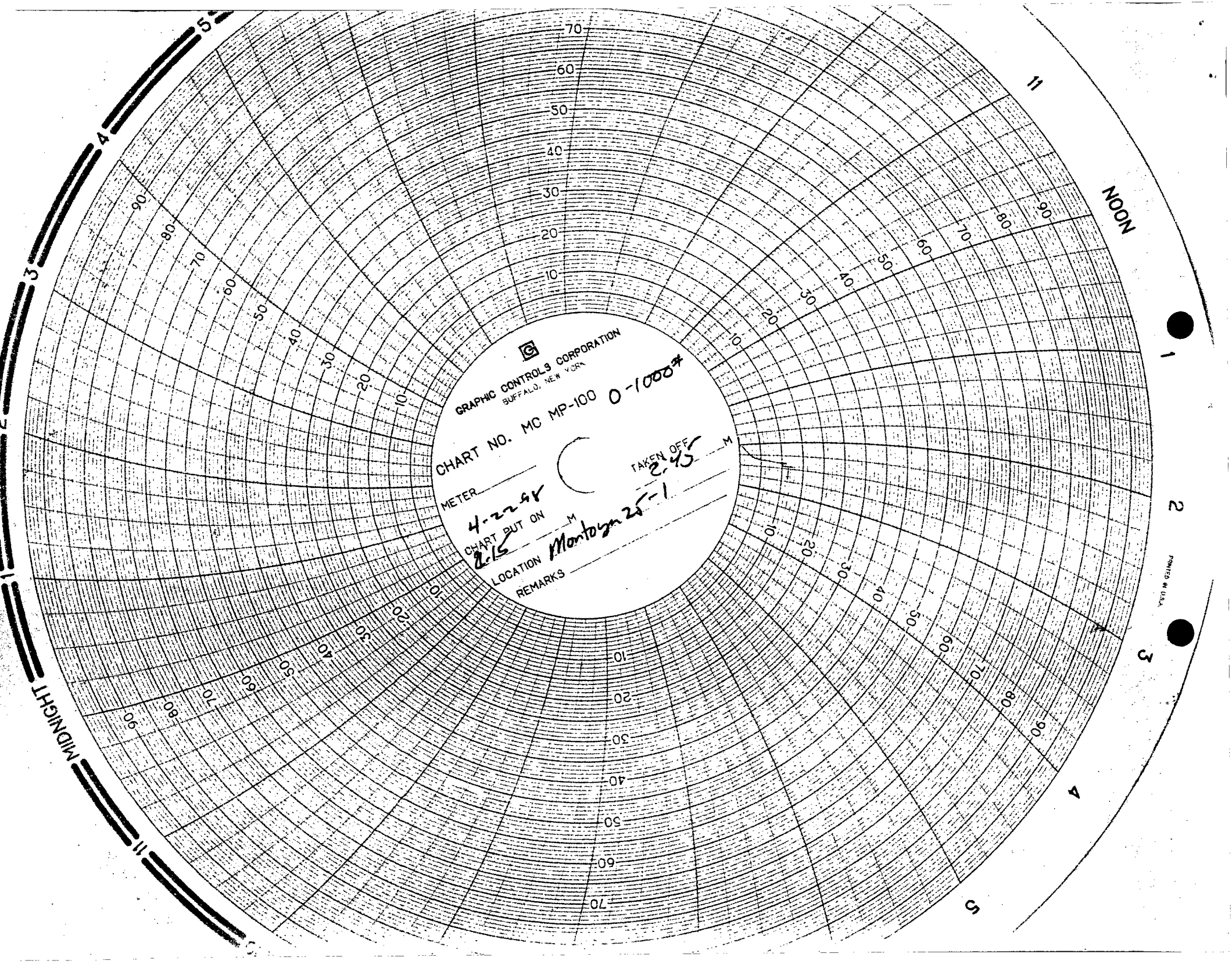
If you have any questions regarding this matter please do not hesitate to contact me at any time.

Sincerely,

HALLWOOD PETROLEUM, INC.

Chris R. Williams
Environmental/Safety Manager

Cc: Jim Bonaventura, HPI
Kevin O'Connell
Aztec OCD Office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REMARKS
NOON
MIDNIGHT
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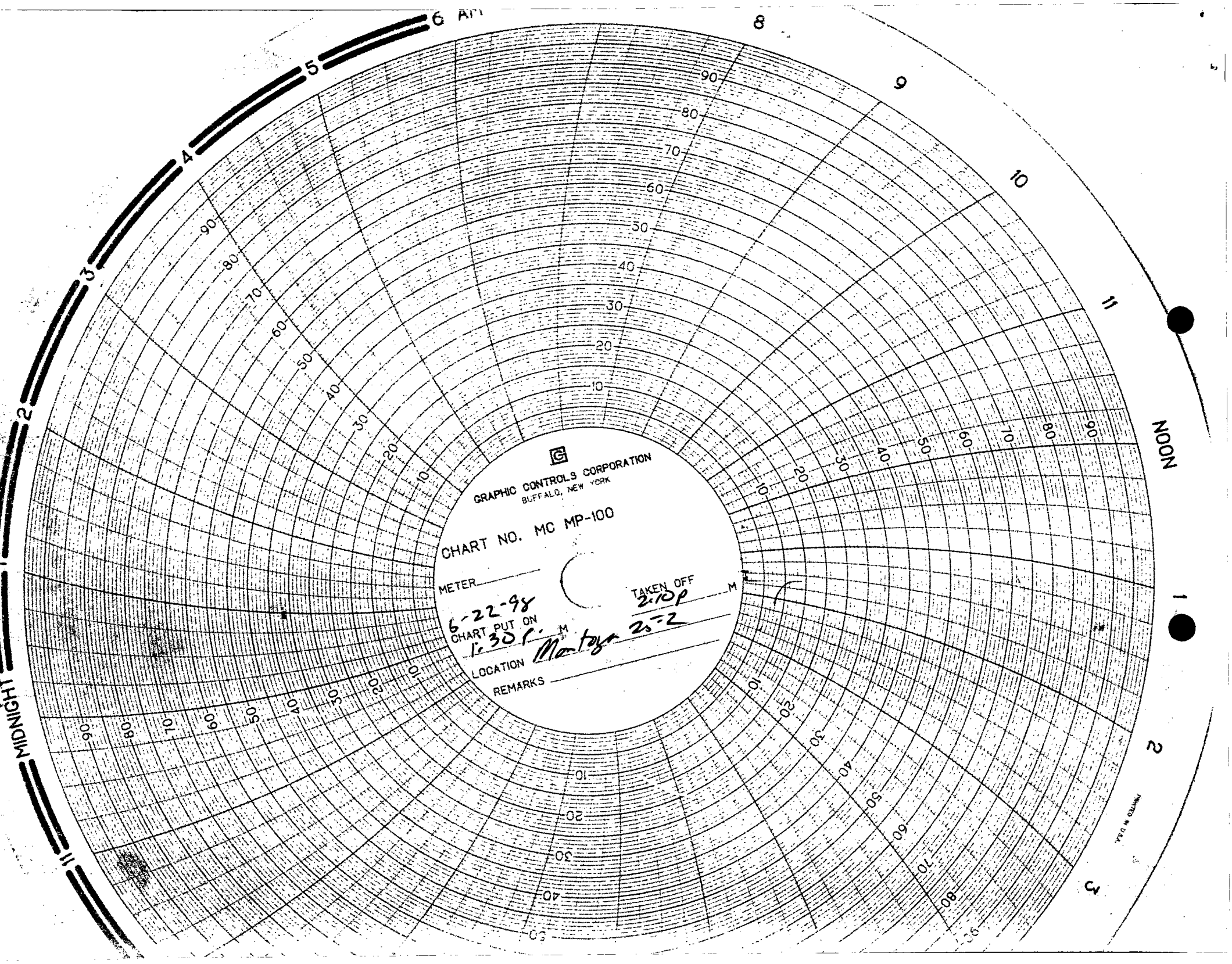
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BUFFALO, NEW YORK
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1:30 P. M
TAKEN OFF 2:10P M
LOCATION Montoya 25-2
REMARKS
MIDNIGHT
NOON
MADE IN U.S.A.

Hallwood Petroleum, Inc.

4582 S. Ulster St. Pkwy Suite 1700 Stanford Place III P.O. Box 378111
Denver, Colorado 80237 (303) 850-7373

April 3, 1998

Ms. Martyne J. Kieling
Environmental Geologist
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87506

Subject: *Response to Inspection Deficiencies*
Centralized 711 Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico

Dear Ms. Kieling:

Enclosed are two copies of our responses to the deficiencies discovered during your inspection of the above referenced facility on June 11, 1997. Only those items identified as being deficiencies have been addressed in the enclosed packet.

We have not yet completed measuring the sludge thickness in the bottom of the pond or the mechanical integrity test on the two saltwater discharge lines leading to the facility. These should be completed by April 22, 1998. Results of both will be forwarded to you immediately upon completion.

If you have any question regarding any of the information provide; please give me a call at any time.

Sincerely,

HALLWOOD PETROLEUM, INC.

Chris R. Williams
Environmental/Safety Manager

CC: Aztec OCD Office

Enclosure

RESPONSE TO DEFICIENCIES OF
INSPECTION REPORT
JUNE 11, 1997
HALLWOOD PETROLEUM, INC.
(NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM)
SAN JUAN COUNTY, NEW MEXICO

1. Pond Freeboard: Liner marking or some other device shall be installed to accurately measure freeboard. Pond freeboard shall be a minimum one and a half ($1^1/_2$) feet below the top of the lowest point on the levee. The pond must be maintained below freeboard level at all times.

Deficiency:

The evaporation pond is lacking freeboard markers that accurately measure the one and one-half ($1^1/_2$)-foot freeboard height. Water level was below freeboard at the time of inspection.

Response to Deficiency:

Hallwood Petroleum, Inc. has placed a freeboard marker $1^1/_2$ feet below the lowest point on the levee (See pictures 1 and 2). At no time has the allowable freeboard been exceeded.

2. Leak Detection System: The top of the leak detection sump must be above the top of the levee. The sump should be covered. In addition, the leak detection sump shall be inspected once a week.

Deficiency:

The top of the leak detection sump did not appear to be above the levee. The appearance of any fluids within the sump should be sampled and comparison analysis made to the contents within the pond.

Response to Deficiency:

A two-foot extension was placed on the existing sump to bring the height of the sump above that of the levee (see Pictures 1 & 2). A cap has also been placed on the top of the extension to seal the sump. The sump was inspected for the presence of fluids on March 13, 1998. Fluid was observed in the sump, however, the fluid level was observed to be below that of the top of the fluid level in the pit. Water samples were collected from the sump and the pit for comparative purposes (See attachment A). The water that had collected in the sump was the result of a minor leak caused by a gopher, which had chewed a small whole in the liner approximately four years ago. The use of the pit immediately ceased and was

repaired. No problems have occurred at the site since. The analytical results confirm this.

Hallwood Petroleum, Inc has also developed an inspection form to record weekly inspections of the sump (See Attachment B).

4. Sludge Build-up: Any sludge build-up in the bottom of the pond in excess of twelve (12") will be removed and disposed of at an OCD approved disposal facility.

Deficiency:

Sludge thickness at the bottom of the pond should be routinely measured.

Response to Deficiency:

Measurement of the sludge in the bottom of the pit will be completed by April 22, 1998. Results of the sludge thickness gauging will immediately be forwarded to the OCD. If the sludge thickness exceeds 12-inches, Hallwood Petroleum, Inc will arranged to have the sludge removed from the pond and hauled to an approved OCD facility for disposal.

5. Security: The facility shall be secured when no attendant is present, to prevent any unauthorized dumping. Securing the facility may include locks on tank valves, a perimeter fence and locked gate or other similar security measures.

Deficiency:

The facility has a perimeter fence and locking gate. The unloading valve outside of the fence should be secured to prevent any unauthorized dumping.

Response to Deficiency: Hallwood has placed a lock on the unloading valve to prevent any unauthorized dumping (See Picture 3).

12. Tank Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary it the tanks were to rupture, spill or ignite.

Deficiency

The above ground tank must be labeled as to the contents. Depending upon the contents, hazard placards that identify the contents and associated hazards may be needed.

Response to Deficiency:

This tank only handles the produced water of two nearby producing gas wells. The tank has been labeled "Produced Water" *to identify its contents (See Picture 4).*

14. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter. Companies may propose various methods for testing such as pressure testing or other OCD approved methods.

Deficiency:

Any underground process/wastewater lines must have a mechanical integrity testing proposal.

Response to Deficiency:

Hallwood Petroleum will perform mechanical integrity tests on the two discharge lines leading to this facility. Each line will be pressurized to 100 psi for 1-hour. A chart recorder will be used to monitor the pressure. If the shut in pressure deviates in excess of 10%, Hallwood Petroleum will assume a leak is present and either attempt to isolate the leak or replace the line. The testing of the lines will be completed by April 22, 1998 and the results of these tests will immediately be forwarded to the OCD.

18. Naturally Occurring Radioactive Material (NORM): All generators submitting waste to a New Mexico Oil Conservation Division Permitted Commercial or Centralized 711 Waste Management Facility must include a Naturally Occurring Radioactive Material status declaration. The generator must declare that the waste was tested for Naturally Occurring Radioactive Material (NORM) and does not contain NORM at the regulated levels pursuant to @) NMAC 3.1 subpart 1403.C and D.

Deficiency:

Under the new 711 Waste Management Facility Permit all waste must be accompanied with a signed NORM declaration from the waste generator (See enclosed Order No. R-10609).

Response to Deficiency:

A NORM survey was performed over the entire property and on the pit sludges using a Ludlum Model 3 Survey Meter and Ludlum Model 44-2 Gamma Scintillator to determine the existence of NORM. No NORM was detected in the

sludges, equipment or soils above background at this facility (See Attachment C). Awaiting a NORM Declaration Form from the NMOCD.

19. Application Requirements for Permit Under the New Rule 711: An applicant, Form C-137, for a permit renewal shall be filed in DUPLICATE with the Santa Fe Office of the Division and ONE COPY with the appropriate OCD district office. The application shall comply with Division guidelines and shall include:

(a) The names and addresses of the applicant and all principal officers of the business if different from the applicant;

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site.

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(d) A plan for management of approved wastes.

Deficiency:

Please include an updated description of how the facility handles its waste stream.

Response to Deficiency:

See Attached C-137 Application

(i) A Closure Plan including a cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor.

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(l) Certification by an authorized representative of the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

Deficiency:

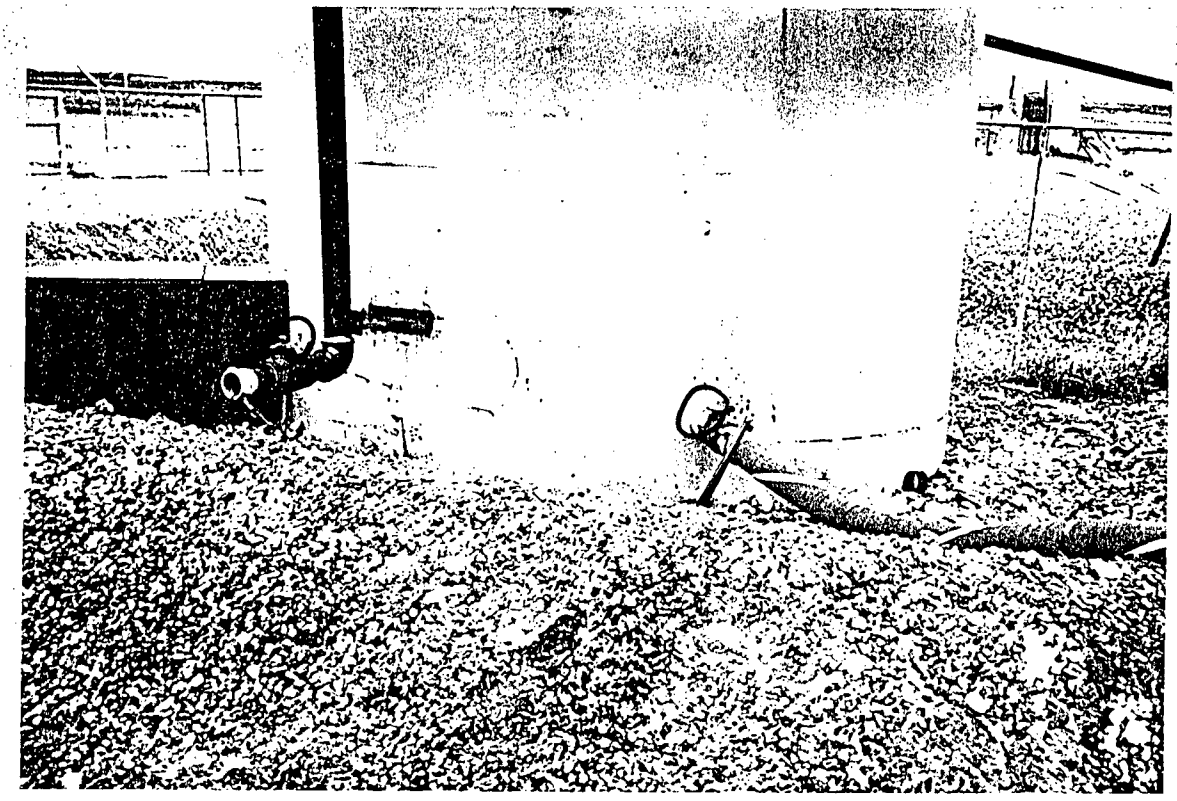
Please submit with C-137 Application

Response to Deficiency:

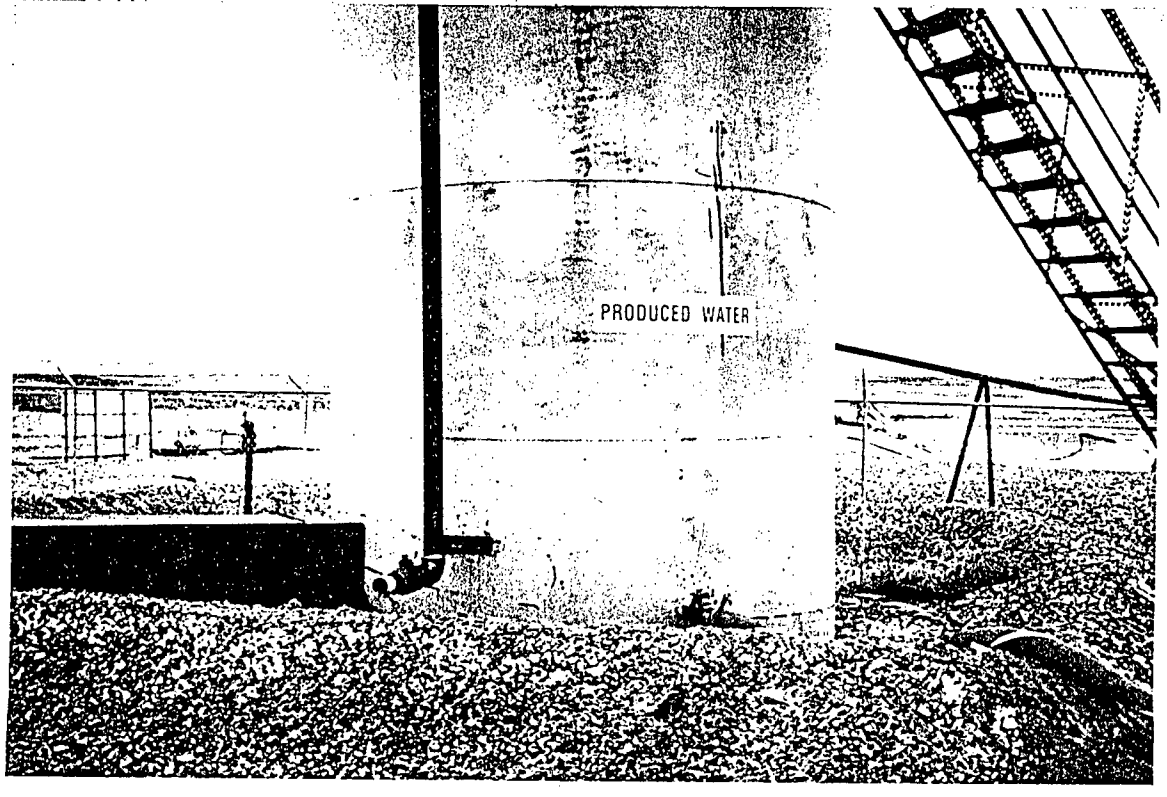
See Attached C-137 Application

Freeboard Marker & Sump Extension

Freeboard Marker & Sump Extension



Security measures to prevent tampering
(Lock placement on valves)



Tank Contents identification

Attachment A

Analytical Data

On Site Technologies, Ltd.
612 East Murray Drive
Farmington, NM 87401

Fax Cover Sheet

DATE:	March 31, 1998		
TO:	Chris Williams	**PHONE:**	
	Hallwood Energy	**FAX:**	303-850-6290
FROM:	Larry Trujillo	**PHONE:**	505-325-5667
	On Site Technologies, Ltd.	**FAX:**	505-327-1496
RE:	La Plata Evaporation Pond Samples		
CC:			

Number of pages including cover sheet: 14

Message

Please find attached lab. results with lab. QA/QC and Chain of Custody for La Plata Evaporation pond and sump.

If there are any questions or concerns feel free to contact me at the above number.

Thank you for your time and consideration.

Larry Trujillo

On Site Technologies Limited Partnership

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn: *Larry Trujillo*
Company: *On Site Technologies Ltd.*
Address: *612 E. Murray Dr.*
City, State: *Farmington, NM 87401*

Date: 31-Mar-98
COC No.: *9803035*
Sample ID: *02A*
Job No.: *4-1463*

Project Name: ***Hallwood; La Plata***
Project Location: ***Pond Sample***
Sampled by: LT Date: 11-Mar-98 Time: 10:30
Analyzed by: HR Date: 18-Mar-98

API RP-45 Laboratory Analysis

Parameter		Result	Unit of Measure		Result	Unit of Measure	
Cations							
Sodium	Na	8900	mg/L		387.13	me/L	
Calcium	Ca	5.1	mg/L		0.25	me/L	
Magnesium	Mg	59	mg/L		4.87	me/L	
Potassium	K	3.3	mg/L		0.08	me/L	
Anions							
Chloride	Cl	4422	mg/L		124.73	me/L	
Sulfate	SO4	10	mg/L		0.21	me/L	
Carbonate	CO3	2696	mg/L		44.93	me/L	
Bicarbonate	HCO3	11070	mg/L		181.42	me/L	
Hydroxide	OH	<1	mg/L		<0.01	me/L	
Sulfide	S2	NA	mg/L		NA	me/L	
Iron	Fe	0.4	mg/L		0.01	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		27165	mg/L				
pH		8.86					
Resistivity		0.3460	ohm-m				
Specific Gravity		1.0206					
Total Hardness as CaCO3		257	mg/L				

Cation-Anion Balance

41.06 *Difference Cation-Anion, me/L*
743.64 *Total Cation-Anion, me/L*
5.5 *% Difference Cation-Anion*

Comments

NA: *Not Analyzed*

Approved by:
Date: 3/31/98

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn:	Larry Trujillo	Date:	31-Mar-98
Company:	On Site Technologies Ltd.	COC No.:	9803035
Address:	612 E. Murray Dr.	Sample ID:	01A
City, State:	Farmington, NM 87401	Job No.:	4-1463

Project Name:	**Hallwood; La Plata**				
Project Location:	**Sump Sample**				
Sampled by:	LT	Date:	11-Mar-98	Time:	10:15
Analyzed by:	HR	Date:	18-Mar-98		

API RP-45 Laboratory Analysis

Parameter		Result	Unit of Measure		Result	Unit of Measure	
Cations							
Sodium	Na	5100	mg/L		221.84	me/L	
Calcium	Ca	2.8	mg/L		0.14	me/L	
Magnesium	Mg	40	mg/L		3.29	me/L	
Potassium	K	2.4	mg/L		0.06	me/L	
Anions							
Chloride	Cl	2008	mg/L		56.64	me/L	
Sulfate	SO4	5	mg/L		0.10	me/L	
Carbonate	CO3	2124	mg/L		35.39	me/L	
Bicarbonate	HCO3	6829	mg/L		111.92	me/L	
Hydroxide	OH	<1	mg/L		<0.01	me/L	
Sulfide	S2	NA	mg/L		NA	me/L	
Iron	Fe	0.8	mg/L		0.03	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		16111	mg/L				
pH		9.16					
Resistivity		0.5727	ohm-m				
Specific Gravity		1.0129					
Total Hardness as CaCO3		172	mg/L				

Cation-Anion Balance

21.30 Difference Cation-Anion, me/L

429.41 Total Cation-Anion, me/L

5.0 % Difference Cation-Anion

Comments

NA: Not Analyzed

Approved by:

Date: 3/31/98

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Sample ID: MBLK-Alk	Batch ID: API H2O_980	Test Code: M2320 B	Units: mg/L CaCO3	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1009	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5									
Alkalinity, Carbonate (As CaCO3)	ND	5									
Alkalinity, Total (As CaCO3)	2.7	5									J

Sample ID: MBLK-Ca	Batch ID: API H2O_980	Test Code: SW7140	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 981	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.05									

Sample ID: MBLK-Cl	Batch ID: API H2O_980	Test Code: M4500-Cl C.	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 999	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1									

Sample ID: MBLK-Fe	Batch ID: API H2O_980	Test Code: SW7380	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1019	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	.04	0.1									

Sample ID: MBLK-K	Batch ID: API H2O_980	Test Code: SW7610	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 987	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	0.05									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Sample ID: MBLK-Mg	Batch ID: API H2O_980	Test Code: SW7450	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 993	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	ND	0.05									

Sample ID: MBLK-Na	Batch ID: API H2O_980	Test Code: SW7770	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 975	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	0.2									

Sample ID: MBLK-Sul	Batch ID: API H2O_980	Test Code: M4500-SO4 D	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1004	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

Sample ID: MBLK-TDS	Batch ID: API H2O_980	Test Code: E160.1	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1014	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS-Alk	Batch ID: API H2O_980	Test Code: M2320 B	Units: mg/L CaCO3	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1010	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	176	5	163	0	108.0%	91	116				

Sample ID: LCS-Cl	Batch ID: API H2O_980	Test Code: M4500-Cl C.	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1000	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	197	1	200	0	98.5%	90	114				

Sample ID: LCS-pH	Batch ID: API H2O_980	Test Code: E150.1	Units: pH units	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1025	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.005	2									

Sample ID: LCS-Res	Batch ID: API H2O_980	Test Code: M2510 C	Units: ohm-m	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1028	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	11.38	0.0001									

Sample ID: LCS-Sul	Batch ID: API H2O_980	Test Code: M4500-SO4 D	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1005	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	95.5	5	96.3	0	99.2%	83	113				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: LCS-TDS Batch ID: **API H2O_980** Test Code: **E160.1** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1015**											
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				
Sample ID: LCS1-Ca Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **982**											
Calcium	3.2	0.05	3.46	0	92.5%	89	107				
Sample ID: LCS1-Fe Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1020**											
Iron	2	0.1	2	0	100.0%	87	111				
Sample ID: LCS1-K Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **988**											
Potassium	1.98	0.05	1.97	0	100.5%	84	114				
Sample ID: LCS1-Mg Batch ID: **API H2O_980** Test Code: **SW7450** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **994**											
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: LCS-TDS Batch ID: API H2O_980 Test Code: E160.1 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1015											
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				
Sample ID: LCS1-Ca Batch ID: API H2O_980 Test Code: SW7140 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 982											
Calcium	3.2	0.05	3.46	0	92.5%	89	107				
Sample ID: LCS1-Fe Batch ID: API H2O_980 Test Code: SW7380 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1020											
Iron	2	0.1	2	0	100.0%	87	111				
Sample ID: LCS1-K Batch ID: API H2O_980 Test Code: SW7610 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 988											
Potassium	1.98	0.05	1.97	0	100.5%	84	114				
Sample ID: LCS1-Mg Batch ID: API H2O_980 Test Code: SW7450 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 994											
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS1-Na	Batch ID: API H2O_980	Test Code: SW7770	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 976	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2.78	0.2	2.6	0	106.9%	87	111				

Sample ID: LCS2-Ca	Batch ID: API H2O_980	Test Code: SW7140	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 986	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	3.32	0.05	3.46	0	96.0%	89	107	3.2	3.7%	15	

Sample ID: LCS2-Fe	Batch ID: API H2O_980	Test Code: SW7380	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1024	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2	0.1	2	0	100.0%	87	111	2	0.0%	15	

Sample ID: LCS2-K	Batch ID: API H2O_980	Test Code: SW7610	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 992	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	1.96	0.05	1.97	0	99.5%	84	114	1.98	1.0%	15	

Sample ID: LCS2-Mg	Batch ID: API H2O_980	Test Code: SW7450	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 998	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	1.56	0.05	1.58	0	98.7%	96	114	1.66	6.2%	15	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS2-Na** Batch ID: **API H2O_980** Test Code: **SW7770** Units: **mg/L** Analysis Date: Prep Date:

Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2.78	0.05	2.6	0	106.9%	87	111	2.78	0.0%	0	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Sample Duplicate

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: 9803035-01AD Batch ID: API H2O_980 Test Code: M4500-Cl C. Units: mg/L Analysis Date: Prep Date:											
Client ID: Sump Sample 9803035 Run ID: API H2O_980318A SeqNo: 1002											
Chloride	1999	20	0	0	0.0%	0	0	2014	0.7%	7	
Sample ID: 9803035-01AD Batch ID: API H2O_980 Test Code: M4500-SO4 D Units: mg/L Analysis Date: Prep Date:											
Client ID: Sump Sample 9803035 Run ID: API H2O_980318A SeqNo: 1007											
Sulfate	4.9	5	0	0	0.0%	0	0	4.9	0.0%	6	J
Sample ID: 9803035-01AD Batch ID: API H2O_980 Test Code: M2320 B Units: mg/L CaCO3 Analysis Date: Prep Date:											
Client ID: Sump Sample 9803035 Run ID: API H2O_980318A SeqNo: 1012											
Alkalinity, Bicarbonate (As CaCO3)	6784	50	0	0	0.0%	0	0	6875	1.3%	3	
Alkalinity, Carbonate (As CaCO3)	2132	20	0	0	0.0%	0	0	2116	0.8%	3	
Alkalinity, Total (As CaCO3)	8916	50	0	0	0.0%	0	0	8991	0.8%	3	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Sample Matrix Spike

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: 9803035-01AMS Batch ID: API H2O_980 Test Code: SW7770 Units: mg/L Analysis Date: Prep Date:											
Client ID: Sump Sample 9803035 Run ID: API H2O_980318A SeqNo: 979											
Sodium	1.78	0.2	0.5	1.26	104.0%	81	135				
Sample ID: 9803035-01AMS Batch ID: API H2O_980 Test Code: SW7450 Units: mg/L Analysis Date: Prep Date:											
Client ID: Sump Sample 9803035 Run ID: API H2O_980318A SeqNo: 997											
Magnesium	1.09	0.05	0.5	0.6	98.0%	78	126				
Sample ID: 9803035-02AMS Batch ID: API H2O_980 Test Code: SW7140 Units: mg/L Analysis Date: Prep Date:											
Client ID: Pond Sample 9803035 Run ID: API H2O_980318A SeqNo: 985											
Calcium	.8	0.05	0.5	0.26	108.0%	69	159				
Sample ID: 9803035-02AMS Batch ID: API H2O_980 Test Code: SW7610 Units: mg/L Analysis Date: Prep Date:											
Client ID: Pond Sample 9803035 Run ID: API H2O_980318A SeqNo: 991											
Potassium	1.36	0.05	0.5	0.7	132.0%	67	157				
Sample ID: 9803035-02AMS Batch ID: API H2O_980 Test Code: SW7380 Units: mg/L Analysis Date: Prep Date:											
Client ID: Pond Sample 9803035 Run ID: API H2O_980318A SeqNo: 1023											
Iron	.63	0.1	0.5	0.18	90.0%	66	126				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

ON SITE TECHNOLOGIES, LTD.
657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

CHAIN OF CUSTODY RECORD

6901

Date: 3/11/98

Page 1 of 1

Purchase Order No.:	Job No. 4-1462

SEND INVOICE TO

Name	Larry Trujillo	
Company	Halliburton	Dept.
Address		
City, State, Zip		

REPORT RESULTS TO

Name	Larry Trujillo	Title
Company	Halliburton	
Mailing Address		
City, State, Zip		
Telephone No.		Telefax No.

Sampling Location: [illegible]

Sampler: Larry Trujillo

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	ANALYSIS REQUESTED: API									LAB ID
[illegible] Sample	3/11/98	[illegible]	[illegible]	[illegible]	2	✓									
Pond Sample	3/11/98	[illegible]	[illegible]	[illegible]	2	✓									

Relinquished by: [illegible]	Date/Time [illegible]	Received by: [illegible]	Date/Time [illegible]
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:	Rush	24-48 Hours	10 Working Days	Special Instructions:

Authorized by: ______________ Date ______
(Client Signature Must Accompany Request)

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

Attachment B

Sump Inspection Form

NORTH GLADE WATER DISPOSAL FACILITY
SUMP INSPECTION FORM

Date of Inspection: _____

Inspected by: _____

Inspection Checklist	Yes	No	Comment
1) Is cap present on top of sump?			
2) Is fluid present in the sump?			
3) Is the fluid level in the sump equal to the fluid level in the pond?			
4) Are there any visible tears in exposed liner ?			
5) Are there any surface leaks at facility?			

If you answer yes to any of the questions numbered 2-5 above, call Chris Williams @ (303) 850-6305 immediately.

If cap is missing from top of sump, replace cap as soon as possible.

Attachment C

NORM Survey

NORM FACILITY INSPECTION FORM

Operator: Hallwood Petroleum
Facility: Evaporation Pond
Inspectors: CC

Lease: Evaporation Pond
County/State: San Juan Cty, NM
Date: 4/2/98

ITEMS	SIZE	SERIAL #	READING	READING	READING	READING
Wellhead						
Header	—	—	10 µR/hr	10 µR/hr	10 µR/hr	10 µR/hr
Separator						
Separator						
Heater Treater						
Heater Treater						
Gun Barrel						
Gun Barrel						
Water Tank	400 661	1730	12 µR/hr	12 µR/hr	12 µR/hr	12 µR/hr
Water Tank						
Water Tank						
Water Tank						
Oil Tank						
Oil Tank						
Oil Tank						
Oil Tank						
Evaporator ~~Circulating~~ Pump	—	181739	10 µR/hr	10 µR/hr	12 µR/hr	10 µR/hr
Circulating Pump						
Transfer Pump						
Transfer Pump						
Injection Pump						
Injection Pump						
Meter Run						
Meter Run						
F/W Knockout						
F/W Knockout						

N
W E
S

Certificate of Qualification

This is to certify that

Chris R. Williams

has completed an approved, eight hour training course in

NORM Radiation Surveying and Control

The course included both a written examination and practical assessment

Certification Date: March 11, 1997

Location: Baton Rouge, Louisiana

Mark W. Krohn - RRPT

ARS
AMERICAN RADIATION
SERVICES, INC.

AMERICAN RADIATION SERVICES, INC.

1726 Wooddale Court • Baton Rouge, Louisiana 70806
1 (800) 401-4277 • Fax (504) 927-6822

March 11, 1997

Department of Environmental Quality
Radiation Protection Division - NORM Section
P.O. Box 82135
Baton Rouge, Louisiana 70884-2135

Dear Sir or Madam:

This letter is to certify that Chris R. Williams, has successfully completed an 8-Hour NORM Surveyor and Control Course. The course included instruction as required by the Louisiana Administrative Code, Title 33, Part XV, Chapter 10, Article 1012 and was in accordance with the surveyor instruction guidelines stated in Chapter 14, Appendix "A". This course also included, but was not limited to the following:

- Origin of NORM
- Sources of Radiation
- State Regulations
- Documentation Requirements
- Types of Radiation
- Radiation and Contamination Units
- Biological Effects
- Exposure Minimization
- Protective Clothing
- Radiation Survey Instrument Theory
- Radiation and Contamination Survey Techniques
- Radiation Survey Instrument Calibration Requirements
- Exposure to the Unborn Child
- Personnel Monitoring
- Emergency Actions
- Practical Survey Session
- Exam

If you have any questions, or need assistance, please don't hesitate to call any of the ARS staff at 1-800-401-4277.

Sincerely,

Mark W. Krohn, RRPT
Health Physicist

MWK/spw

FORM C-137

APPLICATION FOR WASTE MANAGEMENT FACILITY

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Form C-137
Originated 8/8/95
Revised 6/25/97

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to appropriate
District Office

APPLICATION FOR WASTE MANAGEMENT FACILITY

(Refer to the OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

1. Type: ☒ Evaporation ☐ Injection ☐ Other _____
   ☐ Solids/Landfarm ☐ Treating Plant
2. Operator: Hallwood Petroleum, Inc.
   Address: P.O. Box 378111 Denver, CO 80237
   Contact Person: Chris R. Williams Phone: (303) 850-6305
3. Location: NW /4 SE /4 Section 25 Township 32N Range 13W
   Submit large scale topographic map showing exact location
4. Is this a modification of an existing facility? ☐ Yes ☒ No
5. Attach the name and address of the landowner of the facility site and landowners of record within one mile of the site.
6. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.
7. Attach designs prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations systems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.
8. Attach a contingency plan for reporting and clean-up for spills or releases.
9. Attach a routine inspection and maintenance plan to ensure permit compliance.
10. Attach a closure plan.
11. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact groundwater. Depth to and quality of ground water must be included.
12. Attach proof that the notice requirements of OCD Rule 711 have been met.
13. Attach a contingency plan in the event of a release of H_2S.
14. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and orders.
15. CERTIFICATION

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Chris R. Williams Title: Environmental/Safety Manager

Signature: Chris R Williams Date: 4/3/98

(a) The names and addresses of the applicant and all principle officers of the business if different from the applicant.

NAME OF APPLICANT:

Hallwood Petroleum, Inc.
Stanford Place 3
4582 South Ulster Street Parkway, Suite 1700
Post Office Box 378111
Denver, Colorado 80237

PRINCIPLE OFFICERS:

Russ Meduna, Executive Vice-President
Cathleen Osborn, Vice-President & General Counsel
Betty Dieter, Vice-President, Operations

Addresses Same as Above

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site.

NAME AND ADDRESS OF THE SURFACE OWNER OF THE REAL PROPERTY:

Mr. Burke W. Green
812 Grandview Drive. SE
Albuquerque, New Mexico 87108

SURFACE OWNERS OF REAL PROPERTY WITHIN 1-MILE RADIUS OF SITE:

Mr. Burke W. Green
812 Grandview Drive. SE
Albuquerque, New Mexico 87108

Montoya Sheep & Cattle
5992 Highway 170
LaPlata, New Mexico 87418

State of New Mexico
P.O. Box 1148
Santa Fe, New Mexico 87504-1148

(d) A plan for management of approved wastes.

The evaporation pond is currently being used for emergency purposes only. Produced water from two nearby gas production wells is conveyed from two separate pipelines to a 400-barrel produced water storage tank located at the facility. The produced water is then hauled off-site on a daily basis by transport trucks to a permitted Class II injection well for disposal. Occasionally, the water hauling company fails behind schedule in removing water from the tank causing the tank to overflow. An overflow line, which is hooked-up to the tank, directs any excess water entering the tank to the pond. The pond is equipped with an aeration and spray system, which is used as volume conditions dictate. It is estimated that the maximum volume of water discharged to the pond would not exceed 400 barrels /day at any time.

(i) A Closure Plan including cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor.

See attached Closure Plan and cost estimate

(l) Certification by an authorized representative of the applicant that the information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

See bottom of Form C-137

B. Spill/Leak Prevention and Procedure

1. Inasmuch as the pond will be lined, and with the pond sloped to a sump, there will be no other containment or cleanup apparatus necessary. If a leak is detected, the leak detection system will be pumped into the pond and the pond will be lowered until such depth as the water depth is below the leak. Water will be hauled to other commercial disposal facilities. The liner will be repaired and the pond placed back into operation.

   The OCD will be notified within one working day of any leaks.

2. The leak detection system will be the only means in which leaks are to be detected. The sump will be inspected at least weekly. If leaks are detected, the procedure outlined above in B.1 will be followed.

C. Closure Plan

1. The holding capacity of the pond, as mentioned previously, is approximately 45,000 bbls or 252,667 cu.ft. Salt generation calculations, based upon Stanley Zygmunt's work with the the New Mexico Energy Research Development Institute, indicates that the salt generated by passive evaporation (78 bwpd) will be 3276 cu.ft. per year. The calculations were based on Sodium Chloride (NaCl) as the principle precipitate and an average TDS of 15000 ppm. At that rate, it will take approximately 77 years for the pond to fill with salt. With the spray system in operation, we expect up to a 10 fold increase in evaporation. That will decrease the life expectancy of the pond to 7.7 years. The numbers are approximate. The wells tested at a rate of 700 bwpd. With the sprayers on the enhanced evaporation rate will approach or exceed the daily production rate. The water production decline rate is unknown at this time. We do anticipate that the rate will drastically decline and therefore increase the life expectancy of the pond.

If the degasifaction of the Fruitland Coal is to continue at that time when the pond has filled with salt Hallwood will determine if the project warrants construction of a new facility, and abandoning this facility or vacuuming the salts from the old facility and disposing of them.

It is our intention to sell or bury the precipitated salts onsite in the plastic liner. The pond will then be covered with a PVC liner or clay to prevent any vertical leaching of salts by rain water. An analysis of the precipitated salts will be performed to ascertain if the salts may be buried onsite under the regulations existing at that time. If there are any concentrations of chemical compounds which are not permitted to be buried onsite, they will be extracted at that time. The extraction method will be determined at that time when the compounds are known.

The current regulations would allow the sludge/salt to be disposed of at the County Landfill if the sludge/salt had less than 30% liquid content and fell within the parameters of their permit.

The sludges/salts will be analyzed at the time of abandonment to determine if they will be acceptable at the onsite facility or the County Landfill. If the waste is not acceptable at the onsite facility or County Landfill, those unacceptable portions of the sludge/salt will be disposed of at the nearest hazardous waste disposal facility.

We do not anticipate, under the current regulations, that there will be any sludges/salts or chemical compounds evolve that will prohibit the disposal of these wastes at the onsite facility or the County Landfill. These are "solid wastes" going in and they will be solid wastes as they exit. The repeated evaporation of water may give concentrations of certain heavy metals that may have to be extracted; however, they cannot be qualified nor quantified at this time. Only at the time of abandonment will they become evident. At that time a determination will be made as to their final disposal.

During the drying period the leak detection sump will be monitored weekly and the pond will remain closed to any further dumping. If vandalism becomes a problem, the Sheriffs Department will be notified of the vandalism, breaking and entering of the facility. H2S emission are very unlikely as the pond will be open to the atmosphere, completely in an aerobic state. However, the pond will be monitored weekly for H2S emissions.

III. Site Characteristics

A. Hydrologic Features.

1. The nearest running water is the LaPlata River, which is approximately 1-1/2 miles West. There are no recorded water wells within 1 mile. The nearest recorded well is in the NE/4,NE/4, Sec. 2-T31N-R13W. The well is up gradient from the disposal facility. The McDermott Arroyo is located approximately 1/2 mile to the East/Southeast. The TDS of the water is estimated at 2000 ppm.

2. Not available at this time. A sample will be collected.

3. The flow direction of ground water most likely to be affected by any leak is Southeasterly, based upon topography.

4. Please see 2 above.

B. Geologic Description of Pit Site

1. The site is characterized by a gently sloping surface consisting of a silty loam material. There are no rock out-croppings nearby. The Fruitland Coal (upper member) is being strip mined approximately 2 miles to the Northwest. There has been no test holes drilled nor are any intended as the pond does not come under the State Engineers guidelines for dam construction.

2. The name and depth of the most shallow aquifer is unknown. Any discharges would most likely effect waters of the McDermott arroyo. The arroyo is approximately 1/2 mile to the East and is estimated to be 88' lower than the pond.

3. Sandy Silt and alluvium.

Closure Cost Estimate

ON SITE
TECHNOLOGIES, LTD.

March 23, 1998

Mr. Chris Williams
Hallwood Energy
Denver, Colorado 87410

SENT VIA FAX: (303) 850-6290
PAGE: 1

RE: Cost Estimate for Closure of Evaporation Pond
NE/SE Sec. 25, T32N, R13W, NMPM

Dear Chris:

Per your inquiry, we estimate the cost for closure of the referenced evaporation pond located north of La Plata, New Mexico to be approximately $45,000. This cost estimate assumes all water will be evaporated or removed, the liner will be folded inplace, and the pond area covered with a geotextile liner and soil cover. Costs are based on the following estimates:

General Roustabout services to removed fencing, buildings and piping:	$ 7,500
Heavy Equipment and Liners to cover pit:	$ 30,000
Site assessment for closure and documentation of closure:	$ 7,500

These costs are in 1998 dollars. Actual costs may vary if the method of closure changes and once closure efforts are actually commenced.

Please contact Myke Lane or Cindy Gray at (505) 325-5667 if you have any further questions regarding this cost estimate. Thanks for your consideration.

Respectfully submitted,
ON SITE TECHNOLOGIES, LTD.

Michael K. Lane, P.E.
Geological Engineer

MKL/mkl: KUKUINORM PRP

PO Box 2606
Farmington, NM
PHONE: 505-326-5667 FAX: 505-327-1496

Hallwood Petroleum, Inc.

4582 S. Ulster St. Pkwy Suite 1700 Stanford Place III P.O. Box 378111
Denver, Colorado 80237 (303) 850-7373

April 3, 1998

Ms. Martyne J. Kieling
Environmental Geologist
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87506

Subject: *Response to Inspection Deficiencies*
Centralized 711 Surface Waste Management Facility
NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM,
San Juan County, New Mexico

Dear Ms. Kieling:

Enclosed are two copies of our responses to the deficiencies discovered during your inspection of the above referenced facility on June 11, 1997. Only those items identified as being deficiencies have been addressed in the enclosed packet.

We have not yet completed measuring the sludge thickness in the bottom of the pond or the mechanical integrity test on the two saltwater discharge lines leading to the facility. These should be completed by April 22, 1998. Results of both will be forwarded to you immediately upon completion.

If you have any question regarding any of the information provide; please give me a call at any time.

Sincerely,

HALLWOOD PETROLEUM, INC.

Chris R. Williams
Environmental/Safety Manager

CC: Aztec OCD Office

Enclosure

RESPONSE TO DEFICIENCIES OF
INSPECTION REPORT
JUNE 11, 1997
HALLWOOD PETROLEUM, INC.
(NW/4 SE/4 of Section 25, Township 32 North, Range 13 West, NMPM)
SAN JUAN COUNTY, NEW MEXICO

1. Pond Freeboard: Liner marking or some other device shall be installed to accurately measure freeboard. Pond freeboard shall be a minimum one and a half ($1^1/_2$) feet below the top of the lowest point on the levee. The pond must be maintained below freeboard level at all times.

   Deficiency:

   The evaporation pond is lacking freeboard markers that accurately measure the one and one-half ($1^1/_2$)-foot freeboard height. Water level was below freeboard at the time of inspection.

   Response to Deficiency:

   Hallwood Petroleum, Inc. has placed a freeboard marker $1^1/_2$ feet below the lowest point on the levee (See pictures 1 and 2). At no time has the allowable freeboard been exceeded.

2. Leak Detection System: The top of the leak detection sump must be above the top of the levee. The sump should be covered. In addition, the leak detection sump shall be inspected once a week.

   Deficiency:

   The top of the leak detection sump did not appear to be above the levee. The appearance of any fluids within the sump should be sampled and comparison analysis made to the contents within the pond.

   Response to Deficiency:

   A two-foot extension was placed on the existing sump to bring the height of the sump above that of the levee (see Pictures 1 & 2). A cap has also been placed on the top of the extension to seal the sump. The sump was inspected for the presence of fluids on March 13, 1998. Fluid was observed in the sump, however, the fluid level was observed to be below that of the top of the fluid level in the pit. Water samples were collected from the sump and the pit for comparative purposes (See attachment A). The water that had collected in the sump was the result of a minor leak caused by a gopher, which had chewed a small whole in the liner approximately four years ago. The use of the pit immediately ceased and was

repaired. No problems have occurred at the site since. The analytical results confirm this.

Hallwood Petroleum, Inc has also developed an inspection form to record weekly inspections of the sump (See Attachment B).

4. Sludge Build-up: Any sludge build-up in the bottom of the pond in excess of twelve (12") will be removed and disposed of at an OCD approved disposal facility.

Deficiency:

Sludge thickness at the bottom of the pond should be routinely measured.

Response to Deficiency:

Measurement of the sludge in the bottom of the pit will be completed by April 22, 1998. Results of the sludge thickness gauging will immediately be forwarded to the OCD. If the sludge thickness exceeds 12-inches, Hallwood Petroleum, Inc will arranged to have the sludge removed from the pond and hauled to an approved OCD facility for disposal.

5. Security: The facility shall be secured when no attendant is present, to prevent any unauthorized dumping. Securing the facility may include locks on tank valves, a perimeter fence and locked gate or other similar security measures.

Deficiency:

The facility has a perimeter fence and locking gate. The unloading valve outside of the fence should be secured to prevent any unauthorized dumping.

Response to Deficiency: Hallwood has placed a lock on the unloading valve to prevent any unauthorized dumping (See Picture 3).

12. Tank Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary it the tanks were to rupture, spill or ignite.

Deficiency

The above ground tank must be labeled as to the contents. Depending upon the contents, hazard placards that identify the contents and associated hazards may be needed.

Response to Deficiency:

This tank only handles the produced water of two nearby producing gas wells. The tank has been labeled "Produced Water" *to identify its contents (See Picture 4).*

14. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter. Companies may propose various methods for testing such as pressure testing or other OCD approved methods.

Deficiency:

Any underground process/wastewater lines must have a mechanical integrity testing proposal.

Response to Deficiency:

Hallwood Petroleum will perform mechanical integrity tests on the two discharge lines leading to this facility. Each line will be pressurized to 100 psi for 1-hour. A chart recorder will be used to monitor the pressure. If the shut in pressure deviates in excess of 10%, Hallwood Petroleum will assume a leak is present and either attempt to isolate the leak or replace the line. The testing of the lines will be completed by April 22, 1998 and the results of these tests will immediately be forwarded to the OCD.

18. Naturally Occurring Radioactive Material (NORM): All generators submitting waste to a New Mexico Oil Conservation Division Permitted Commercial or Centralized 711 Waste Management Facility must include a Naturally Occurring Radioactive Material status declaration. The generator must declare that the waste was tested for Naturally Occurring Radioactive Material (NORM) and does not contain NORM at the regulated levels pursuant to @) NMAC 3.1 subpart 1403.C and D.

Deficiency:

Under the new 711 Waste Management Facility Permit all waste must be accompanied with a signed NORM declaration from the waste generator (See enclosed Order No. R-10609).

Response to Deficiency:

A NORM survey was performed over the entire property and on the pit sludges using a Ludlum Model 3 Survey Meter and Ludlum Model 44-2 Gamma Scintillator to determine the existence of NORM. No NORM was detected in the

sludges, equipment or soils above background at this facility (See Attachment C). Awaiting a NORM Declaration Form from the NMOCD.

19. Application Requirements for Permit Under the New Rule 711: An applicant, Form C-137, for a permit renewal shall be filed in DUPLICATE with the Santa Fe Office of the Division and ONE COPY with the appropriate OCD district office. The application shall comply with Division guidelines and shall include:

(a) The names and addresses of the applicant and all principal officers of the business if different from the applicant;

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site.

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(d) A plan for management of approved wastes.

Deficiency:

Please include an updated description of how the facility handles its waste stream.

Response to Deficiency:

See Attached C-137 Application

(i) A Closure Plan including a cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor.

Deficiency:

Please submit with C-137 Application

Response to Deficiency:

See Attached C-137 Application

(l) Certification by an authorized representative of the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

Deficiency:

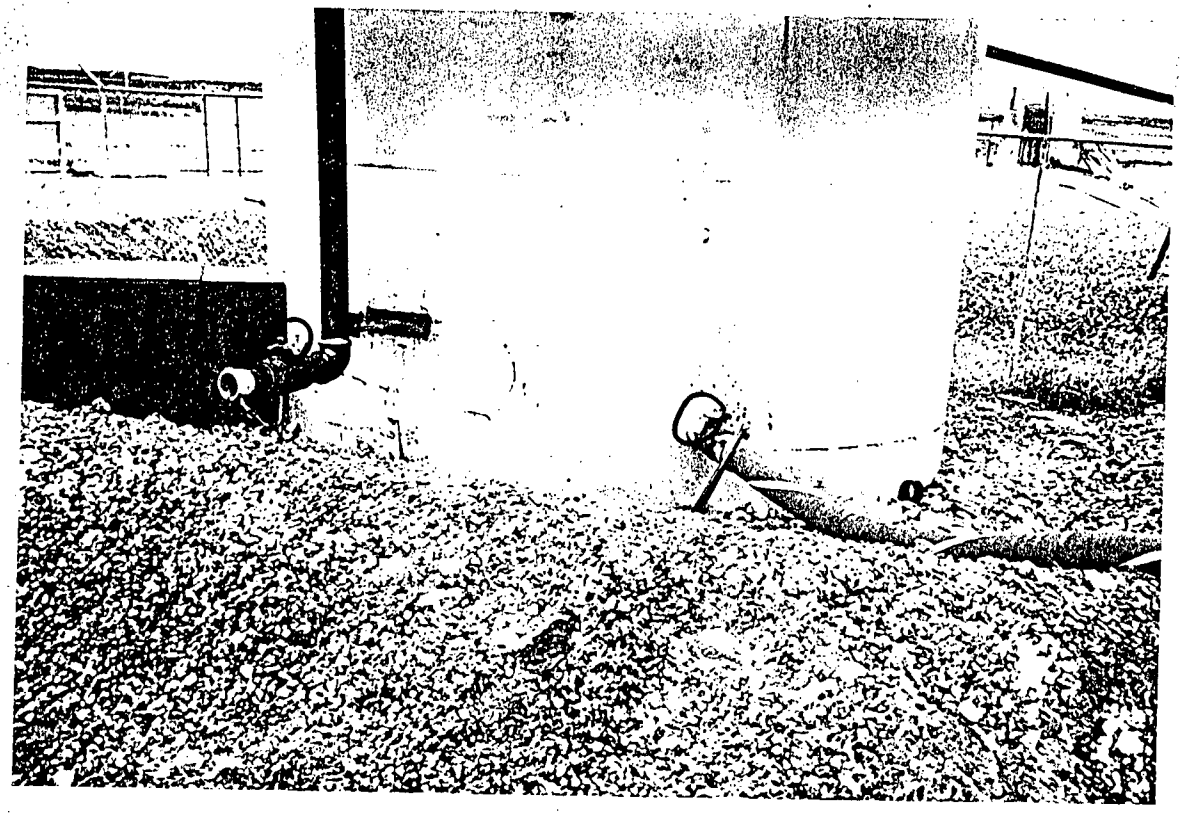
Please submit with C-137 Application

Response to Deficiency:

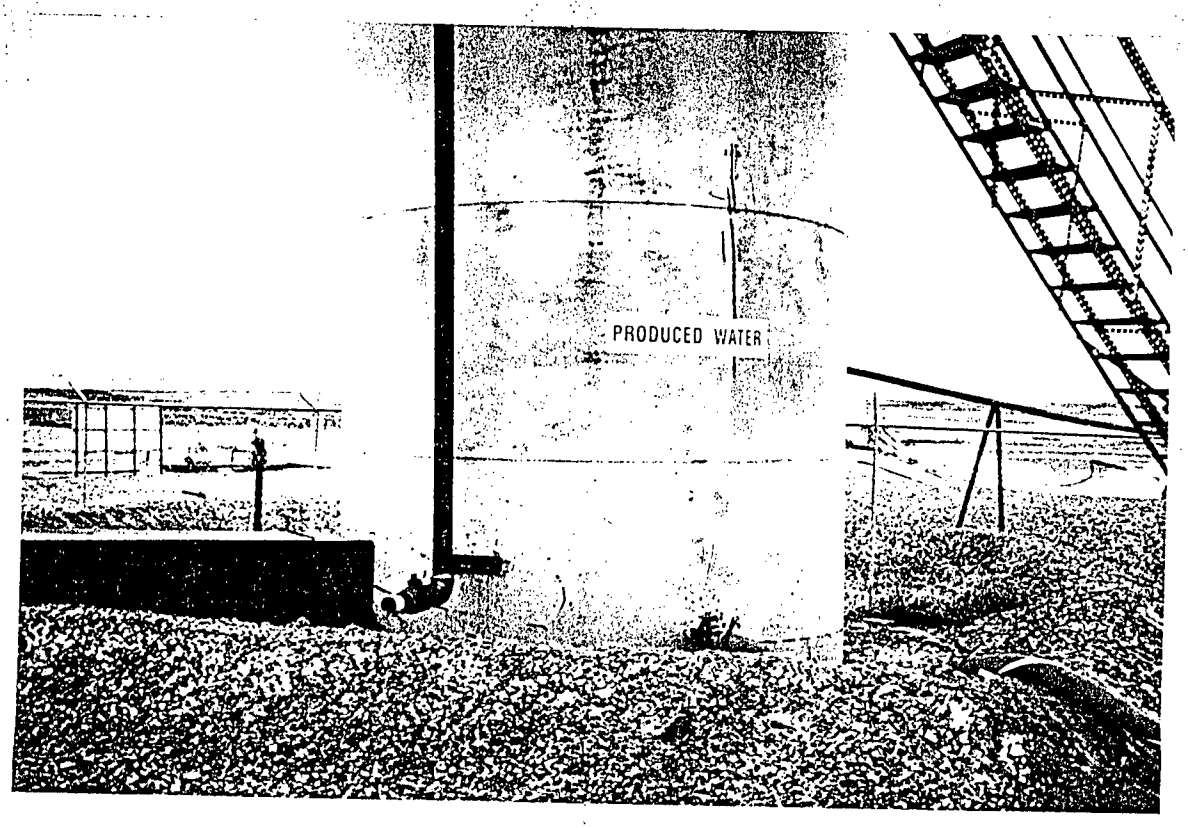
See Attached C-137 Application

Freeboard Marker & Sump Extension

Freeboard Marker & Sump Extension



Security measures to prevent tampering
(Lock placement on valves)



Tank Contents identification

Attachment A

Analytical Data

On Site Technologies, Ltd.
612 East Murray Drive
Farmington, NM 87401

Fax Cover Sheet

DATE:	March 31, 1998		
TO:	Chris Williams	**PHONE:**	
	Hallwood Energy	**FAX:**	303-850-6290
FROM:	Larry Trujillo	**PHONE:**	505-325-5667
	On Site Technologies, Ltd.	**FAX:**	505-327-1496
RE:	La Plata Evaporation Pond Samples		
CC:			

Number of pages including cover sheet: 14

Message

Please find attached lab. results with lab. QA/QC and Chain of Custody for La Plata Evaporation pond and sump.

If there are any questions or concerns feel free to contact me at the above number.

Thank you for your time and consideration.

Larry Trujillo

On Site Technologies Limited Partnership

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn: *Larry Trujillo*
Company: *On Site Technologies Ltd.*
Address: *612 E. Murray Dr.*
City, State: *Farmington, NM 87401*

Date: 31-Mar-98
COC No.: *9803035*
Sample ID: *02A*
Job No.: *4-1463*

Project Name: ***Hallwood; La Plata***
Project Location: ***Pond Sample***
Sampled by: LT Date: 11-Mar-98 Time: 10:30
Analyzed by: HR Date: 18-Mar-98

API RP-45 Laboratory Analysis

Parameter		Result	Unit of Measure		Result	Unit of Measure	
Cations							
Sodium	Na	8900	mg/L		387.13	me/L	
Calcium	Ca	5.1	mg/L		0.25	me/L	
Magnesium	Mg	59	mg/L		4.87	me/L	
Potassium	K	3.3	mg/L		0.08	me/L	
Anions							
Chloride	Cl	4422	mg/L		124.73	me/L	
Sulfate	SO4	10	mg/L		0.21	me/L	
Carbonate	CO3	2696	mg/L		44.93	me/L	
Bicarbonate	HCO3	11070	mg/L		181.42	me/L	
Hydroxide	OH	<1	mg/L		<0.01	me/L	
Sulfide	S2	NA	mg/L		NA	me/L	
Iron	Fe	0.4	mg/L		0.01	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		27165	mg/L				
pH		8.86					
Resistivity		0.3460	ohm-m				
Specific Gravity		1.0206					
Total Hardness as CaCO3		257	mg/L				

Cation-Anion Balance

41.06 *Difference Cation-Anion, me/L*
743.64 *Total Cation-Anion, me/L*
5.5 *% Difference Cation-Anion*

Comments

NA: *Not Analyzed*

Approved by:
Date: 3/31/98

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

API WATER ANALYSIS

Attn: *Larry Trujillo*
Company: *On Site Technologies Ltd.*
Address: *612 E. Murray Dr.*
City, State: *Farmington, NM 87401*

Date: 31-Mar-98
COC No.: *9803035*
Sample ID: *01A*
Job No.: *4-1463*

Project Name: ***Hallwood; La Plata***
Project Location: ***Sump Sample***
Sampled by: LT Date: 11-Mar-98 Time: 10:15
Analyzed by: HR Date: 18-Mar-98

API RP-45 Laboratory Analysis

Parameter		Result	Unit of Measure		Result	Unit of Measure	
Cations							
Sodium	Na	5100	mg/L		221.84	me/L	
Calcium	Ca	2.8	mg/L		0.14	me/L	
Magnesium	Mg	40	mg/L		3.29	me/L	
Potassium	K	2.4	mg/L		0.06	me/L	
Anions							
Chloride	Cl	2008	mg/L		56.64	me/L	
Sulfate	SO4	5	mg/L		0.10	me/L	
Carbonate	CO3	2124	mg/L		35.39	me/L	
Bicarbonate	HCO3	6829	mg/L		111.92	me/L	
Hydroxide	OH	<1	mg/L		<0.01	me/L	
Sulfide	S2	NA	mg/L		NA	me/L	
Iron	Fe	0.8	mg/L		0.03	me/L	
Total Dissolved Solids Calculated, Sum of Cation/Anion		16111	mg/L				
pH		9.16					
Resistivity		0.5727	ohm-m				
Specific Gravity		1.0129					
Total Hardness as CaCO3		172	mg/L				

Cation-Anion Balance

21.30 *Difference Cation-Anion, me/L*
429.41 *Total Cation-Anion, me/L*
5.0 *% Difference Cation-Anion*

Comments

NA: *Not Analyzed*

Approved by:
Date: 3/31/98

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: MBLK-Alk Batch ID: API H2O_980 Test Code: M2320 B Units: mg/L CaCO3 Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1009											
Alkalinity, Bicarbonate (As CaCO3)	ND	5									
Alkalinity, Carbonate (As CaCO3)	ND	5									
Alkalinity, Total (As CaCO3)	2.7	5									J
Sample ID: MBLK-Ca Batch ID: API H2O_980 Test Code: SW7140 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 981											
Calcium	ND	0.05									
Sample ID: MBLK-Cl Batch ID: API H2O_980 Test Code: M4500-Cl C. Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 999											
Chloride	ND	1									
Sample ID: MBLK-Fe Batch ID: API H2O_980 Test Code: SW7380 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1019											
Iron	.04	0.1									
Sample ID: MBLK-K Batch ID: API H2O_980 Test Code: SW7610 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 987											
Potassium	ND	0.05									

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Method Blank

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: MBLK-Mg Batch ID: API H2O_980 Test Code: SW7450 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 993											
Magnesium	ND	0.05									
Sample ID: MBLK-Na Batch ID: API H2O_980 Test Code: SW7770 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 975											
Sodium	ND	0.2									
Sample ID: MBLK-Sul Batch ID: API H2O_980 Test Code: M4500-SO4 D Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1004											
Sulfate	ND	5									
Sample ID: MBLK-TDS Batch ID: API H2O_980 Test Code: E160.1 Units: mg/L Analysis Date: Prep Date:											
Client ID: 9803035 Run ID: API H2O_980318A SeqNo: 1014											
Total Dissolved Solids (Residue, Filtera	ND	10									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS-Alk	Batch ID: API H2O_980	Test Code: M2320 B	Units: mg/L CaCO3	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1010	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	176	5	163	0	108.0%	91	116				

Sample ID: LCS-Cl	Batch ID: API H2O_980	Test Code: M4500-Cl C.	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1000	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	197	1	200	0	98.5%	90	114				

Sample ID: LCS-pH	Batch ID: API H2O_980	Test Code: E150.1	Units: pH units	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1025	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.005	2									

Sample ID: LCS-Res	Batch ID: API H2O_980	Test Code: M2510 C	Units: ohm-m	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1028	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	11.38	0.0001									

Sample ID: LCS-Sul	Batch ID: API H2O_980	Test Code: M4500-SO4 D	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1005	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	95.5	5	96.3	0	99.2%	83	113				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: LCS-TDS Batch ID: **API H2O_980** Test Code: **E160.1** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1015**											
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				
Sample ID: LCS1-Ca Batch ID: **API H2O_980** Test Code: **SW7140** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **982**											
Calcium	3.2	0.05	3.46	0	92.5%	89	107				
Sample ID: LCS1-Fe Batch ID: **API H2O_980** Test Code: **SW7380** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **1020**											
Iron	2	0.1	2	0	100.0%	87	111				
Sample ID: LCS1-K Batch ID: **API H2O_980** Test Code: **SW7610** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **988**											
Potassium	1.98	0.05	1.97	0	100.5%	84	114				
Sample ID: LCS1-Mg Batch ID: **API H2O_980** Test Code: **SW7450** Units: **mg/L** Analysis Date: Prep Date:											
Client ID: **9803035** Run ID: **API H2O_980318A** SeqNo: **994**											
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: LCS-TDS	Batch ID: API H2O_980	Test Code: E160.1	Units: mg/L		Analysis Date:		Prep Date:				
Client ID:	9803035	Run ID: API H2O_980318A			SeqNo: 1015						
Total Dissolved Solids (Residue, Filtera	750	10	732	0	102.5%	92	104				
Sample ID: LCS1-Ca	Batch ID: API H2O_980	Test Code: SW7140	Units: mg/L		Analysis Date:		Prep Date:				
Client ID:	9803035	Run ID: API H2O_980318A			SeqNo: 982						
Calcium	3.2	0.05	3.46	0	92.5%	89	107				
Sample ID: LCS1-Fe	Batch ID: API H2O_980	Test Code: SW7380	Units: mg/L		Analysis Date:		Prep Date:				
Client ID:	9803035	Run ID: API H2O_980318A			SeqNo: 1020						
Iron	2	0.1	2	0	100.0%	87	111				
Sample ID: LCS1-K	Batch ID: API H2O_980	Test Code: SW7610	Units: mg/L		Analysis Date:		Prep Date:				
Client ID:	9803035	Run ID: API H2O_980318A			SeqNo: 988						
Potassium	1.98	0.05	1.97	0	100.5%	84	114				
Sample ID: LCS1-Mg	Batch ID: API H2O_980	Test Code: SW7450	Units: mg/L		Analysis Date:		Prep Date:				
Client ID:	9803035	Run ID: API H2O_980318A			SeqNo: 994						
Magnesium	1.66	0.05	1.58	0	105.1%	96	114				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS1-Na	Batch ID: API H2O_980	Test Code: SW7770	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 976	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2.78	0.2	2.6	0	106.9%	87	111				

Sample ID: LCS2-Ca	Batch ID: API H2O_980	Test Code: SW7140	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 986	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	3.32	0.05	3.46	0	96.0%	89	107	3.2	3.7%	15	

Sample ID: LCS2-Fe	Batch ID: API H2O_980	Test Code: SW7380	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 1024	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2	0.1	2	0	100.0%	87	111	2	0.0%	15	

Sample ID: LCS2-K	Batch ID: API H2O_980	Test Code: SW7610	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 992	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	1.96	0.05	1.97	0	99.5%	84	114	1.98	1.0%	15	

Sample ID: LCS2-Mg	Batch ID: API H2O_980	Test Code: SW7450	Units: mg/L	Analysis Date:	Prep Date:
Client ID:	9803035	Run ID: API H2O_980318A		SeqNo: 998	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	1.56	0.05	1.58	0	98.7%	96	114	1.66	6.2%	15	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS2-Na | Batch ID: API H2O_980 | Test Code: SW7770 | Units: mg/L | Analysis Date: | Prep Date:
Client ID: | 9803035 | Run ID: API H2O_980318A | SeqNo: 980

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2.78	0.05	2.6	0	106.9%	87	111	2.78	0.0%	0	

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Sample Duplicate

Sample ID: 9803035-01AD	Batch ID: API H2O_980	Test Code: M4500-Cl C.	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Sump Sample	9803035	Run ID: API H2O_980318A		SeqNo: 1002	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1999	20	0	0	0.0%	0	0	2014	0.7%	7	

Sample ID: 9803035-01AD	Batch ID: API H2O_980	Test Code: M4500-SO4 D	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Sump Sample	9803035	Run ID: API H2O_980318A		SeqNo: 1007	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.9	5	0	0	0.0%	0	0	4.9	0.0%	6	J

Sample ID: 9803035-01AD	Batch ID: API H2O_980	Test Code: M2320 B	Units: mg/L CaCO3	Analysis Date:	Prep Date:
Client ID: Sump Sample	9803035	Run ID: API H2O_980318A		SeqNo: 1012	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	6784	50	0	0	0.0%	0	0	6875	1.3%	3	
Alkalinity, Carbonate (As CaCO3)	2132	20	0	0	0.0%	0	0	2116	0.8%	3	
Alkalinity, Total (As CaCO3)	8916	50	0	0	0.0%	0	0	8991	0.8%	3	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *18-Mar-98*

CLIENT: On Site Technologies Limited Partnership
Work Order: 9803035
Project: 4-1463

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: 9803035-01AMS	Batch ID: API H2O_980	Test Code: SW7770	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Sump Sample	9803035	Run ID: API H2O_980318A		SeqNo: 979	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1.78	0.2	0.5	1.26	104.0%	81	135				

Sample ID: 9803035-01AMS	Batch ID: API H2O_980	Test Code: SW7450	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Sump Sample	9803035	Run ID: API H2O_980318A		SeqNo: 997	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	1.09	0.05	0.5	0.6	98.0%	78	126				

Sample ID: 9803035-02AMS	Batch ID: API H2O_980	Test Code: SW7140	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Pond Sample	9803035	Run ID: API H2O_980318A		SeqNo: 985	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	.8	0.05	0.5	0.26	108.0%	69	159				

Sample ID: 9803035-02AMS	Batch ID: API H2O_980	Test Code: SW7610	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Pond Sample	9803035	Run ID: API H2O_980318A		SeqNo: 991	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	1.36	0.05	0.5	0.7	132.0%	67	157				

Sample ID: 9803035-02AMS	Batch ID: API H2O_980	Test Code: SW7380	Units: mg/L	Analysis Date:	Prep Date:
Client ID: Pond Sample	9803035	Run ID: API H2O_980318A		SeqNo: 1023	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	.63	0.1	0.5	0.18	90.0%	66	126				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

ON SITE TECHNOLOGIES, LTD.
657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

CHAIN OF CUSTODY RECORD

6901

Date: 3/10/98

Page 1 of 1

Purchase Order No.:	Job No. 4-1462	REPORT RESULTS TO — Name: Larry Trujillo	Title
SEND INVOICE TO — Name: Larry Trujillo		Company: Halliburton	
Company: Halliburton	Dept.	Mailing Address	
Address		City, State, Zip	
City, State, Zip		Telephone No.	Telefax No.

Sampling Location: [illegible] Camp

Sampler: Larry Trujillo

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	ANALYSIS REQUESTED: API									LAB ID
[illegible] Sample	3/10/98	[illegible]	H2O	None	2	✓									
Pond Sample	3/10/98	[illegible]	H2O	None	2	✓									

Relinquished by: [signature]	Date/Time [illegible]	Received by: [signature]	Date/Time [illegible]
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | Special Instructions:

Authorized by: ____________ Date ________
(Client Signature Must Accompany Request)

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

Attachment B

Sump Inspection Form

NORTH GLADE WATER DISPOSAL FACILITY
SUMP INSPECTION FORM

Date of Inspection: _____

Inspected by: _____

Inspection Checklist	Yes	No	Comment
1) Is cap present on top of sump?			
2) Is fluid present in the sump?			
3) Is the fluid level in the sump equal to the fluid level in the pond?			
4) Are there any visible tears in exposed liner ?			
5) Are there any surface leaks at facility?			

If you answer yes to any of the questions numbered 2-5 above, call Chris Williams @ (303) 850-6305 immediately.

If cap is missing from top of sump, replace cap as soon as possible.

Attachment C

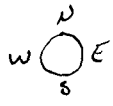
NORM Survey

NORM FACILITY INSPECTION FORM

Operator: Hallwood Petroleum
Facility: Evaporation Pond
Inspectors: CC

Lease: Evaporation Pond
County/State: San Juan Cty, NM
Date: 4/2/98

ITEMS	SIZE	SERIAL #	READING	READING	READING	READING
Wellhead						
Header	—	—	10 μR/hr	10 μR/hr	10 μR/hr	10 μR/hr
Separator						
Separator						
Heater Treater						
Heater Treater						
Gun Barrel						
Gun Barrel						
Water Tank	400 661	1730	12 μR/hr	12 μR/hr	12 μR/hr	12 μR/hr
Water Tank						
Water Tank						
Water Tank						
Oil Tank						
Oil Tank						
Oil Tank						
Oil Tank						
Evaporator ~~Circulating~~ Pump	—	181739	10 μR/hr	10 μR/hr	12 μR/hr	10 μR/hr
Circulating Pump						
Transfer Pump						
Transfer Pump						
Injection Pump						
Injection Pump						
Meter Run						
Meter Run						
F/W Knockout						
F/W Knockout						



Certificate of Qualification

This is to certify that

Chris R. Williams

has completed an approved, eight hour training course in

NORM Radiation Surveying and Control

The course included both a written examination and practical assessment

Certification Date: March 11, 1997

Location: Baton Rouge, Louisiana

Mark W. Krohn - RRPT

ARS
AMERICAN RADIATION
SERVICES, INC.

ARS
AMERICAN RADIATION SERVICES, INC.

1726 Wooddale Court • Baton Rouge, Louisiana 70806
1 (800) 401-4277 • Fax (504) 927-6822

March 11, 1997

Department of Environmental Quality
Radiation Protection Division - NORM Section
P.O. Box 82135
Baton Rouge, Louisiana 70884-2135

Dear Sir or Madam:

This letter is to certify that Chris R. Williams, has successfully completed an 8-Hour NORM Surveyor and Control Course. The course included instruction as required by the Louisiana Administrative Code, Title 33, Part XV, Chapter 10, Article 1012 and was in accordance with the surveyor instruction guidelines stated in Chapter 14, Appendix "A". This course also included, but was not limited to the following:

- Origin of NORM
- Sources of Radiation
- State Regulations
- Documentation Requirements
- Types of Radiation
- Radiation and Contamination Units
- Biological Effects
- Exposure Minimization
- Protective Clothing
- Radiation Survey Instrument Theory
- Radiation and Contamination Survey Techniques
- Radiation Survey Instrument Calibration Requirements
- Exposure to the Unborn Child
- Personnel Monitoring
- Emergency Actions
- Practical Survey Session
- Exam

If you have any questions, or need assistance, please don't hesitate to call any of the ARS staff at 1-800-401-4277.

Sincerely,

Mark W. Krohn, RRPT
Health Physicist

MWK/spw

FORM C-137

APPLICATION FOR WASTE MANAGEMENT FACILITY

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Form C-137
Originated 8/8/95
Revised 6/25/97

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to appropriate
District Office

APPLICATION FOR WASTE MANAGEMENT FACILITY

(Refer to the OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

1. Type: ☒ Evaporation ☐ Injection ☐ Other _____
   ☐ Solids/Landfarm ☐ Treating Plant
2. Operator: Hallwood Petroleum, Inc.
   Address: P.O. Box 378111 Denver, CO 80237
   Contact Person: Chris R. Williams Phone: (303) 850-6305
3. Location: NW /4 SE /4 Section 25 Township 32N Range 13W
   Submit large scale topographic map showing exact location
4. Is this a modification of an existing facility? ☐ Yes ☒ No
5. Attach the name and address of the landowner of the facility site and landowners of record within one mile of the site.
6. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.
7. Attach designs prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations systems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.
8. Attach a contingency plan for reporting and clean-up for spills or releases.
9. Attach a routine inspection and maintenance plan to ensure permit compliance.
10. Attach a closure plan.
11. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact groundwater. Depth to and quality of ground water must be included.
12. Attach proof that the notice requirements of OCD Rule 711 have been met.
13. Attach a contingency plan in the event of a release of H_2S.
14. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and orders.
15. CERTIFICATION

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Chris R. Williams Title: Environmental/Safety Manager

Signature: Chris R Williams Date: 4/3/98

(a) The names and addresses of the applicant and all principle officers of the business if different from the applicant.

NAME OF APPLICANT:

Hallwood Petroleum, Inc.
Stanford Place 3
4582 South Ulster Street Parkway, Suite 1700
Post Office Box 378111
Denver, Colorado 80237

PRINCIPLE OFFICERS:

Russ Meduna, Executive Vice-President
Cathleen Osborn, Vice-President & General Counsel
Betty Dieter, Vice-President, Operations

Addresses Same as Above

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site.

NAME AND ADDRESS OF THE SURFACE OWNER OF THE REAL PROPERTY:

Mr. Burke W. Green
812 Grandview Drive. SE
Albuquerque, New Mexico 87108

SURFACE OWNERS OF REAL PROPERTY WITHIN 1-MILE RADIUS OF SITE:

Mr. Burke W. Green
812 Grandview Drive. SE
Albuquerque, New Mexico 87108

Montoya Sheep & Cattle
5992 Highway 170
LaPlata, New Mexico 87418

State of New Mexico
P.O. Box 1148
Santa Fe, New Mexico 87504-1148

(d) A plan for management of approved wastes.

The evaporation pond is currently being used for emergency purposes only. Produced water from two nearby gas production wells is conveyed from two separate pipelines to a 400-barrel produced water storage tank located at the facility. The produced water is then hauled off-site on a daily basis by transport trucks to a permitted Class II injection well for disposal. Occasionally, the water hauling company fails behind schedule in removing water from the tank causing the tank to overflow. An overflow line, which is hooked-up to the tank, directs any excess water entering the tank to the pond. The pond is equipped with an aeration and spray system, which is used as volume conditions dictate. It is estimated that the maximum volume of water discharged to the pond would not exceed 400 barrels /day at any time.

(i) A Closure Plan including cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor.

See attached Closure Plan and cost estimate

(l) Certification by an authorized representative of the applicant that the information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

See bottom of Form C-137

B. Spill/Leak Prevention and Procedure

1. Inasmuch as the pond will be lined, and with the pond sloped to a sump, there will be no other containment or cleanup apparatus necessary. If a leak is detected, the leak detection system will be pumped into the pond and the pond will be lowered until such depth as the water depth is below the leak. Water will be hauled to other commercial disposal facilities. The liner will be repaired and the pond placed back into operation.

   The OCD will be notified within one working day of any leaks.

2. The leak detection system will be the only means in which leaks are to be detected. The sump will be inspected at least weekly. If leaks are detected, the procedure outlined above in B.1 will be followed.

C. Closure Plan

1. The holding capacity of the pond, as mentioned previously, is approximately 45,000 bbls or 252,667 cu.ft. Salt generation calculations, based upon Stanley Zygmunt's work with the the New Mexico Energy Research Development Institute, indicates that the salt generated by passive evaporation (78 bwpd) will be 3276 cu.ft. per year. The calculations were based on Sodium Chloride (NaCl) as the principle precipitate and an average TDS of 15000 ppm. At that rate, it will take approximately 77 years for the pond to fill with salt. With the spray system in operation, we expect up to a 10 fold increase in evaporation. That will decrease the life expectancy of the pond to 7.7 years. The numbers are approximate. The wells tested at a rate of 700 bwpd. With the sprayers on the enhanced evaporation rate will approach or exceed the daily production rate. The water production decline rate is unknown at this time. We do anticipate that the rate will drastically decline and therefore increase the life expectancy of the pond.

If the degasifaction of the Fruitland Coal is to continue at that time when the pond has filled with salt Hallwood will determine if the project warrants construction of a new facility, and abandoning this facility or vacuuming the salts from the old facility and disposing of them.

It is our intention to sell or bury the precipitated salts onsite in the plastic liner. The pond will then be covered with a PVC liner or clay to prevent any vertical leaching of salts by rain water. An analysis of the precipitated salts will be performed to ascertain if the salts may be buried onsite under the regulations existing at that time. If there are any concentrations of chemical compounds which are not permitted to be buried onsite, they will be extracted at that time. The extraction method will be determined at that time when the compounds are known.

The current regulations would allow the sludge/salt to be disposed of at the County Landfill if the sludge/salt had less than 30% liquid content and fell within the parameters of their permit.

The sludges/salts will be analyzed at the time of abandonment to determine if they will be acceptable at the onsite facility or the County Landfill. If the waste is not acceptable at the onsite facility or County Landfill, those unacceptable portions of the sludge/salt will be disposed of at the nearest hazardous waste disposal facility.

We do not anticipate, under the current regulations, that there will be any sludges/salts or chemical compounds evolve that will prohibit the disposal of these wastes at the onsite facility or the County Landfill. These are "solid wastes" going in and they will be solid wastes as they exit. The repeated evaporation of water may give concentrations of certain heavy metals that may have to be extracted; however, they cannot be qualified nor quantified at this time. Only at the time of abandonment will they become evident. At that time a determination will be made as to their final disposal.

During the drying period the leak detection sump will be monitored weekly and the pond will remain closed to any further dumping. If vandalism becomes a problem, the Sheriffs Department will be notified of the vandalism, breaking and entering of the facility. H2S emission are very unlikely as the pond will be open to the atmosphere, completely in an aerobic state. However, the pond will be monitored weekly for H2S emissions.

III. Site Characteristics

A. Hydrologic Features.

1. The nearest running water is the LaPlata River, which is approximately 1-1/2 miles West. There are no recorded water wells within 1 mile. The nearest recorded well is in the NE/4,NE/4, Sec. 2-T31N-R13W. The well is up gradient from the disposal facility. The McDermott Arroyo is located approximately 1/2 mile to the East/Southeast. The TDS of the water is estimated at 2000 ppm.

2. Not available at this time. A sample will be collected.

3. The flow direction of ground water most likely to be affected by any leak is Southeasterly, based upon topography.

4. Please see 2 above.

B. Geologic Description of Pit Site

1. The site is characterized by a gently sloping surface consisting of a silty loam material. There are no rock out-croppings nearby. The Fruitland Coal (upper member) is being strip mined approximately 2 miles to the Northwest. There has been no test holes drilled nor are any intended as the pond does not come under the State Engineers guidelines for dam construction.

2. The name and depth of the most shallow aquifer is unknown. Any discharges would most likely effect waters of the McDermott arroyo. The arroyo is approximately 1/2 mile to the East and is estimated to be 88' lower than the pond.

3. Sandy Silt and alluvium.

Closure Cost Estimate

ON SITE TECHNOLOGIES, LTD.

March 23, 1998

Mr. Chris Williams
Hallwood Energy
Denver, Colorado 87410

SENT VIA FAX: (303) 850-6290
PAGE: 1

RE: Cost Estimate for Closure of Evaporation Pond
NE/SE Sec. 25, T32N, R13W, NMPM

Dear Chris:

Per your inquiry, we estimate the cost for closure of the referenced evaporation pond located north of La Plata, New Mexico to be approximately $45,000. This cost estimate assumes all water will be evaporated or removed, the liner will be folded inplace, and the pond area covered with a geotextile liner and soil cover. Costs are based on the following estimates:

General Roustabout services to removed fencing, buildings and piping:	$ 7,500
Heavy Equipment and Liners to cover pit:	$ 30,000
Site assessment for closure and documentation of closure:	$ 7,500

These costs are in 1998 dollars. Actual costs may vary if the method of closure changes and once closure efforts are actually commenced.

Please contact Myke Lane or Cindy Gray at (505) 325-5667 if you have any further questions regarding this cost estimate. Thanks for your consideration.

Respectfully submitted,
ON SITE TECHNOLOGIES, LTD.

Michael K. Lane, P.E.
Geological Engineer

MKL/mkl: KUKUINORM PRP

PO Box 2606
Farmington, NM
PHONE: 505-326-5667 FAX: 505-327-1496

NMPRC Corporation Information Inquiry

New Search

Public Regulation Commission

8/15/2000

HALLWOOD PETROLEUM, INC.

(DELAWARE Corporation)

SCC Number: **1235282**

Tax & Revenue Number: **02028418007**

Qualification Date: **AUGUST 09, 1984, in NEW MEXICO**

Corporation Type: **IS A FOREIGN PROFIT**

Corporation Status: **IS ACTIVE**

Good Standing: **In GOOD STANDING through 3/15/2001**

Purpose: **OIL AND GAS EXPLORATION, PRODUCTION & DEVELOPMENT**

CORPORATION DATES

Taxable Year End Date: 12/31/98

Filing Date: 02/04/99

Expiration Date:

SUPPLEMENTAL POST MARK DATES

Supplemental: 06/12/92

Name Change:

Purpose Change:

MAILING ADDRESS

4582 S ULSTER ST PKWY STE 1700 DENVER , COLORADO 80237

PRINCIPAL ADDRESS

PRINCIPAL ADDRESS (Outside New Mexico)

4582 S ULSTER ST PKWY STE 1700 DENVER COLORADO 80237

REGISTERED AGENT

THE PRENTICE-HALL CORPORATION SYSTEM, INC.

121 E PALACE AVE SANTA FE NEW MEXICO 87501

Designation date: 02/04/99
Agent Post Mark Date:
Resignation date:

COOP LICENSE INFORMATION

Number:
Type:
Expiration Year:

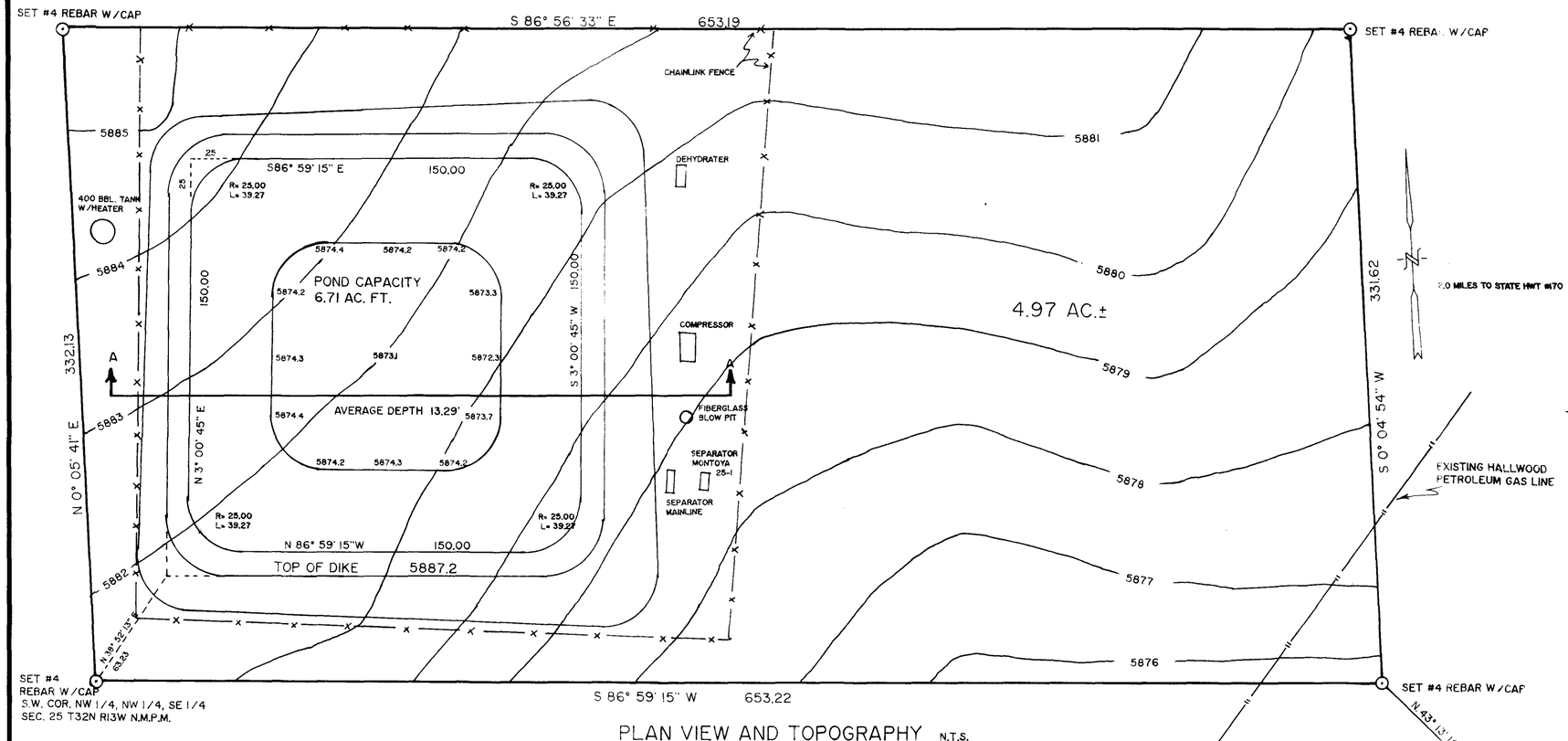
OFFICERS

President ***GUZZETTI, WILLIAM L***
Vice President ***MEDUNA, RUSSELL P***
Secretary ***OSBORN, CATHLEEN M***
Treasurer ***NONE LISTED***

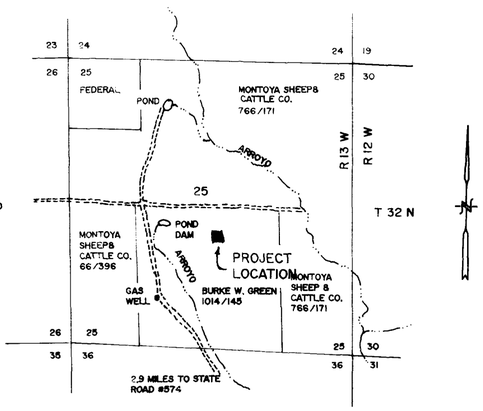
DIRECTORS

Date Election of Directors: 12/31/98

GUZZETTI , WILLIAM L 4582 S ULSTER ST PKWY STE 1700 DENVER , CO 80237



PLAN VIEW AND TOPOGRAPHY N.T.S.



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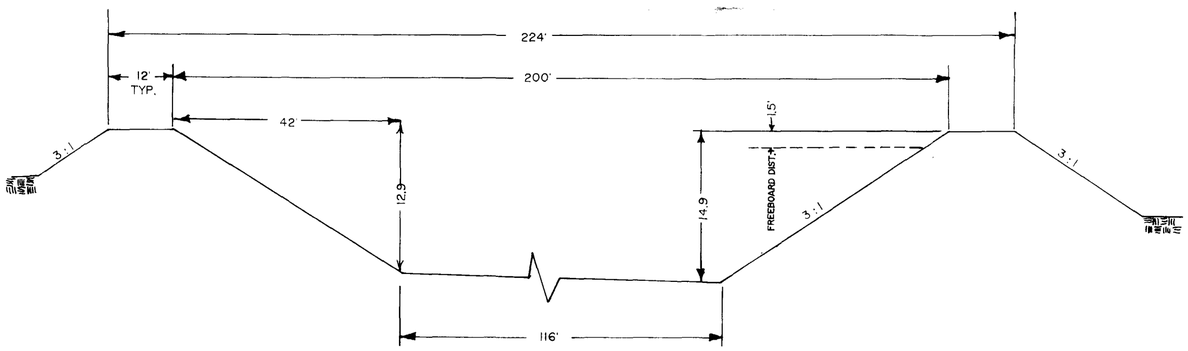
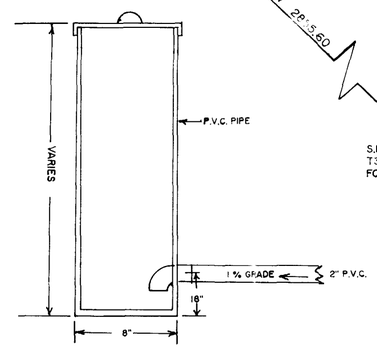


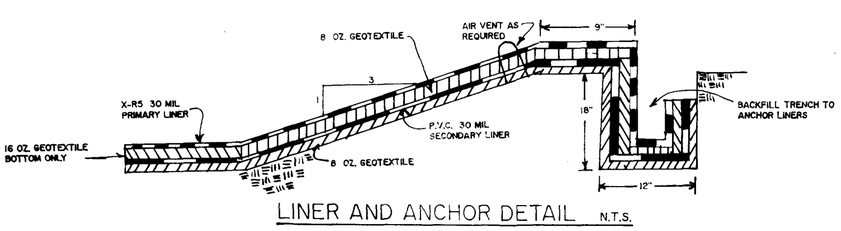
SECTION AA N.T.S.



SUMP DETAIL N.T.S.

LEAK DETECTION SYSTEM PIPE SCHEMATIC

SCALE 1" = 50'



LINER AND ANCHOR DETAIL N.T.S.

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT THIS SURVEY MEETS THE AMENDED MINIMUM STANDARDS FOR LAND SURVEYS IN NEW MEXICO.

Cecil B. Tullis

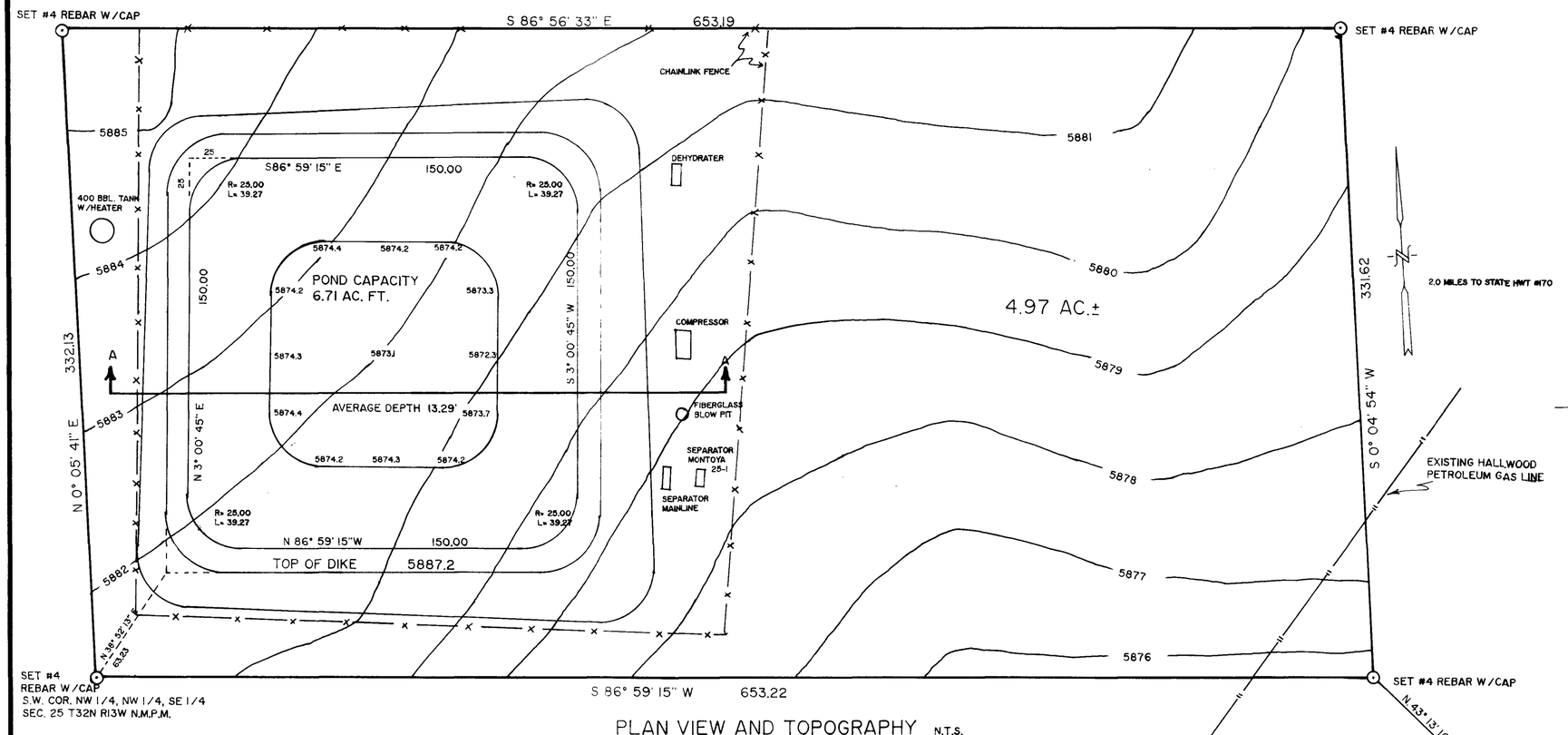
CECIL B TULLIS N.M. REG. NO. 9672

ASBUILT SURVEY FOR HALLWOOD PETROLEUM INC. EVAPORATION POND

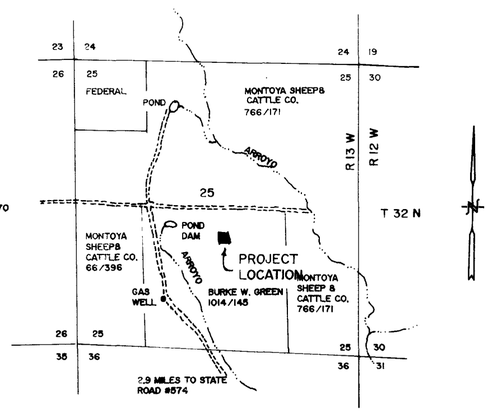
LOCATED IN THE SOUTH 1/2 OF THE NW 1/4, NW 1/4, SE 1/4 SECTION 25 T32N R13W N.M.P.M. SAN JUAN COUNTY, NEW MEXICO

DRAWN BY: L.R.A.	JOB #245-91	JANUARY 7, 1991

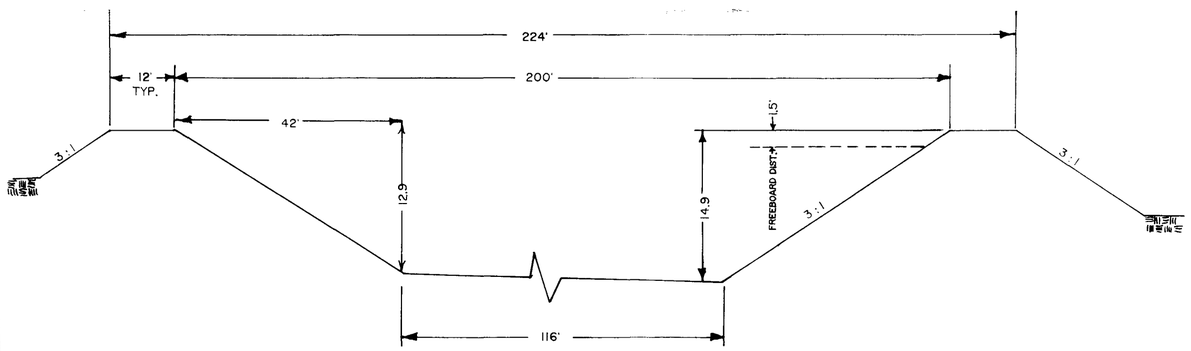
HIGH COUNTRY SURVEYS FARMINGTON, NEW MEXICO



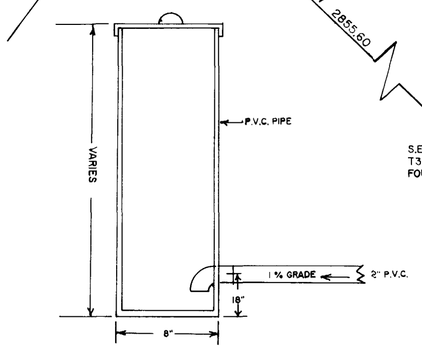
PLAN VIEW AND TOPOGRAPHY N.T.S.



VICINITY MAP SCALE: 1" = 2000'



SECTION AA N.T.S.



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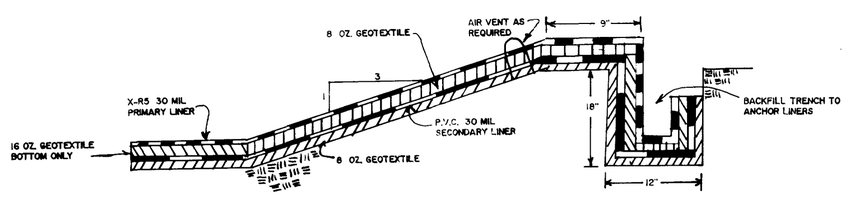

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Cecil B. Tullis

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DRAWN BY: L.R.A.	JOB #245-91	JANUARY 7, 1991

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