Chu No. 9955

Exh. b. t # 3

August 18, 1989

N.M. Oil Conservation Division

Second Report Examiner -

N.M. Oil Conservation Division P.O. Box 2088 Santa Fe, NM 87504-2088

Attn: Roger Anderson

Re: Commercial Disposal Facility

NW/4 Section 2-T29N-R12W

San Juan County, NM

Dear Mr. Anderson:

Pursuant to your letter of July 20, 1989, I would like to address each item separately.

- 1. The liner company to be used at this time is Palco Linings Inc.
  The specification sheet for both liners is attached.
- 2. The commercial aeration system will be purchased from Aquatic Eco-systems Inc. The specification sheet for the diffusers and air blower are attached. The data for each is indicated by a check mark. There will be a total of eighteen diffusers with a capacity of 0.10 cfm or 1.8 cfm. The blower will have a capacity of 3.6 cfm at a hydrostatic pressure of 5.0 psi. The hydrostatic pressure of 13.5' of water will be approximately 5.75 psi. The efficiency of the blower will be reduced by altitude 20%; however, the rate will still be 2.88 cfm. The 2.8 cfm will be more than adequate to supply air to the diffusers.

The other systems will consist of 2" PVC trunk line and 1" lateral. The laterals will be perforated in gangs on 20' centers with eight, 1/32" holes per gang. (See attached.) The PVC pipe will be anchored to the pond 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 at 6 psi hydrostatic backpressure). There will be a total of 288 holes. Each hole will allow 0.42 cfm to pass under 15 psi. The Masport pump delivers 20 psi continuous. If necessary, the

Masport pump can be replaced by a compressor.

- 3. The spray system will only be operated during those periods when an attendant is on duty. During periods of high wind or gusts, the system will be turned off. During periods of slight to moderate winds, the pump will be slowed so as to maintain the salt or spray inside the pond.
- 4. Washed sand and "pea" gravel (please see plans).
- 5. The main line will be 2" and will be perforated. The laterals will be 1" and perforated as well.
- 6. The anchor trench will be set back a minimum of 9" from slope break.
- 7. The discharge siphons are shown on the drawings.
- 8. Beams will be placed around the tanks so as to have a volume sufficient to contain one-third more than the capacity of the four interconnected tanks.
- 9. The incidental oil will be treated and subsequently sold to Gary Energy.
- 10. The proposed fence is indicated on the drawings.
- 11. The O.C.D. will be notified within one working day of any leaks.
- 12. The application with the State Engineer has been filed concurrently with this letter.
- 13. A bond, \$25,000.00, will be obtained prior to construction and after permit approval.

I believe I have answered all of your questions or comments. If I may be of any further assistance, please advise.

Very truly yours,

Robert C. Frank

Agent

RCF/chb

#### STANDARD SIZES

PART NO. LENGTH **WIDTH PRICE** QTY. PRICE /AS-1 03 lb. 3 16" OD \$ .64 ea 100+\$ .58 ea 1.5 50 .05 AS-2 .75 3 16" OD 1.5 .06 lb. .95 ea 100+ .85 ∂a .10 AS-3 2 0 10 1 lb 3116" OD .20 1.76 ea 50+ 1.58 ea AS-4 3'16" OD .25 2.30 ea 50+ 2.07 ea 15 1.5 .21 lb AS-5 3.0 1/4" OD 30 2.40 ea 50- 216 ea 1.0 16 lb. AS-8 3.0 1/4" OD 35 3.55 ea 50+ 3.20 ea 1.5 .39 lb. **AS-15** 6.0 1.5 .75 lb. 1/4" OD .50 5.38 ea 50+ 484 ea 6.40 ea ALR-15 6.0 1.5 .75 lb. 1/2" NPT .50 50+ 576 ea **AS-23** 9.0 1.5 1.35 lb. 3/8" OD .75 8.00 ea 40+ 7.20 ea 9.0 1/2" NPT 40. 830 ea ALR-23 1.5 1.35 lb. .75 9 20 ea AS-30 12.0 1.5 1.50 lb. 3/8" OD 1.00 10.30 ea 40+ 926 ea

#### **MATERIALS OF CONSTRUCTION**

Body	Silica Glass
Fitting ABS, Linear F	Polyethelene or special order
Maximum pore size	140 microns (.0055 in.)
Bubble size	1-3 millimeters (.0415 in.)
Flexural Strength	<b>250</b> 0 psi
Modulus of rupture	500 psi
Nominal particle retention .	50 microns
Service life at oH below 8.0	unlimited

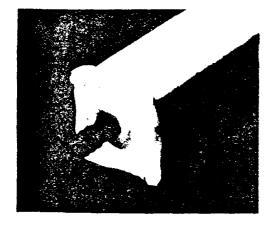
All dimensions in inches. Dimensions of length and width are  $\pm$  1/8". Non-standard fittings are available on request.

The suggested CFM shown above is for reference only Higher CFM amounts will create larger bubbles.

#### SMALL PORE DIFFUSERS FOR PURE OXYGEN AND OZONE APPLICATIONS

These diffusers are made of the same material as the above diffusers but with a smaller pore size to produce a finer bubble. They require higher pressure to operate than our regular diffusers and will clog somewhat faster due to the smaller pore size. To restore them to like-new performance, immerse in HCL (muriatic) acid.

CPVC and 316 stainless steel fittings with 1/2" MNPT are available for applications using ozone and other gases.



PART NO.	LENGTH	WIDTH	ACTUAL WEIGHT	AIR SUPPLY CONNECTION	PRICE	QTY. PRICE
AS-1-0	1.5	.50	.03 lb.	3/16" OD	\$ 1.05 ea.	100+/\$ .85 ea.
AS-2-0	1.5	.75	.06 lb.	3/16" OD	\$ 1.75 ea.	100+/\$1.40 ea.
AS-3-0	2.0	1.0	.1 lb.	3/16" OD	\$ 2.90 ea.	50+/\$2.30 ea
AS-4-0	1.5	1.5	.21 lb.	3/16" OD	\$ 3.50 ea	50+/\$2.80 ea
AS-5-0	3.0	1.0	.16 lb.	1/4" OD	\$ 3.80 ea.	50+/\$3.00 ea.
AS-8-0	3.0	1.5	.39 lb.	1/4" OD	\$ 5.50 ea	50+/\$4.40 ea
AS-15-0	6.0	1.5	.75 lb	1/4" OD	\$ 8.30 ea.	50+/\$6.65 ea
ALR-15-0	6.0	1.5	.75 lb	1/2" NPT	\$ 9.10 ea.	50+/\$7.30 ea
AS-23-0	9.0	1.5	1.35 lb.	1/4" OD	\$ 11.30 ea.	40+/\$9.00 ea
ALR-23-0	9.0	1.5	1.35 lb.	1/2" NPT	\$12.78 ea.	40+/\$9.60 ea
AS-30-0	12.0	1.5	1.50 lb.	1/4" OD	\$14.50 ea.	40+/\$11.60 ea

All dimensions in inches. Dimensions of length and width are + 1.8"

A bead of silicone may be applied around the edges of the diffuser as shown above. This will prevent the diffuser from scratching your fiberglass and/or protect the diffuser from abrasion from concrete surfaces. You can apply the silicone yourself or ask us to do it for an additional charge of \$1.00 per diffuser

A policy of continuous improvement is followed, and the right to alter published data without notice is reserved

# **AIR COMPRESSORS**



#### **ROTARY VANE AIR COMPRESSORS**

The motor-mounted design makes this unit a durable, lightweight, and versatile workhorse. For use in aeration, destratification, and de-icing of water bodies to a depth of 18 feet.

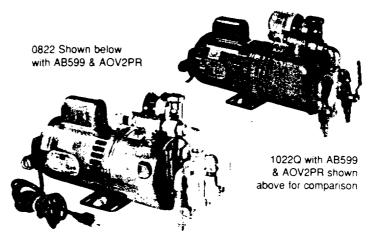
Self-sealing carbon vanes automatically adjust as they wear to maintain pump efficiency. Standard equipment includes thermal overload protection, air filter, and 8 ft. cord (115V. is standard; specify if 230V. is desired).

Our Rotary Vane Compressors feature:

- · Oil-less lubrication
- . Direct Drive No belts or pulleys or mounting base required
- Simple Vane Replacement
- · Polyurethane Rust Protection
- · Additional motor protection provided by external reset fuses

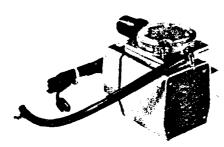
For 1989 we introduce our new quiet models. These compressors have been redesigned for reduced operating noise and improved performance. Their higher price may be off-set by your comfort and flexibility of location wherever noise is a consideration.

The only wearing parts, the carbon vanes, should last about one year in continuous operation. They can be replaced in about fifteen minutes with common tools. Consult your distributor or an A.E.S. design specialist if you require assistance in choosing sizes, accessories or applications.



1	PAR	ŢŀĶ	) <sub>-</sub>	DESCRIPTION	PT NO	PRESS	CFIL FF	EE AR	COLIAGE 7	AUPS 2 1 5V	HP	5HIP	FRICE
И	05	22		Compressor	AF109C	10	3.6	3.2	115-60HZ	6.1	1/3	32	\$263 00
1	05	22Q		Compressor, Outet	AHESSA .	2 <b>730</b> 5	<b>10</b>	<b>***</b>	718402	OF BUT 1	E IA	<b>37</b>	304.00
	083			Compressor	AB992B	9	6.7	6.2	115/230 - 60HZ	9.0	1/2	50	358.00
1	98	220	-01	Compressor, Cutet	AVS13	250.7	47	712	The Page		L VA	. 4	347.00
ſ	082	22HP		Compressor, High pressure	AB992B	15	6.7	6.2	115/230 - 60HZ	12.0	3/4	58	415.00
Ì			0	Corresponding Const.	AGN	C. 19	1/2	70.5	X 18 18 19 18 +				TOWN.
	103	22		Compressor	AB992B	10	9.5	9.0	115/230 - 60HZ	12.0	3/4	58	386 00
1	10	52Q	- 00	Compressor, Cales	MO13	5 12, <b>10</b> 22	34	W	See see	S. 27 (0) (8)	<b>34</b> 3	7 70 7	2000
	FB	109		Diaphragm Compressor	_	60	1.7	1.5	115 · 50/60HZ	3.75	1/3	15	220 00

PART, NO	DESCRIPTION	SHIP WY	FERGE 11 A H	PARTINO	(ESCRIPTOR.	SHE WIS	FRICE
AF109C	Vanes (set of 4)	.5 lb.	\$ 22.00	AOV3	Three valve outlet	4 tos	\$ 49.00
A89928	Varios (set of 4	73 K 75	200	ACVIPA	These value could will it uples	Contract of	AM I
AH850A	Vanes (set of 4)	5 <b>t</b> b.	25.50	AOV4	Four valve outlet	5 lbs	<b>60 0</b> 0
AC13	Varies (set of 4)	7734 72	T KOR ! !	- ADVAN		7 U = 1	300
AC393	Filter element	1 No.	3.00	AOV5	Five valve outlet	6 tos	70 00
E30(2)24	Tel to d quit wide (	3.48.32	ASSESSED ASSESSED	SE 1886		-535 b. 16.	
AB599	Muffler assembly (specify H.P.)	2 lbs.	24.00	AICV34M	Inlet check valve	1 <b>lb</b> .	10 00
ALAGOO :	Pressure rolet 34 est	74	12 Mars 17"	-	PARTICIONE DE LA COMPANSIONE DEL COMPANSIONE DE LA COMPANSIONE DE		- He-1
AOV1	Single outlet	2 lbs.	10.00	A8-300B	Replacement left for AB-300A	1 <b>ib</b>	50
AOVIPA	Bingle outlet with A Velocia		C ( A 9. ( ) (	S. J. HOW.		48	10.00
AOV2	Two valve outlet	3 tbs.	36 00	AF-109D	Replacement diaphragm for FB-109	1 No.	5.25
HOYZPR	Two verve outlet wP.R with	Like	N. B. DO	A		A SA SA	A 44



#### **DIAPHRAGM COMPRESSOR (FB109)**

Here is a long life oil-less diaphragm compressor with a compact motor mounted design. It has a 1/3 hp permanent split capacitor motor. Used together with our ALA-4 diffuser assembly for aeration/destratification of small ponds from 6' to 30' (2 to 10 meters) in depth. Built for continuous operation and no maintenance (other than air filter cleaning) with air flow up to 60 PSI (1.5 CFM @ 10 PSI, 1.2 CFM @ 20 PSI, 0.7 CFM @ 40 PSI, 0.3 CFM @ 60 PSI.)

Easy diaphragm replacement after two years of operation. 115 volt, 50/60 cycle with internal thermal protection. Comes with air filter, power cord and flex hose (2") outlet assembly adapter for 1/2" poly tubing (9/16" I.D.). Made in U.S.A.

Reduce performance by 20% when operating @ 50 HZ.

SEE SPECIFICATIONS & PRICE ABOVE

# TABLE A DYNALOY® POND LINER SPECIFICATIONS

		MINIMUM MATERIAL PROPERTIES				
PROPERTY	TEST METHOD	TEST VALUE	TEST VALUE	TEST VALUE		
auge (Nominal)		36 mils	40 mils	45 mils		
Scrim (reinforcing fabric)		Polyester 9×9-1000 denier	Polyester 9×9-1000 denier	Polyester 9×9-1000 denier		
hickness, mils minimum	ASTM D751					
1. Overall		34 mils	37 mils	41 mils		
2. Over Scrim	Optical Method	11 mils	11 mils	11 mils		
Breaking Strength	ASTM D751	200 lbs	220 lbs	250 lbs		
pounds, minimum)	(grab method)					
ear Strength	ASTM D751					
pounds, minimum)	(as modified by NSF)					
1. Initia:		35 lbs	35 lbs	35 lbs		
2. After Aging	Oven aging @212°F 30 days	25 lbs	25 lbs	25 lbs		
.ow Temperature	ASTM D2136 1/8 in. Mandril 4 hrs Pass	- <b>4</b> 0°F	–40°F	−40°F		
Dimensional Stability each direction, percent change maximum;	ASTM D1204 212 °F, 1 hr.	2%	2%	2%.		
Volatile Loss percent loss maximum)	ASTM D1203 MTD A 30-mil sheet	0.7%	0.7%	0.7%		
Hydrostatic Resistance counds/sq in minimum)	ASTM D751 Method A. Proc. 1	250 psi	250 ps	250 psi		
Ply Adhesion (each direction ounds/in width minimum)	ASTM D413 Machine MTD, Type A, (as modified by NSF)	7 lbs/in width or Film Tearing Bond	7 lbs/in width or Film Tearing Bond	7 lbs/in width for Film Tearing Bond		
Resistance to Soil Burial percent change maximum n original value )	ASTM D3083 30-mil sheet (as modified by NSF)					
Insupported Sheet						
<ol> <li>Breaking Strength</li> </ol>		5%	5%	5%		
<ol><li>Elongation at Break</li></ol>		20%	20%	20 %		
3. Modulus 100% Elon-						
gation		20%	20%	20%		
Dil Resistance	ASTM D471	5%	5%	5%		
percent weight change naximum)	30-mil sheet 7 days @ 158° F.					

Factory Seaming Method ————————————————————————————————————			veld	
Bonded Seam Strength (factory seam breaking strength, lbs min)	ASTM D751 (as modified by NSF)	160 lbs	176 lbs	200 lbs
Peel Adhesion (lb/in minimum) Resistance to Soil Burial (percent change maximum in original value)	ASTM D413 (as modified by NSF) ASTM D3083 (as modified by NSF)	——— Ply sep	paration in plane of scr	im or 10 lbs/in. ———
Bonded Seam Strength Peel Adhesion		20 % 20 %	20% 20%	− 20% − 20%

ynaloy! -s a Paico Registered Trade Mark.

# **TABLE A PVC POND LINER SPECIFICATIONS**

MINIMUM MATERIAL PROPERTIES						
PROPERTY Gauge (nomine)	TEST METHOD	TEST VALUE 20 mils	TEST VALUE 30 mils	TEST VALUE 40 mils	TEST VALUE 50 mils	
Gauge (nominal) Thickness, minimum	ASTM D792 Par. 9.1.3	19 mils	28.5 mils	38 mils	47.5 mils	
Specific Gravity	ASTM D792 MTD A-1	1.24 to 1.30	1.24 to 1.30	1.24 to 1.30	1.2 to 1.3	
Minimum Tensile Properties (each direction)	ASTM D882					
1. Breaking Factor (lbs/inch width) 2. Elongation at Break (percent)	MTD A or B one inch wide MTD A or B	46 lbs/in width (2300 psi) 300%	69 lbs/in width (2300 psi) 300%	92 lbs/in width (2300) 300%	120 lbs/in width (2400 psi) 350%	
(percent)  3. Modulus (Force)  @ 100% Elongation (lbs/inch width)	MTD A or B	18 lbs/in width (900 psi)	27 lbs/in width (900 psi)	36 lbs/in width (900 psi)	55 lbs/in width (1.100 psi)	
Tear Resistance (minimum average pounds)	ASTM D1004 Die C	6 lbs (300 lbs/in)	8 lbs (267 lbs/in)	10 lbs (250 lbs/in)	14 lbs (280 lbs/in)	
Low Temperature Impact (50% pass)	ASTM D1790	−15°F	−15°F	–20°F	-30°F	
Dimensional Stability (each direction, percent change maximum)	ASTM D1204 212°F 15 Min.	±5%	±5%	±5%	±5°/0	
Water Extraction (max %: wt loss)	ASTM D3083 (as modified by NSF)	0.35%	0.35%	0.35%	0.35° c	
Volatile Loss (max % wt loss)	ASTM D1203 MTD A	0.9%	0.7%	0.5%	0.6%c	
Resistance to Soil Burial (percent change maximum in original value) 1. Breaking	ASTM D3083 (as modified by NSF)			. •		
Factor  2. Elongation at Break		5% 20%	5% 20%	5% 20%	5% 20%	
3. Modulus @ 100% Elongation		20%	20%	20%	20%	
Hydrostatic Resistance (pounds/sq in min mum)	ASTM D751 MTD A	60 psi	<b>8</b> 2 psi	89 ps:	110 ps:	
				•		
FACTORY SEAM REQUIREMENT	S		Diele Mie E	Supiro Malala		
Factory Seaming Method Bonded Seam Strength	ASTM D3083		——— Dielectric F 55.2 lbs/in width			
(factory seam breaking factor pp: width)	(as modified by NSF)				· ·	
Peel Adhesion (pounds/inch minimum)	ASTM D413 (as modified by NSF)		–10 lbs/in Width or F	ilm Tearing Bond-		
Resistance to Soil Burial	ASTM D3083 (as modified by					
(percent change maximum in original value)	NSF)					

# FIELD SEAM REQUIREMENTS

Field Seaming Method Bonded Seam Strength (Seam Breaking Factor)

ASTM D3083 (as modified by NSF)

---- Bodied Solvent Weld ----36.8 lbs/in Width 55.2 lbs/in Width 73.6 lbs/in Width 96 lbs/in Width

#### STATE OF NEW MEXICO



## ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088 STATE LAND OFFICE BJILDING SANTA FE, NEW MEX.CD 87504 (505) 827-580()

July 20, 1989

CERTIFIED MAIL RETURN RECEIPT NO. P-106-675-045

Mr. George Coleman SUNCO TRUCKING WATER DISPOSAL 708 South Tucker Avenue Farmington, New Mexico 87401

RE: Commercial Disposal Facility NW/4. Sec. 2, T29N, R12 San Juan County, New Mexico

Dear Mr. Coleman:

The Oil Conservation Division (OCD) has received your application for approval to construct and operate a commercial disposal facility located in the NW/4, Section 2, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. The following comments and requests for clarification and additional information are based on a review of the application:

- 1. (II.A.2A) Supply the manufacturers specification sheet on the liners to be installed.
- 2. (II.A.3.A) Supply the manufacturers specifications and construction schematics for the proposed aeration systems.
- 3. (II.A.3.A) Submit proposed operating procedures for the enhanced evaporation spray system. These procedures should include mechanisms for the prevention of salt or spray drift outside of the surface of the liner.
- 4. (V.D.2.B) What permeable material will be used between the primary and secondary liner?
- 5. (V.D.2.D) This section states the main leak detection line will be 2" PVC. The schematic indicates a 4" PVC perforated line will be used. Please clarify this discrepancy. If a 2" PVC line is to be used it must be perforated.
- 6. (V.D.3.B) The anchor trench must be set back a minimum of 9 inches from the slope break.

Can No. 9955

6/13/90

- 7. (V.D.4.H) Supply a schematic showing all discharge lines, siphons, and piping.
- 8. (V.F.2) All tanks containing any fluids other than fresh water will be bermed to contain one-third more than the capacity of the tank within the berm or one-third more than the total capacity of all inter-connected tanks within the berm. Include all proposed berms in the schematic requested in 7 above.
- 9. (V.F.2) What will be the disposition of incidental oil accumulated at the facility? If the accumulated oil will be marketed to a refinery, the proposed facility could be considered a treating plant and may be required to comply with OCD Rule 312 along with all reporting requirements.
- 10. (V.G.I) Where will the proposed fence be located?
- 11. (V.I) This section states "... if a leak is detected the OCD will be notified within one working day." Section III.B.1 states OCD will be notified within two working days. Please correct this discrepancy. One working day notification is required.
- 12. (Miscellaneous) The State Engineer's Office has determined that any impoundment of water that holds more than 10 acre feet and/or has an embankment height in excess of 10 feet will require a permit for construction under the State Engineer Design Criteria for the Construction of Dams. Our review of your application will continue concurrently with the State Engineer's review.
- 13. (Miscellaneous) Pursuant to OCD Rule 711.C., all commercial waste disposal facilities shall have a surety or cash bond in the amount of \$25,000.00. This bond shall be acceptable to the OCD and effective prior to starting any construction at the site.

A copy of the public notice issued by this office is enclosed. The public notice was submitted for publication in the Albuquerque Journal and the Farmington Times on or before July 28, 1989. A copy of this notice will also be mailed to all property owners you have identified in your application.

Mr. George Coleman July 20, 1989 Page -3-

The submittal of information requested in this letter is necessary for review of your application to continue by the OCD. If you have any questions, please contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson Environmental Engineer

RCA/sl

Enclosure

cc: OCD Aztec Office

Mr. George Coleman November 3, 1989 Page 2

5.

Paragraph I. D. of the original application states "The second and third ponds will be built as market conditions dictate."

A memo from the State Engineer Office concerning your application to their office states "Three ponds are proposed, the first two ponds are to be constructed immediately and the third will be constructed as market conditions dictate."

Clarify the construction schedule.

Paragraph II.A.3.B. of the application states "If there is only one pond at the time the leak is detected, and weather permitting, the pond will be artificially evaporated until ...". The evaporation of the contents of the pond could require a considerable length of time. The purpose of the secondary liner is to intercept fluids and detect any failure of the primary liner. It is not intended, and will not be used, for long term containment of fluids. In the event fluid is detected in the leak detection sump, a plan and commitment is required for the following:

- a. Immediately cease receiving fluids for disposal in the affected pond.
- b. Immediately begin to remove the fluids from the affected pond to an approved location. The removal of the fluids will continue uninterrupted until the pond is empty or the fluid level is below the leak. A period not to exceed seven (7) days will be allowed to accomplish the removal of the fluids.
- c. Determine the location and cause of the leak and repair the liner and test it for other possible leaks.
- d. Remove fluids from the leak detection system prior to placing it back in service.

If there is only one pond at the facility, or if the pond(s) are at capacity at the time a leak is detected, an off-site location must be used for transfer of the fluids. The off-site location intended for use will be identified in your permit application. The OCD must be notified within 24 hours of the detection of fluids in the sump and your proposed remedial actions.

Sludge build up, removal and disposal was not addressed in your application. How do you propose to monitor the rate of sludge and sediment build up? How do you propose to remove the sludges without compromising the integrity of the liner or disturbing the aeration and circulation systems? Where do you propose to dispose of these sludges once removed? The OCD will require a chemical analysis be performed on the sludges and proper disposal methods be followed based on the results of the analyses.

Mr. George Coleman November 3, 1989 Page 3

The closure plan in paragraph II.D is not adequate. Any sludge and/or salts remaining after the liquids are removed or evaporated must be analyzed to determine proper disposal. The pond must be monitored for leaks, H<sub>2</sub>S gas and prevention of illegal dumping until the ponds are backfilled.

- 7. Paragraph V.I., Contingency Plan, states each load will be tested for the presence of H<sub>2</sub>S gas and treated with chlorine if required. The following monitoring is also required:
  - a. Dissolved sulfides in the pond(s) will be analyzed monthly. Records of the analyses will be kept at the facility.
  - b. Air concentrations in tenths of a part per million (ppm) of H<sub>2</sub>S around the pond(s) and tanks and the pH of the pond(s) will be monitored twice daily during operating hours. Records of such measurements will be kept at the facility. Submit proposed sampling locations and times for this monitoring.

The following conditions and reporting requirements must be committed to and included in the contingency plan:

- If air concentration of H<sub>2</sub>S 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 H<sub>2</sub>S monitoring (24 hours per day, 7 days per week) will commence at the designated locations, pond water will be analyzed for dissolved sulfides daily, and a previously approved treatment plan will be implemented immediately to reduce dissolved sulfides in the pond and eliminate H<sub>2</sub>S emissions. The treatment plan will be submitted and approved as part of the application and will include method of treatment, chemicals to be used, source and availability of chemicals and method of storage of enough treatment chemicals to begin treatment so that there will be no interruption of treatment for "delays in shipment". This plan will also include any possible interactions of treatment chemicals with any constituent likely to be in the pond or normally present in produced water.
- b. If air concentration of H<sub>2</sub>S at the fence line reaches 10 ppm at any time, public safety personnel, such as County Fire Marshal, County Sheriff's Department, New Mexico State Police, and the OCD will be notified. Sunco Trucking must submit plans prior to permit approval for actions to be taken to protect public health and safety. Requirements for pond treatment action will be at least as stringent as those required after detection of 1 ppm H<sub>2</sub>S, and additional requirements to be imposed will be determined after OCD review.

Mr. George Coleman November 3, 1989 Page 4

8. Pursuant to OCD Order No. R-8952 (enclosed) all pits and open top tanks over 16 feet must be screened, netted, or covered to protect migratory birds.

Submission of the information requested will allow review of your application to continue.

If you have any questions, please do not hesitate to call me at (505) 827-5884.

Sincerely,

Roger C. Anderson

Environmental Engineer

RCA/sl

cc: OCD Aztec Office

Gary L. Horner, Farmington

STATE OF NEW MEXICO



# ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

November 3, 1989

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 208B STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87504 (505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-106-675-125

Mr. George Coleman SUNCO TRUCKING WATER DISPOSAL 708 South Tucker Avenue Farmington, New Mexico 87401

RE: Commercial Disposal Facility NW/4, Sec. 1, T29N, R12W San Juan County, New Mexico

Dear Mr. Coleman:

The Oil Conservation Division (OCD) has received your response dated August 18, 1989, to our request for clarification and additional information on the application for the above referenced facility. The OCD has also received a letter of protest and a request for a public hearing on your application. The OCD is currently in the process of reviewing your application and will continue to do so-concurrently with a review of the protest and request for public hearing. Copies of all correspondence between Sunco Trucking Company and the OCD pertaining to the application will be supplied to the attorney representing the protesters.

In continuing the review of your application a number of items were omitted or require further clarification. The following comments and requests for clarification and additional information are based on a review of the application dated June 22, 1989, and your response, dated august 18, 1989, to OCD's comments.

1. You have submitted the manufacturers specifications sheet on the liner. A listing of chemical compatibilities with the liner was not included. Supply the manufacturers chemical resistance information.

The August 18, 1989 response includes a description of the operation and circulation systems you propose for the pond. What is the frequency that the pond will be "turned-over" when either or both of the systems are in operation? Submit the design criteria and calculations used to determine if the aeration systems are properly designed and sized to maintain the pond(s) in an aerobic state and preclude the emissions of H<sub>2</sub>S gas. A Registered Professonal Engineer that specializes in waste water storage and treatment is required to certify the adequacy of the design and construction of the system.

7

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

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

Case No. 9955

APPLICATION OF: Sunco Trucking Water Disposal - Commercial Waste Water Disposal Application

#### AFFIDAVIT OF COMPLIANCE WITH RULE 1207

STATE OF NEW MEXICO )
) ss.
COUNTY OF SAN JUAN )

I, ROBERT C. FRANK, an authorized representative of Sunco Trucking Water Disposal, Applicant herein, hereby certifies that the notice provisions of Rule 1207 of the Oil Conservation Division Rules and Regulations have been complied with by Applicant, that Applicant has conducted a good-faith diligent effort to find the correct addresses of all interested persons entitled to receive such notice, and, pursuant to Rule 1207, notice has been given to and received by the following persons at the following addresses as evidenced by copies of the Certified Mail Return Receipts attached hereto:

Applicato Exhibit 9

H.W. and Doris J. Horner, 4111 Skyline Drive, Farmington, N.M., 87401

Dewey K. Foutz, P.O. Box 1356, Pagosa Springs, CO, 81147

Marides Foutz Wynn & Valarie Foutz Hatch, 5108 Schmitt Road, Farmington, N.M., 87401

Bureau of Land Management, 1235 La Plata Highway, Farmington, N.M., 87401

John S. Scott, 5301 Marcy Place, Farmington, N.M., 87401

Morningstar Corporation, P.O. Drawer 9, Farmington, N.M, 87499

Gary L. Horner, Esq., P.O. Box 2497, Farmington, N.M., 87499

W.J. LeMay, Director, New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, N.M., 87504-2088

Lawrence H. Woodard and Arloa R. Woodard, Trustees, P.O. Box 12356 Station F, Albuquerque, N.M., 87105

ROBERT C. FRANK

SUBSCRIBED AND SWORN TO before me this 1990, by ROBERT C. FRANK.

Notary Public

My Commission Expires: Af los

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7. Date of Delivery.	3-90	
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#### STATE OF NEW MEXICO



# ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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

Carl No. 9855

Carl No. 9855

Semeo Tracking

GARREY CARRUTHERS
GOVERNOR

May 2, 1990

CERTIFIED MAIL
RETURN RECEIPT NO. P-918-402-239

Mr. Robert C. Frank, Agent SUNCO TRUCKING WATER DISPOSAL P. O. Box 443 Farmington, New Mexico 87499

RE: Commercial Disposal Facility NW/4, Section 1, T29N, R12W San Juan County, New Mexico

Dear Mr. Frank:

The New Mexico Oil Conservation Division (NMOCD) has received your responses, dated April 17, 1990, to OCD's request for additional information on your application for the above referenced disposal facility. The following commitment, as numbered in your response, is required before further action can be taken on your application:

4.B. If fluids are found in the leak detection sump, artificial evaporation <u>and</u> the transportation of fluids to other facilities will begin immediately. Waiting 100 days before commencing hauling is not acceptable.

The OCD is placing your application on the Public Hearing Docket for the Examiner Hearing of May 30, 1990. The OCD will publish a public notice concerning this case on or before May 11, 1990. Pursuant to to rule 1207(a)7. of the Oil Conservation Rules and Regulations, Sunco is required to provide certified notice of the hearing to all surface owners within one-half mile of the disposal facility.

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

Sincerely,

Roger C. Anderson Environmental Engineer

RCA/sl

cc: OCD Aztec District Office Gary L. Horner, Esq.



June 13, 1989

Lawerence H. Woodard and Arloa R. Woodard, Trustees P. O. Box 12356, Station F Albuquerque, New Mexico 87105

New Mexico Oil and Gas Conservation Division requires anyone permitting an application for the design and construction of a waste storage/disposal pit to notify all property owners within a one half mile radius of proposed construction site.

Sunco Trucking Company is notifying said property owners that the design and construction of a waste storage/disposal pit is being applied for in (SWANWA), Section 2, Township 29 North, Range 12 West.

If you have any questions, please contact the New Mexico Oil & Gas Conservation Division.

S and 4. your address ) and 2 when additional services are desired, and complete Item 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent thi card from being returned to you. The return receipt fee will provide you the name of the person delivere to and the date of delivery. For additional services the following services are available. Consult postmasts for less and check box(es) for additional service(e) requested.

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2. □ Restricted Delivery (Extra charge) 3. Article Addressed to: 4. Article Number P 718 636 977 DEWEY K. FOUTZ P. O. BOX 1356 Type of Service: ☐ Ineured PAGOSA SPRINGS, COLORADO 81147 Registered (A) Certified COD Return Receiption Express Mail Always obtain algnature of adding or agent and DATE DELIVERED. 8. Addressee's Address (ONLY ) requested and fee paid) Signature - Agent 7. Date of Deliver PS Form 3811, Mar. 1988 LE.G.P.O. 1988-212-855 DOMESTIC RETURN RECEI SENDER: Complete Items 1 and 2 when additional services are desired, and complete Item 3 and 4.

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Extra charge) 3. Article Addressed to: 4. Article Number 718 636 973 MORNINGSTAR CORPORATION · · ype of Service: P. O. DRAWER 9 [] Insured Registered FARMINGTON, NEW MEXICO 87499 COO Return Recei Always obtain signature of add or agent and DAYE DELIVERED. 5. Signature - Address te of Deliver PS Form 3811, Mar. 1988 U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECE SENDER: Complete Items 1 and 2 when additional services are desired, and complete Items 3 and 4.

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P6 Form 3811, Mgr. 1988 + U.S.G.P.O. 1988-212-865

**DOMESTIC RETURN RECEIPT** 

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3. Article Addressed to:

JOHN S. SCOTT

5301 MARCY PLACE

FARMINGTON, NEW MEXICO 87401

4. Article Number

P 718 636 979

Type of Services:

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5. Signature - Address

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Restricted Delivery (Extra charge) (Bare charge) 3. Article Addressed to: 4. Article Number P 718 636 972 LAWERENCE WOODARD AND ARLOA WOODARD Type of Service: P. O. BOX 12356, STATION F Registered Denueni 🔲 ALBUQUERQUE, NEW MEXICO 87105 ☐ Certified COD Return Receipt for Merchand Express Mall Always obtain signature of address or agent and DATE DELIVERED. 8. Addresses's Address (ONLY # B. Signeture alucia requested and fee paid) 6. Signature - Agent 7. Date of Delivery 686L F PS Form 3811, Mar. 1988 U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEN SENDER: Complete Items 1 and 2 when additional services are desired, and complete Items 3 and 4.

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1. Show to whom delivered, date, and addressee's address.

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2. Restricted Delivery (Extra charge) 3. Article Addressed to: 4. Article Number H.W. HORNER AND DORIS J. HORNER P 718 636 975 Type of Service: 4111 SKYLINE DRIVE ☐ Registered Insured FARMINGTON, NEW MEXICO 87401 Cordillod COD Return Recei Express Mall Always obtain aignature of address or agent and DATE DELIVERED. 8. Addressee's Address (ONILY M 5. Signature requested and for paid) XVOL Sidnature X

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P8 Form 3811, Mar. 1968 \* U.S.Q.P.O. 588-212-868

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# SAN JUAN COUNTY ABSTRACT & TITLE COMPANY

THE FOLLOWING TRACTS WITHIN APPROXIMATELY ONE-HALF (1/2) MILE OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER (SWINWI) OF SECTION TWO (2), IN TOWNSHIP TWENTY-NINE (29) NORTH OF RANGE TWELVE (12) WEST, N.M.P.M., SAN JUAN COUNTY NEW MEXICO

# TRACT 1:

GEORGE E. COLEMAN and BARBARA M. COLEMAN

Drawer 3337

Farmington, New Mexico 87499

The SWINW of Section 2, in Township 29 North of Range 12 West, N.M.P.M. (Copy of deed attached)  $\frac{\text{Book 1099}}{\text{Page 4}}$ 

#### TRACT 2:

GEORGE E. COLEMAN and BARBARA M. COLEMAN

Drawer 3337

Farmington, New Mexico 87499

The N2NW of Section 2, in Township 29 North of Range 12 West, N.M.P.M. 12 West, N.M.P.M. (Copy of deed attached)  $\frac{Book}{Page}$   $\frac{1099}{4}$ 

### TRACT 3:

LAWRENCE H. WOODARD and ARLOA R. WOODARD, Trustees P.O. Box 12356, Station F

Albuquerque, New Mexico 87105

The SiNE; and the NW; NE; of Section 2, in Township 29 North of Range 12 West, N.M.P.M. Book 1012 (Copy of deed attached) Page 302

# TRACT 4:

MORNINGSTAR CORPORATION

P.O. Drawer 9

Farmington, New Mexico 87499

The SE of Section 2, in Township 29 North of Range 12 West, N.M.P.M. (Copy of deed attached) Book 939 Page 410

Book 1088

Page 153 The SW of Section 2, in Township 29 North of Range 12 West, N.M.P.M.

# TRACT 5:

NO PATENT OF RECORD

BLM LAND

1235 La Plosta Hiway 24 Armington 87401

TRACT 6:

H. W. HORNER and DORIS J. HORNER 4111 Skyline Drive

Farmington, New Mexico 87401

The approximate East 865 feet of the E2E2 of Section 3, in Township 29 North of Range 12 West, N.M.P.M. (Copy of deed attached) Page 351

# TRACT 7:

DEWEY K. FOUTZ

P.O. Box 1356

Pagosa Springs, Colorado 81147

The approximate West 877.89 feet of the East 1742.89 feet of the E1E1 of Section 3, in Township 29 North of Range 12 West, N.M.P.M. Book 1090 (Copy of deed attached) Page 218

# TRACT 8:

MARIDES FOUTZ WYNN and VALARIE FOUTZ HATCH 5108 Schmitt Road

Farmington, New Mexico 87401

The WiEl of Section 3, in Township 29 North of Range 12 West, except that as described in Tract 7 above. in Tract 7 above. (Copy of deed attached)  $\frac{\text{Book } 879}{\text{Page } 247}$  TRACT 9:

JOHN S. SCOTT

5301 Marcy Place
Farmington, New Mexico 87401

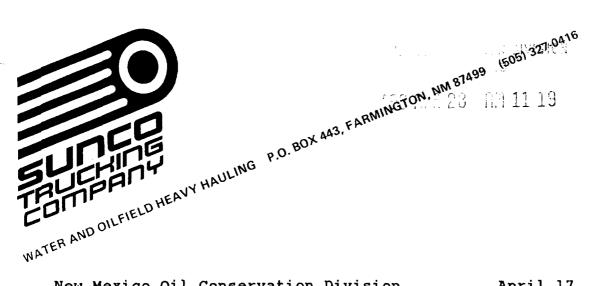
The ElSE of Section 34, in Township 30 North of Range 12 West, N.M.P.M. (Copy of deed attached) Book 914 Page 540

TO June 1, 1989, 4:30 P.M.

SAN JUAN COUNTY ABSTRACT & TITLE COMPANY

By Drug For under

OFT/gw Enclosures



New Mexico Oil Conservation Division PO Box 2088

Santa Fe, NM 87504-2088

ATTN: Roger Anderson

SUBJECT: Commercial Disposal Facility

NW/4 Section 2-T29N-R12W San Juan County, New Mexico

Dear Mr. Anderson:

Pursuant to your letter of July 26, 1989, I would like to address each item separately.

April 17, 1990

- 1) The manufacturer's specifications sheet for chemical resistance are attached.
- Please see attached certification dated March 26, 1990 being performed by Brewer Associates, INC., Farmington, NM.
- 3) Please be advised that the second pond will be constructed commensurate with the first pond however the second pond will not be lined until market conditions dictate. The third pond will constructed and lined once the market conditions further warrant its construction. The weathered surface of pond two will be ripped and recompacted to the original density requirements prior to being lined.
- 4) I would like to make a few comments regarding the contingency plan the NMOCD has placed upon determination of a leak in the primary liner.

First: If the affected pond happens to be at free board capacity, 20 acre feet of water, (155,160 bbl's) and none of the other ponds are operational and or full there are some physical constraints regarding the emptying of this pond. To comply with your request to empty the pond within seven (7) days would require the disposal and transportation of 1939.5 (80 bbl) loads in a period of seven (7) days, or the equivalent of 277+ loads per day. There is not currently any one or any combination of existing commercial facilities that can handle such a volume. We believe this to be an unrealistic and physically impossible request.

Secondly: If the purpose of the secondary liner is only for short term containment, why is the liner required to be a minimum of 30 mills thick?

Thirdly: Even if the secondary liner were punctured there will be some inherent impermeability due to the compaction of the subgrade and the general nature of the subsoil. Once the liner(s) were repaired the water would be bound by capillary action to the subsoil.

We would like to offer the following contingency plan as a compromise to the original plan and your recent request.

- A. Immediately cease receiving fluids for disposal in the affected pond.
- B. Drain the affected pond into the unaffected ponds if available. If none of the ponds are available, commence evaporation and evaporate the pond for a period not to exceed 100 days. If during that period the pond has not been lowered below the source of the leak the water will be hauled away until the water level is below the source of the leak. The water will be disposed of at any one or all three of the following commercial disposal facilities:

Basin Disposal: Sec 3-T29N-R11W
Hicks Disposal: Sec 15-T28N-R13W
Southwest Water Disposal: Sec 32-M30N-P

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

The holding capacity of each pond, as mentioned previously, is approximately 155,160 bbl's or 871,196 cuft. Salt generation calculations based upon Stanley Zygmunts work with the New Mexico Energy Research Development Institute indicates that the salt generated by passive evaporation will be 7304 cuft per year per pond. 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 119 years for each pond to fill with With the spray system in operation we expert up to a 10 fold increase in evaporation. That will decrease the life expectancy of the pond to 11.9 years which is consistent with the project life of each pond. . With this in mind we do not intend to monitor the sludge/salt build Therefore we are not concerned about liner integrity, up. aeration systems or circulation systems as the sludge/salt build up will be left intact upon drying and abandonment.

It is our intention to sell or bury the precipitated salts onsite in the plastic liner as per our initial application of May 19, 1989. 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.

Through a conversation with Roger Kolv with Waste Management of Four Corners, operator of the San Juan County Landfill 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 can not 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

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disposal.

During the drying period the leak detection sump will be monitored weekly and the pond will remain locked (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 emissions 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.

- 7) a. Dissolved sulfides in the pond(s) will be analysed monthly and the results will be kept at the office.
- b. Air concentrations of H2S will be measured in tenths of a part per million and the ph will be measured twice daily around the perimeter of the pond(s). The prevailing winds are Southwesterly therefore the sampling points will be located on the Northeast sides of the pond(s) and tanks. The H2S concentrations and ph will be measured in the morning and afternoon.

a. 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 lower land) 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 fin the pond and eliminate H2S emissions.

The ponds will be treated on a regular basis with bleach (chlorine). The amount of bleach to be added is anticipated at 1000 gals per month. The bleach is 12-16% active. There is no schedule at this time as the amounts may vary as conditions as yet undetermined warrant. As mentioned previously the pond will be maintained in an aerobic state by the two aeration systems and the sprayer system. The bleach will be added as a matter of prudence.

STWD will maintain a bleach tank on location with a minimum holding capacity of 1000 gallons. Bleach is unstable at these concentrations and therefore has a short shelf life. With the short shelf life (approximately 30 days) we can not store any more chlorine than we intend to use in that period. 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. (CDI), Farmington, NM will be the supplier of the bleach. CDI maintains 500 gals. of bleach at their local yard. In addition CDI is currently constructing a bleach plant in El Paso, Texas. The plant is scheduled to be on line April 15, 1990. The plant will have the capacity of 25,000 gallons of 16% bleach per day.

4

4

They've indicated that they will maintain their own transportation equipment. They would be able to deliver 5000 gals. 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 + 4C12 + 4 H2O > H2SO4 + 8 HC1

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 th ph of the pond which further prohibits the growth of bacteria.

In as much as the pond is equipped with three aeration systems we do not believe there will not be an H2S problem. Furthermore each load will be tested for H2S and treated prior to entering the pond. Once the water enters the pond the H2S producing bacteria will be unable to survive in the aerobic pond.

#### TREATMENT PLAN

- 1. Determine chlorine demand for sulfides, H2S and organics.
- 2. Initiate treatment with 12-16% active bleach on hand and at CDI yard.
- 3. Deliver and treat pond(s) with sufficient bleach to reduce dissolved sulfides and prohibit the emission of H2S. The rate of treatment will be a maximum of 5000 gallons of 12-16% active bleach daily.
- b. If air concentrations of H2S reach 10 ppm at the fence line STWD will notify the County Fire Marshal, County Sheriffs Department, New Mexico State Police and OCD. The actions to be taken by STWD will be as follows:

#### TREATMENT 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, NM or at another motel as approved by STWD. 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.

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3. Implement treatment plan as outlined in "a" above.

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

8) The skimmer pit will be completely enclosed with screening to prevent migratory birds from reaching the pit.

I believe that this answers all of your concerns. If I may be of any further assistance, please advise.

Very truly yours,

Set C. Trank

Robert C. Frank

Agent



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

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.



Title: Immersion Study, Dynaloy®in Petroleum				
Report No. PL-145-85	Submitted 5#	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.

<u>Days</u>	<u> Iranian Lite</u>	<u>Sahara</u>	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.

Gener Hayston



Title:	Immersion Study, Dynal	loy® in Diesel Fuel #2
Report	No. PL-161-85	Submitted: 5H 9-6-85
Study N	o. 224	Approved: STMK 9/6/85

## Test Method

Weighed tensile strips of 30 mil unreinforced Dynaloy <sup>®</sup> 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.



Title: Immersion Study, Dynaloy	in Naphtha.
Report No. PL-150-85	Submitted 4.5. 9.26.85
Study No. 211	Approved Juk 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

<u>Days</u>	<u>Weight Change</u>
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.

John Stein

Laboratory Technician



Title: In	mmersion Study, Dynal	loy in Sulfuric Acid	
Report No	. PL-149-85A	Submitted: 5#	3-25-85
Study No.	215	Approved: Imk	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

Laboratory Technician

TABLE 1, DYNALOY IN SULFURIC ACID

Temp.	Time (days)	Weight	Breaking Factor	Elongation at Break	Modulus at 100%
1% H <sub>2</sub> SO <sub>4</sub>					
73 <sup>0</sup>	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 <sup>0</sup>	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 <sup>0</sup>	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 <sub>2</sub> SO <sub>4</sub>					
73 <sup>0</sup>	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 <sup>0</sup>	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 <sup>0</sup>	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



Title:	HANGES IN AQUEOUS SOLUTIONS, THE EFFECT LIDS CONTENT ON DYNALOY AND PVC			
Report N	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 Wecks
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				
30 Mil Dynaio,	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%



### 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.

TABLE 1 PL-129-83-C

		DISTILLED WATER		SODIUM CYANIDE	
73°F	DAYS	MD	TD	MD	TD
Tear Resistance	7 15 28	+18 +58 +48	+3% +7% +5%	+2% +6% +6%	-2% +9% +2%
Stress at 100% Elongation	7 15 28	-2% +1% +6%	-1% -2% +2%	-3% +2% +1%	-1% <u>+</u> 0% +1%
Stress at Break	7 15 28	-18 -28 +68	+2% +2% +2%	-2% -2% +1%	±0% +3% +1%
Strain at Break	7 15 28	-28 -18 -28		+4% -3% -1%	-48 -48 -28
Weight	7 15 28	±0.0% -0.1% -0.1%		-0.1% -0.1% <u>+</u> 0.0%	
		DISTILLED WATER		SODIUM CYANIDE	
158°F	DAYS	MD	TD	MD	TD
Tear Resistance	7 15 28	+2% +2% +2%	+6% +9% +10%	+1% +1% +4%	+13% +3% +11%
Stress at 100% Elongation	7 15 28	+4% +5% +10%		+6% +7% +7%	+9% +8% +8%
Stress at Break	7 15 28	+1% -4% +3%	+2% +3% -1%	±0% -1% -2%	+3% <u>+</u> 0% +5%
Strain at Break	7 15 28	+4% +2% -2%	+4% -3% -1%	+4% +4% +3%	±0% -5% -1%
Weight	7 15 28	-0	. 28 . 48 . 48	_	0.3% 0.3% 0.3%

### **ENGINEERS • SURVEYORS**

P. O. BOX 2079 • FARMINGTON, NM 87499 • (505) 327-3303 CLOVIS, NM • (505) 763-4255

March 26, 1990

Mr. George Coleman Sunco Trucking & Water Disposal 708 S. Tucker Ave Farmington, New Mexico 87401

Re: Commercial Disposal Facility Northwest Quarter of Section 1 T29N, R12W, San Juan County New Mexico

Transmitted herewith are our calculations regarding Item No. 2 on the letter received by your company from the Energy Minerals and Natural Resources Department, dated November 3, 1989. As we have discussed, actual oxygen requirements for a facility such as yours are difficult to calculate due to the lack of data on the waste stream being received. We have based our calculations on the assumption that a 0.5 milligram per liter residual of dissolved oxygen would be sufficient to maintain the ponds in an aerobic condition. Complete oxygen dispersion will be extremely this reason, believe important. For we critical to the recirculation/spray evaporation system will be successful operation of the facility. If actual oxygen demand proves to be greater than anticipated, the recirculation/spray evaporation system will have the capability of adding oxygen to the system, as well as assuring the complete dispersion of available oxygen.

If we can be of further assistance please feel free to contact us at you convenience.

Sincerelly yours,

BREWER ASSOCIATES, INC.

Richard P. Cheney, P.E., P.L.S.

President

RPC: jc 90005/L1189

### 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 treatmentdesign 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 O2 RESIDUAL SHOULD EQUAL = 0.5 MGL = ppm

6.5 mg Requires 27# 02/Day

 $\#0_2/\text{Feet}^3 \text{ Air} = 0.0175$ 

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

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

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

P1 = Inlet Pressure Due to Altitude

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

T = Air Temperature @ Standard Conditions in Degrees R

 $= 68 + 460 = 528^{\circ} R$ 

T<sub>1</sub> = Blower Inlet Air Temperature in Degrees R

= 90 + 460 = 550° R

Calculate Flow Rate From PQ = MRT

M = PQ/RT

Where R = Specific Gas Constant =  $53.3 \times ^{\circ}$ R for Air M =  $\underbrace{14.696 \times 533 \times 144}_{53.3 \times 528}$  = 40 lb. m/ min.

 $Q_2 = MRT_1/P_1$ 

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

Blower Brake Hp @ Average Inlet Conditions

BHP =  $0.227 \times Q_2 \times [(P_2/P_1)^{0.283} - 1]$ 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 = 
$$0.227 \times 687 \times [(11.86)]^{0.283}$$
 = 32 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 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 the operation οf 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 ARD P. C odor free condition.

### **ENGINEERS • SURVEYORS**

P. O. BOX 2079 • FARMINGTON, NM 87499 • (505) 327-3303 CLOVIS, NM • (505) 763-4255

June 21, 1990

Mr. George Coleman Sunco Trucking & Water Disposal 708 S. Tucker Avenue Farmington, New Mexico 87401

Re: Commercial Disposal Facility NW1/4 of Section 2, T29N R12W, San Juan County, New Mexico

Dear Mr. Coleman:

As per your request I reviewed the possibility of injecting chlorine to reduce hydrogen sulfide from produced water through recirculation in the water trucks delivering the water to the facility. I have attached a one line flow diagram indicating the procedure that would need to be utilized. Basically, the water would be pumped from the delivery truck utilizing a 300 gallon per minute pump. The suction side of the pump would be attached to the back of the truck and the discharge side would be attached to the front of the truck. injection device would be attached to the suction side of the We would also suggest that an inline static attached to the discharge side of the pump. Utilizing a 300 gallon per minute pump, the truck could be circulated approximately 11 minutes.

reactions occur with chlorine, I have indicated these reactions on the attached graph. Reaction No. 1 would require 2.1 parts per million of chlorine for each part per million of hydrogen sulfide removed. The reaction would reduce the hydrogen sulfide and chlorine to hydrochloric acid and free sulfur. In this reaction the formation of flowers of sulfur would occur. This fine colloidal Precipitate, if not removed from the system could result in the reversion of sulfur to hydrogen sulfide by the action of certain micro organisms. When used in greater quantities chlorine will further oxidize hydrogen sulfuric acid without the precipitation of sulfur. This reaction would result in the creation of sulfuric acid and hydrochloric Theoretically, 8.4 parts per million of chlorine are required for the removal of each part per million of hydrogen sulfide under this reaction. However, this reaction would prevent the precipitation of flowers of sulfur as discussed previously.

Applicates #11

Mr. George Coleman June 21, 1990 Page two

Aeration alone generally is not sufficient for the removal of hydrogen sulfide. At high Ph value the sulfide content present chiefly as alkaline sulfide which will result incomplete removal by aeration alone. This condition results because carbon dioxide is less soluble than the hydrogen sulfide and is removed from the water by aeration more rapidly than hydrogen sulfide. As the carbon dioxide is removed the Ph rises and the equilibrium between alkaline sulfides and hydrogen sulfides is altered so that the reaction proceeds in the wrong direction for the most complete removal of hydrogen sulfide. Removal of hydrogen sulfide by aeration is most effective then at reduced Ph in the range of 4.0 to 5.0 because of the equilibrium between the alkaline sulfide and the sulfide as discussed previously. By reducing the Ph of the water the ionization constant shifted and more of the total sulfide is converted to hydrogen sulfide in which form it is available for removal by aeration.

I believe that it is obvious from the preceding discussion that if incoming waters are treated with chlorine the principal source of hydrogen sulfide generation will be from micro organism within Thus, it will be extremely important to be able the pond itself. to maintain the treatment pond in an aerobic condition at all Treating of the produced water within the water trucks should also tend to reduce the Ph of the treatment pond. hydrogen sulfide production does occur in the pond the lower Ph would make the aeration more efficient. The aeration method proposed would also allow the injection of chlorine into the pond itself.

In our previously submitted calculations regarding oxygen capabilities we did not consider any demand generated by the pond itself. We should probably consider the possibility of the sludges generated and deposited on the bottom of the pond capable of producing a 1 part per million oxygen demand in the pond. The calculation regarding horse power is a straight line calculation. In other words, to satisfy a 1 part per million demand and maintain a 0.5 part per million residual, would require approximately 96 HP.

A truck containing 10 parts per million of hydrogen sulfide would require 2.3 lbs. of chlorine to drive the reaction to completion without the production of flowers of sulfur. If a commercial Bleach is utilized that is approximately 60 percent chlorine, then approximately 1 1/2 gallons of bleach would be required for complete oxidation of the hydrogen sulfide in the delivery truck.

Mr. George Coleman June 21, 1990 Page three

At 70 parts per million this truck load would require approximately 3.25 gallons of bleach to drive the reaction to completion. Of course, both of these calculations assume that a complete mix is achieved. I do not believe that the theoretical goal will actually be obtained in the field. Therefore, it will probably be necessary to add greater amounts of bleach than is theoretically required. These amounts can only be determined under actual operating conditions.

In summary the facility should have adequate redundancy regarding the treatment of hydrogen sulfide. The treatment capabilities are as follows:

- 1. Injection of chlorine and recirculation of delivered loads.
- 2. The capability of the coarse bubble diffusion system to maintain a dissolved oxygen residual in the pond.
- 3. The capability of the recirculation system to provide aeration and mixing of the pond.
- 4. The capability of the fine bubble diffusers to provide additional oxygen and to enhance the mixing capabilities of the other aeration systems.

Also, combined with these four treatment procedures, the facility will also have the capability of injecting chlorine directly into the pond through both the course bubble and the fine bubble diffusing systems.

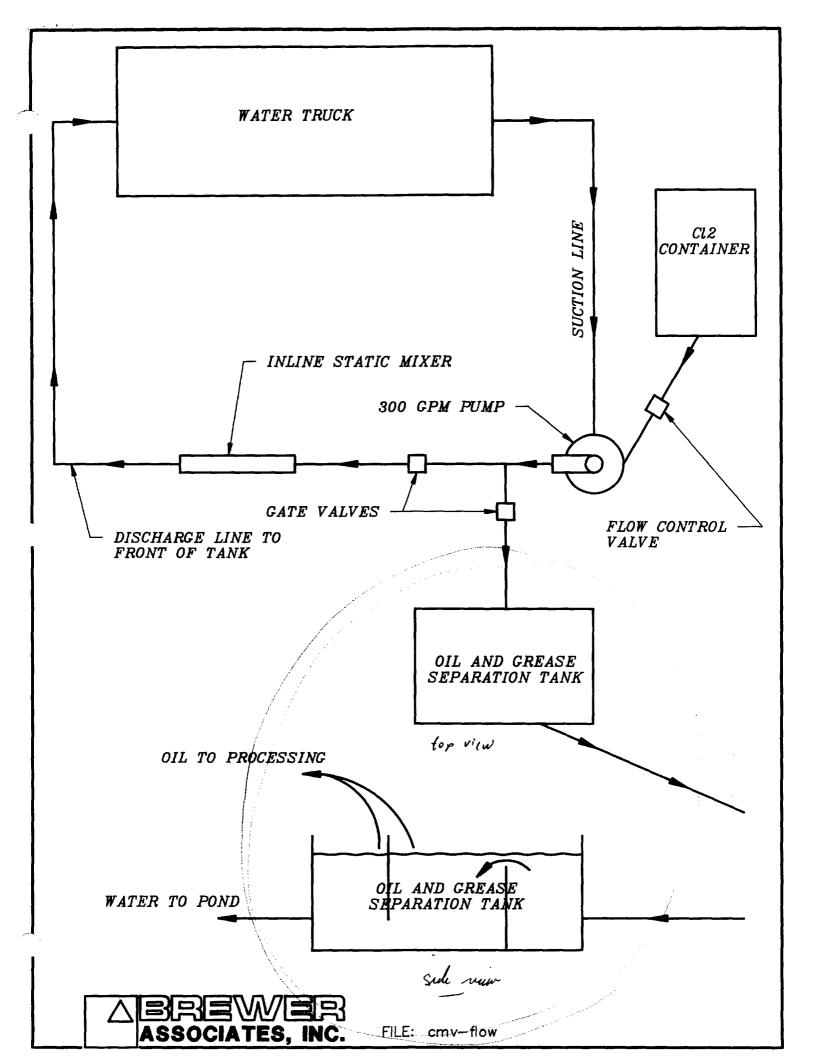
Sincerely yours,

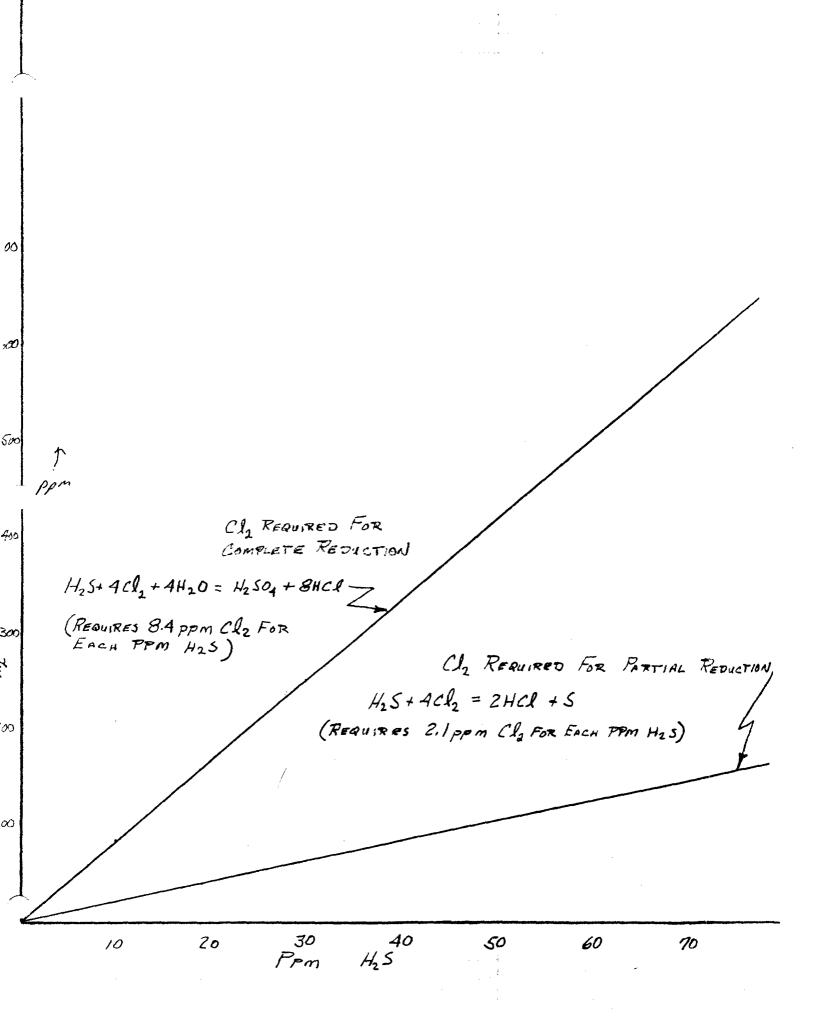
BREWER ASSOCIATES, INC.

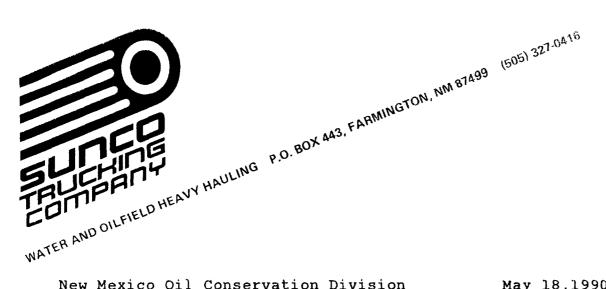
Richard P. Cheney, P.E., P.L.S.

President

RPC:jc Rpt90







New Mexico Oil Conservation Division Post Office Box 2088 Santa Fe, NM 87504-2088

May 18,1990

Attn: Mr. Roger Anderson

Subject: Commercial Disposal Facility

NW/4, Section 2-T29N-R12W San Juan County, New Mexico

Dear Mr. Anderson,

Care No. 9955 Semes Trucking Heard Before Externmen

Pursuant to your letter of May 2, 1990 and our verbal commitment previous to your letter please be advised that Sunco Trucking Water Disposal would like to revise our response of April 17, 1990 to reflect the changes as follows:

4. B. If fluids are found in the leak detection sump, artificial evaporation and the transportation of fluids to other facilities will be begin immediately.

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

Very truly yours,

Robert C. Frank

Agent

### RICHARD R. TCOLLINS 1041 ZUNI DR. FARMINGTON, N.M. 87401

505 326-0079 AGE 41

EDUCATION:

High School Graduate of Aztec High School 1967
Two years college at New Mexico State University
majoring in engineering 1968 thru 1969
Summer extension, 120 Hours at Texas A & M 1978
Continuing education at SAn Juan College for various
credits. 1980 thru 1986

EXPERIENCE: 4-70/12-85

Worked for the Farmington Police Department in different capicities from patrol, detectives, training, and academy instructor. As training officer, I taught and am a certified instructor in Accident Investigation & Reconstruction, Radar, Police Driving, Defensive Driving, Advanced First Aid, & Cardio Pulmonary Resisitation (CPR). I instructed the above courses not only to Police Officers, but to civilians at various locations throughout the county. During this time, I also worked for various trucking and oilfield companies on my days off. These companies include, Sunco Trucking, Ladd Tankers, Med Tankers, Steere Tank Lines, Arco Materials, and Havens Trucking. In working for these companies, I feel I gained valuable experience in Oilfield production and operations. working for oilfield truck companies, I was made aware of what H2S is, and what it can do to a person. first certified in H2S in 1978.

12-85/Present

Employed by Coleman Oil and Gas, Inc., subsidiaries are Sunco Trucking, Coleman Drilling, and Big A Well Service. I am the Safety Supervisor. In this capacity, I instruct First Aid, CPR, Defensive Driving, and H2S Safety. I am responsible for checking safety at the rigs and on the trucks. My main concern is employee When on a well with possible H2S, we will have H<sub>2</sub>S monitors and oxygen equipment on the location prior to working on the well, and all hands will be certified on the use of the equipment. I also am responsible for personnel hiring on both the trucks and the rigs. I am a member of the American Society of Safety Engineers, New Mexico Hazardous Waste Society, NM & Colo. Workers Compensation Associations, and am Chairman of the NM Job Services Employer Council. I have continued my education in safety related subjects which include college credit for various associated seminars.

Applicants # 12



This is to certify that

### Richard Collins

has completed H<sub>2</sub>S certified safety training class.

### Standby Safety Services, Inc. Phone 303/565-6391

This is to certify that

### RICHARD COLLINS

has received instructions in Hydrogen Sulfide Safety, including Self-contained Breathing Apparatus, Personnel Protective Equipment, H2S Detectors, H2S First Aid and H2S Contingency.

DATE OF TRAINING



### AMERICAN SOCIETY OF SAFETY ENGINEERS

. 1800 East Oakton Street Des Plaines Illinois 60018-2187 312 692 4121 RICHARD R COLLINS

MEMBER

CHAPTER: NEW MEXICO

0115103

Number

Valid to June 301988 After Dues Payment ------

7/86

Election Date

Executive Director & Secretary



## Supervisory Development Program Richard R. Collins

having satisfactorily completed the prescribed study in Supervisory Development, is awarded this certificate.

\**B** 

lanagement//Specialists, Im.

Albuquerque, New Mexico

This 14th day of February in 1979

"A Supervisor is one who gets work done thru others."

Profident

## National Safety Council

This is to certify that

RICHARD COLLINS

is registered as an Instructor in the National Safety Council's Driver Improvement Program and is authorized to teach the Defensive Driving Course in accordance with the Instructor's Manual and the Manual of Rules and Procedures as amended.





DRIVER SAFETY

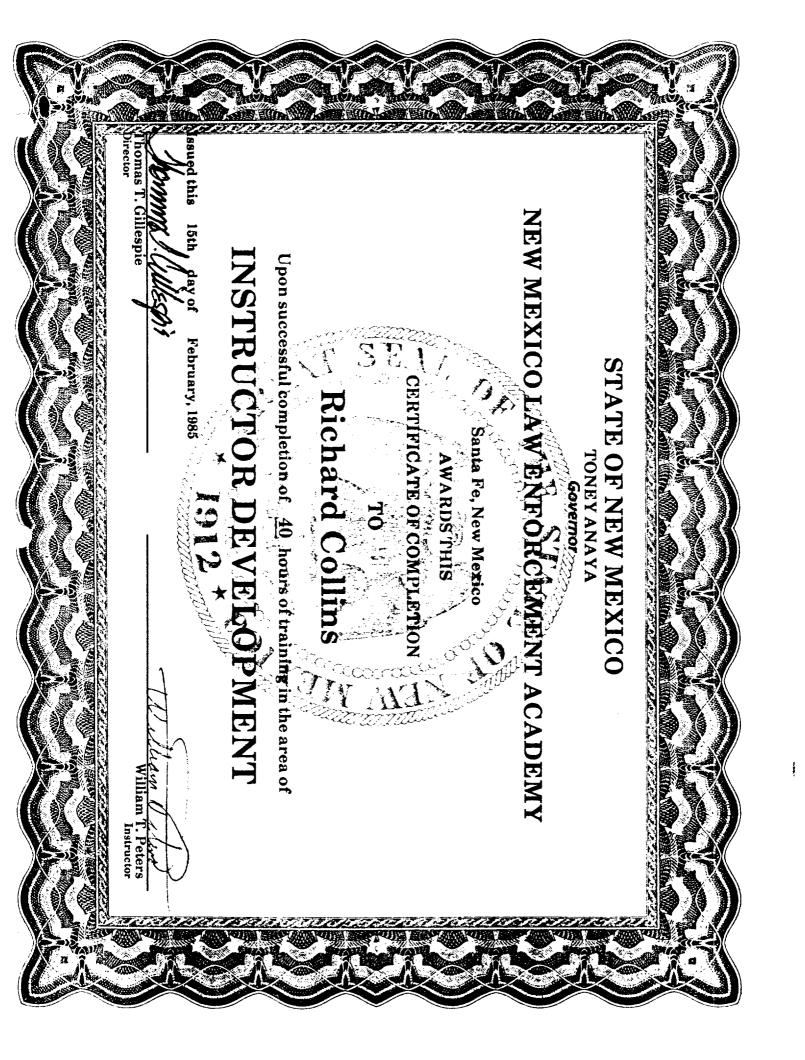
DRIVER CITIZENSHIP

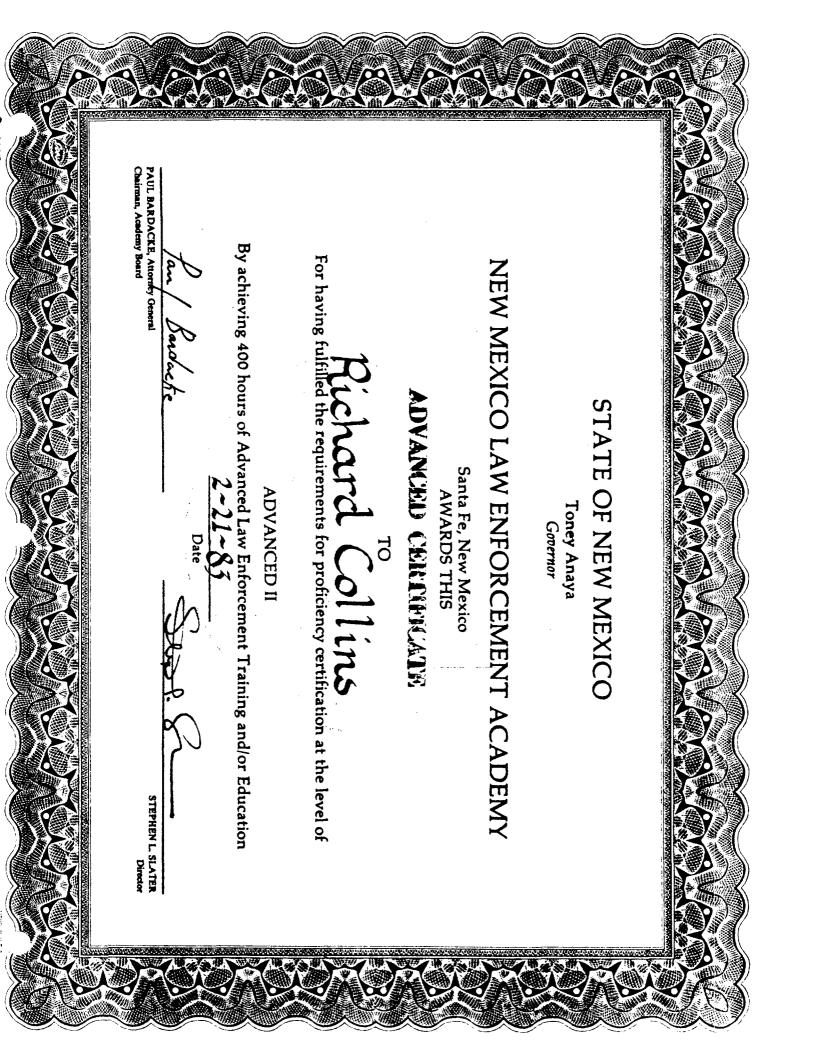
DRIVER COURTESY

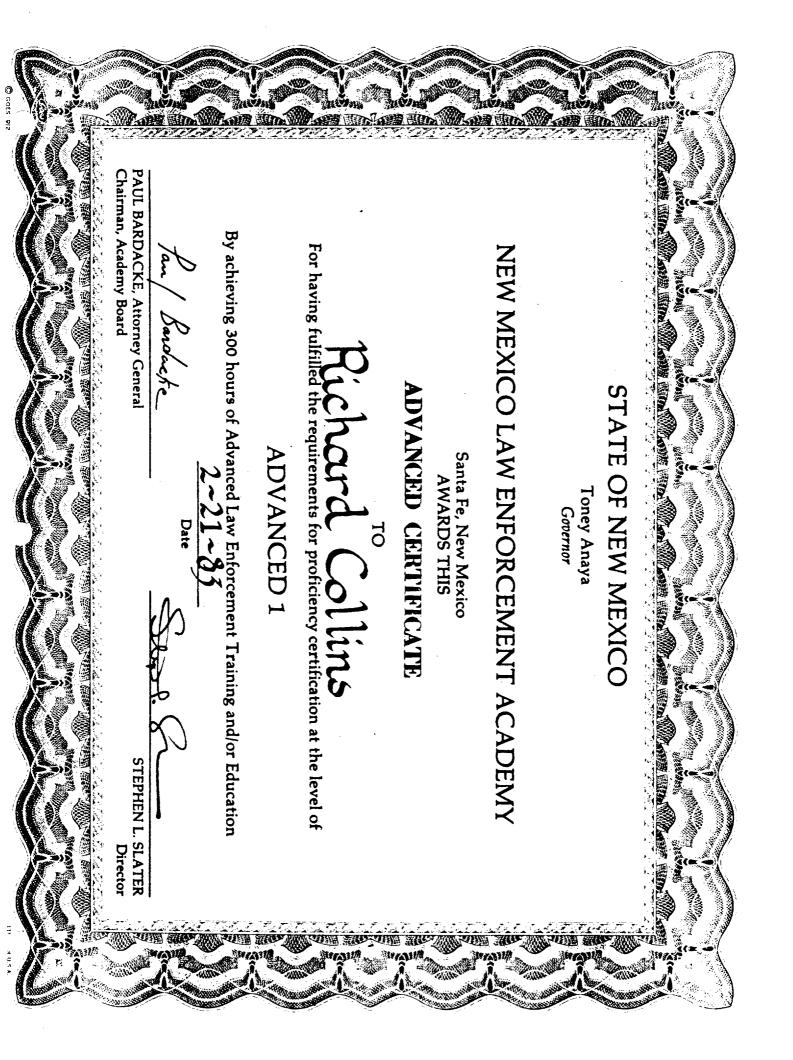
Michael & Total

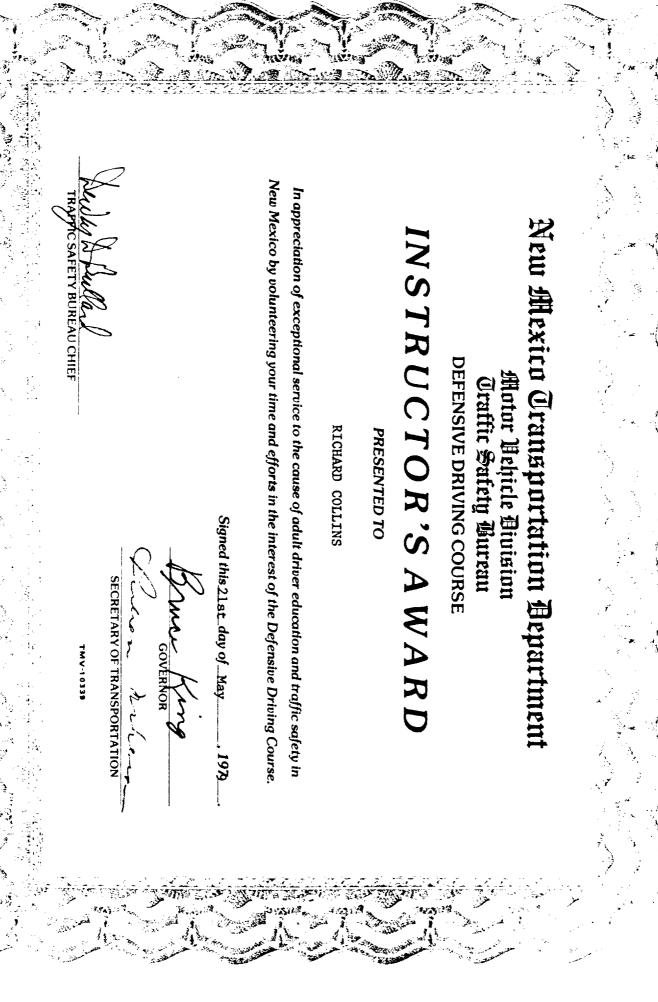


APRIL 30, 1979









### NORTHWESTERN UNIVERSITY The Irallic Institute





Richard R. Collins

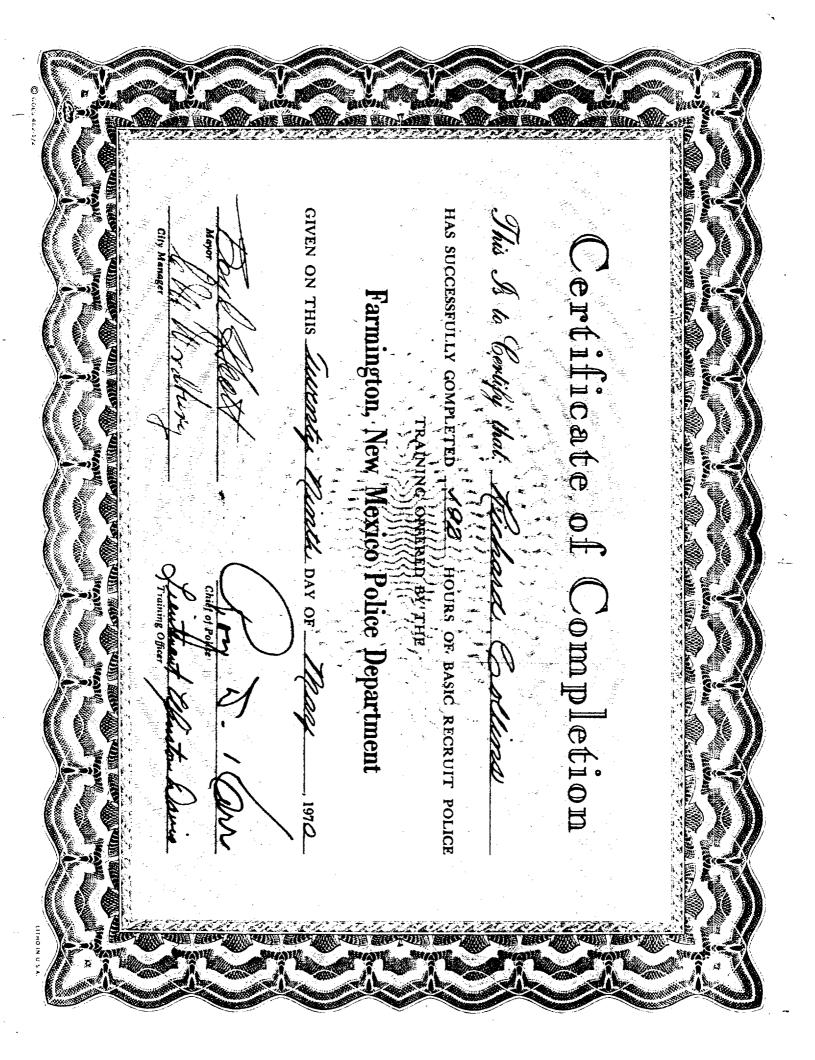
has successfully completed the course

POLICE TRAFFIC RADAR INSTRUCTOR TRAINING

Phoenix, Arizona Arizona Department of Public Safety Training Academy conducted at the February 1-5, 1982

Charles W. Fen.

Leele Sufe



# Texas Engineering Extension Service

THE TEXAS A&M UNIVERSITY SYSTEM

COOPERATING WITH

TEXAS EDUCATION AGENCY

This is to certify that

RICHARD R. COLLINS

satisfactorily completed the 120 hour course

ADVANCED ACCIDENT INVESTIGATION



DIRECTOR, TEXAS ENGINEERING EXTENSION SERVICE

EF, LAW ENFORCEMENT AND SECURITY TRAINING DIVISIO

