

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
ORDER NO. R-9485

APPLICATION OF SUNCO TRUCKING WATER
DISPOSAL COMPANY FOR A PERMIT TO CONSTRUCT
AND OPERATE A COMMERCIAL WASTEWATER
EVAPORATION POND, SAN JUAN COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on June 13, 1990, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 2nd day of April, 1991, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) Sunco Trucking Water Disposal Company ("Applicant") has applied to the Division for a permit pursuant to Rule 711 of the Division's Rules and Regulations to construct a commercial surface disposal facility to dispose of nonhazardous wastewater resulting from oil and gas drilling and production operations.

(3) Said facility is to be located in the SW/4 NW/4 (Unit E) of Section 2, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico.

(4) Harold and Doris Horner ("Protester") are owners of land near the proposed facility and protested the granting of the permit and requested this hearing on the application.

(5) Applicant proposes to build a synthetically double-lined evaporation pond with leak detection, aeration systems and evaporation enhancing spray systems to dispose of produced salt water and drilling fluids which have been tested and treated for hydrogen sulfide.

(6) Applicant appeared at the hearing and presented testimony about the design and operational standards and established a prima facie showing that the facility could be designed and operated so as to protect fresh water supplies and not constitute an unreasonable harm to human health and the environment if standards for such operation are met and followed.

(7) Protester appeared at the hearing through Counsel and cross-examined Applicant's witnesses but did not present any direct evidence to support their position that the facility could not be permitted without creating an unreasonable risk of contaminating fresh water supplies or presenting a danger to human health and the environment.

(8) There is a need for additional disposal facilities in the San Juan Basin to provide for environmentally safe and cost effective means of disposing of water produced in connection with oil and gas operations, and approval of a properly designed facility will help to prevent illegal dumping of water in a manner which would endanger the environment.

(9) The proposed facility is located on a mesa and not in a watercourse, lakebed, sinkhole or other depression. The location is safely above the high water level of the Animas River and any other watercourse in the vicinity.

(10) Evidence presented by the applicant shows that the design of the evaporation pits is adequate to contain all fluids with sufficient surface area.

(11) The design of the proposed ponds has been approved by the State Engineer.

(12) The geology of the proposed site and the distance to any fresh water is such that even if there were a catastrophic

failure if the liner and the full pond were to empty, there is virtually no probability that any fresh water would be contaminated.

(13) If the facility is constructed with a double synthetic lining and adequate leak detection on properly constructed base, and if a proper leak response program which will require prompt detection and repair is maintained, it is highly unlikely that fluids will contact the soil with no danger of contacting fresh water sources.

(14) The applicant proposed that the leak detection system be constructed with two inch collector and 1 inch lateral pipes, but that is not large enough to prevent blockage with accumulated sands and other solids, and the system should use four inch collectors and two inch main pipes.

(15) Intervenor objected to the location of the proposed facility because it is an area which may be used for residential purposes. The Division has no authority to disapprove a facility because the land use is incompatible with surrounding uses, but those uses may be a factor in establishing design and operational requirements to protect human health and the environment.

(16) Intervenor questioned applicant's witnesses and argued that the risk of hydrogen sulfide build-up and potential danger to nearby residents was a significant hazard for which the permit should be denied.

(17) Applicant presented an engineering witness who testified that H₂S build-up could be avoided by preventing anaerobic conditions from developing in the pond by supplying sufficient oxygen to the pond through the aeration system to maintain a residual oxygen level of at least 5 parts per million (ppm).

(18) The size of the aeration system necessary to maintain the necessary residual oxygen level is dependent upon the total oxygen demand of the pond, which can be reduced by insuring that no H₂S water is introduced into the pond and by chemically treating the water if the oxygen demand increases or H₂S is detected. A chemical engineer with the Division's Environmental Bureau confirmed that testimony.

(19) The applicant testified that wastewater delivered to the facility can be tested and treated in a closed system if H_2S is found to be present to prevent its introduction into the pond.

(20) The oxygen level of the pond can be measured regularly and additional aeration and chemical treatment with bleach can be used to eliminate anaerobic conditions before dangerous H_2S build-up occurs.

(21) The operator should be required to keep 1000 gallons of fresh bleach on location at all times in case of need, and stored bleach which has reached the manufacturer's shelf life should be disposed of in the pond.

(22) Air quality monitoring around the berm of the pond can detect the presence of H_2S gas at levels above 0.1 ppm, and remedial measures can be undertaken to eliminate the source before higher concentrations occur.

(23) The applicant should be required to have an emergency notification and contingency plan to be implemented in the unlikely event of H_2S levels reaching a level of 10 ppm at the fence line.

(24) The applicant's operational personnel should be fully trained at all times in the use of H_2S monitoring equipment and in the proper methods for reducing H_2S levels in the pond.

(25) The applicant proposes using a sprayer system to enhance evaporation from the pond.

(26) An enhanced sprayer is a reasonable method to enhance evaporation, but the design for such system should be approved by the Division before installation. It should have an anemometer with automatic shutdown system(s) to prevent spray drift from being blown beyond the confines of the ponds, and it should not be operated without an attendant on duty.

(27) Protester offered the judgment of the District Court of San Juan County in the case of Payne v. Basin Disposal, CV-87-569-1102 in support of their position that the permit should not be approved. The Division takes administrative notice of that decision.

(28) The judgment identified in finding (27) is limited to the facts of that case, and Protester did not offer into evidence any of the relevant facts of that case to support its argument.

(29) The applicant must post the reclamation bond as required by Division Rules and Regulations before beginning construction on the facility.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Sunco Trucking Water Disposal Company, is hereby authorized to construct and operate a commercial surface wastewater disposal facility at a site in the SW/4 NW/4 (Unit E), Section 2, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico, for the purpose of collection, disposal, evaporation or storage of produced water, completion fluids and other non-hazardous oilfield related waste. subject to the permit conditions.

PROVIDED HOWEVER THAT, the proposed disposal facility shall be constructed and operated in accordance with the permit conditions attached hereto as Exhibit "A" which are incorporated herein and made a part of this order, and in accordance with such additional conditions and requirements as may be directed by the Division Director from time to time, and shall be operated and maintained in such a manner as to preclude spills and fires, and to protect surface waters, ground waters, human health, livestock and the environment.

(2) Prior to constructing said facility, the applicant shall submit, to the Santa Fe office of the Division, a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

(3) Engineering designs for aeration systems shall be submitted to the Director for approval prior to construction.

(4) Engineering designs for the enhanced evaporation spray systems shall be submitted to the Director for approval prior to construction.

(5) The Aztec office of the Oil Conservation Division shall be notified at least 48 hours prior to the installation of

the primary liner to afford the opportunity for the Division to inspect the leak detection system.

(6) As-built drawings, certified by a registered professional engineer, shall be submitted to the OCD prior to initiating operations.

(7) The Director of the Division shall be authorized to administratively grant approval for the expansion or modification of the proposed disposal facility.

(8) Authority for operation of the treating plant and disposal facility shall be transferrable only upon written application and approval by the Division Director.

(9) Authority for operation of the treating plant and disposal facility shall be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(10) The leak-detection system between the primary and secondary liner shall be constructed with two (2)-inch laterals and four (4)-inch collector pipes.

(11) The aeration systems shall be designed to provide sufficient oxygen to the pond to maintain a residual oxygen concentration of 0.5 ppm (parts per million).

(12) The aeration systems shall be designed such that the oxygen requirements and residuals are provided without the use of the spray system.

(13) The aeration systems shall be designed to allow for expansion if the actual oxygen demand exceeds the oxygen demand uses in the design calculations.

(14) The permit granted by this order shall become effective only upon acceptance and certification by the applicant.

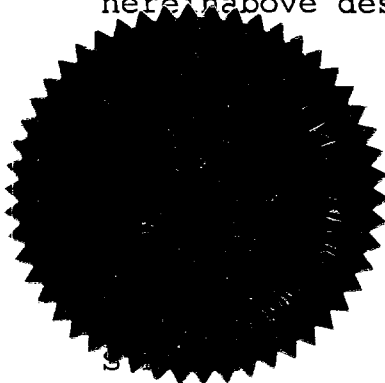
(15) The Division shall have the authority to administratively change any condition of this permit to protect fresh water, human health and the environment. Applicant may request a hearing upon any change which material affects the

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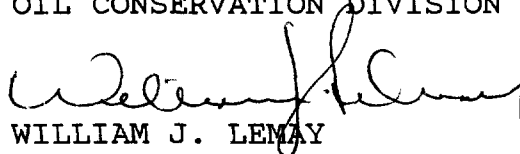
operation of the facility.

(16) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director

NEW MEXICO OIL CONSERVATION DIVISION

CASE 9955, ORDER R-9485
Exhibit A

**SURFACE DISPOSAL FACILITY PERMIT
INITIAL CONDITIONS FOR APPROVAL
SUNCO TRUCKING WATER DISPOSAL COMPANY**

I. Type of Operation

The major purpose of the facility shall be to dispose of salt water produced in connection with the production of oil and gas by evaporating such water in open pits using enhanced evaporation techniques as necessary and under those conditions which make such use safe.

Water shall be tested for hydrogen sulfide (H_2S) and treated, if necessary, in a closed system prior to introduction into a pond. Ponds shall be properly aerated to maintain oxygen levels as required by this permit. Contingency plans have been developed for H_2S buildup and for leaks as set forth herein.

II. Operator

The owner of the facility is:

Sunco Trucking Water Disposal Company
708 South Tucker Ave.
Farmington, NM 87401

III. Location of Disposal Pit

The facility shall be located at a site in the SW/4 NW/4 (Unit E), Section 2, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. Said facility shall be constructed in accordance with the site plan submitted to the Division at hearing subject to any modifications directed or approved by the Division.

IV. Expansion Request

This is an application for a new facility to be constructed upon issuance of this permit.

V. Land Ownership

The land upon which the facility is to be constructed is owned in fee by Sunco Trucking Water Disposal Company.

VI. Storage/Disposal Facilities Description

- A. The facility shall accept for disposal produced water, completion fluids and non-hazardous oilfield related waste for disposal
- B. Fluids shall be received in an open skim tank, subject to the requirements for treatment set forth herein. Oil and other hydrocarbons shall be skimmed off and placed in closed storage tanks until sold. Treated and skimmed water shall be placed in open, synthetically double lined ponds with approved leak detection system for evaporation. The skim tank, oil storage tanks and ponds are to be located as shown on the site plan submitted at the hearing, subject to any modifications or changes required or approved by the Division.

VII. Engineering Design

- A. The subject facility shall be constructed in accordance with the engineering designs presented at the hearing as applicant's exhibits no. 1, 2A, 2B, 3, 4 & 6 and in accordance with the following conditions and requirements set forth herein.

- B. General Construction Requirements

- 1. Location

- This approval is for the specific site and location identified. The location of any pit or pond shall not be changed from the submitted site plan without specific authorization from the Division.

- 2. Design and Construction

- a. The ponds shall have a minimum freeboard of eighteen (18) inches. If overtopping occurs at any time, the freeboard shall be lowered to prevent a reoccurrence.

Liner markings or some other device shall be installed to accurately measure freeboard.

- b. The pond shall be constructed so that the inside grade of the levee is no steeper than 2:1. Levees shall have an outside grade no steeper than 3:1.
- c. The top of the levees shall be level and shall be at least eighteen inches (18") wide.
- d. An aeration system shall be constructed to prevent anaerobic conditions from forming in a pond. Such system shall be able to provide sufficient oxygen in the pond to maintain a residual oxygen concentration of 0.5 parts per million (ppm) without the use of any spray system. The system shall be designed to permit expansion if actual oxygen demand exceeds the oxygen demand used in design calculations. Such plans and specifications, certified by a registered professional engineer, must be submitted to the Division for approval prior to actual construction.
- e. Upon completion of construction "as-built" completion diagrams of the ponds and aeration systems certified by a registered professional engineer shall be submitted.

3. Synthetically Lined Evaporation Ponds

- a. Materials -- Synthetic materials used for lining the evaporation ponds shall be impermeable flexible HDPE membrane as submitted in applicant's hearing exhibit no. 1, and no substitution of different material shall be made without prior approval of the Division.
- b. Leak Detection System
 - (1) A leak detection system of an approved design shall be installed between the primary and secondary liner. The Aztec district office of the Division shall be notified at least 48 hours in advance of the scheduled installation of the primary liner to afford the opportunity for a Division representative to inspect the leak detection system.

- (2) A network of slotted or perforated drainage pipes shall be installed between the primary and secondary liners. The main collector pipes shall be not less than four (4) inch diameter and the laterals shall be not less than two (2) inch diameter pipe. The network shall be of sufficient density so that no point in the pond bed is more than twenty feet (20') from such drainage pipe or lateral thereof. The material placed between the pipes and laterals shall be sufficiently permeable to allow transport of the fluids to the drainage pipe. The slope for all drainage lines and laterals shall be at least six inches (6") per fifty feet (50'). The slope of the pond bed shall also conform to these values to assure fluid flow towards the leak detection system. The drainage pipe shall convey any fluids to a corrosion-proof sump located outside the perimeter of the pond.

c. Preparation of Pond Bed for Installation of Liners

- (1) The bed of the pond and inside grade of the levee shall be smooth and compacted, free of holes, rocks, stumps, clods, or any other debris which may rupture the liner. If necessary to prevent rocks from damaging the liner, the pond bed shall be covered with a compacted layer of sand or other suitable materials.
- (2) A trench shall be excavated on the top of the levee the entire perimeter of the pond for the purpose of anchoring flexible liners. This trench shall be located a minimum of nine inches (9") from the slope break and shall be a minimum of twelve inches (12") deep.
- (3) The liner shall rest smoothly on the pond bed and the inner face of the levees, and shall be of sufficient size to extend down to the bottom of the anchor trench and come back out a minimum of two inches (2") from the trench on the side furthest from the pond. Wrinkles or folds shall be placed at each corner of the pond in accordance with manufacturer's specifications to allow for contraction and expansion of the membrane due to temperature variations.

- (4) The liners shall be properly vented in accordance with the design submitted as Applicant's Exhibit 2B.
- (5) An anchor of used pipe or other similar material shall be placed over the liner in the anchor trench and the trench back-filled. The anchor trench shall extend the entire perimeter of the pond.
- (6) The sand, gravel or geotextile membrane layers placed on top of the secondary liner shall be done in such a manner that the risk of tearing the liner is minimized.
- (7) At any point of discharge into the pond(s), no fluid force shall be directed toward the liner.

4. Spray Evaporation Systems

- a. Sprayer systems shall be included to enhance natural evaporation.
- b. Engineering designs for the sprayer system must be submitted for approval prior to installation. An anemometer with automatic shutdown systems shall be installed which will automatically deactivate the spray systems when wind-born spray drift can be carried outside the confines of the ponds.
- c. Spray systems shall be operated such that all spray remains within the confines of the lined portion of the ponds. The spray system shall be operated only when an attendant is on duty at the facility.

5. Skimmer Tanks

- a. Required Use
Skimmer tanks shall be used to separate any oil from the water prior to allowing the water to discharge into the evaporation pond.
- b. Design Criteria

The skimmer tank shall be designed to allow for oil/water separation only; oil shall be removed in a timely manner and stored in tanks. Per Division General Rule 310, oil shall not be stored or retained in earthen reservoirs or in open receptacles.

- (1) The material of construction and/or design shall provide for corrosion resistance.
- (2) Siphons or other suitable means shall be employed to draw water from oil/water interface for transfer to the evaporation pond. The siphon shall be located as far as possible from the inlet to the skimmer tank.
- (3) The skimmer tank shall at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation pond.

6. Fences, Signs and Netting

- a. A fence shall be constructed and maintained in good condition around the facility perimeter. Adequate space will be provided between the fence and levees for passage of maintenance vehicles. The fence shall be constructed so as to prevent livestock and people from entering the facility area. Fences shall not be constructed on levees.
- b. A sign not less than 12" x 24" with lettering of not less than two inches (2") shall be posted in a conspicuous place on the fence surrounding the facility. The sign shall be maintained in legible condition and shall identify the operator of the disposal system, the location of the facility by quarter-quarter section, township, and range; and emergency telephone numbers.
- c. 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, netting 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.

VIII. Spill/Leak Prevention and Reporting Procedures (Contingency Plan)

- A. Leak detection system sumps shall be inspected daily, and records of such inspections shall be made and retained and kept on file at the facility for OCD inspection at any time. If fluids are found in the sump the following steps will be immediately undertaken:
 - 1. The operator shall notify the Division Aztec District Office within twenty-four (24) hours;
 - 2. the fluids will be sampled and analyzed to determine the source; and
 - 3. the fluids will be immediately and continuously removed from the sump. Such fluids may be returned to the pond.
- B. If a leak is determined to exist in the primary liner, the operator will immediately undertake the following contingency measures:
 - 1. Introduction of fluids into the pond will cease.
 - 2. Enhanced evaporation will commence, provided atmosphere conditions are such that the spray systems can be operated in accordance with the provisions of this permit.
 - 3. Fluids will be removed from the pond utilizing evaporation and transportation to another authorized facility, until the fluid level is below the location of the leak in the liner.
 - 4. The liner will be repaired and tested and the leak detection system will be completely drained before resuming introduction of fluids into the pond.

IX. Operation and Maintenance

- A. **Requirements for receipt of fluid.**
 - 1. Disposal at this facility shall occur only when an attendant is on duty. The facility shall be secured when no attendant is present.

2. No produced water shall be received at the facility unless the transporter has a valid Form C-133 (Authorization to Move Produced Water) on file with the Division.
3. Only liquids that are non-hazardous by U.S. Environmental Protection Agency under Resource Conservation Recovery Act (RCRA) Subtitle C exemption or by characteristic testing will be accepted at the facility. Liquids and solids from operations not currently exempt under RCRA Subtitle C will be tested for appropriate hazardous constituents prior to disposal.
4. All liquids accepted for disposal shall be tested for hydrogen sulfide concentrations. All liquids with measurable hydrogen sulfide concentrations shall be treated in a closed system prior to introduction of liquids to any open tank or pond. The treatment reaction shall be driven to completion to eliminate all measurable hydrogen sulfide.
5. The operator shall keep and make available for inspection records for each calendar month on the source, location, volume and type of waste (produced water, spent acids, completion fluids, drilling mud, etc.), analysis for hazardous constituents (if required), date of disposal, and hauling company that disposes of fluids or material in the facility. Records of H₂S measurements and treatment volumes shall be maintained in the same manner. Such records shall be maintained for a period of two (2) years from the date of disposal.
6. The operator shall file forms C-117-A, C-118, and C-120-A as required by OCD rules.
7. Fluids shall not be accepted if introduction of the fluid will cause the pond freeboard to be less than that approved herein.

B. Pond Maintenance.

1. Outside walls of all levees shall be maintained in such a manner to prevent erosion. Inspections of the outside walls of the levees shall be made weekly and after any rainfall of consequence.
2. No oil shall be allowed in the pond(s).

C. General Operational Requirements.

1. Operating personnel shall be trained in the operation, calibration, maintenance and safety requirements of all test equipment used at the facility.
2. At least 1000 gallons of a treatment chemical shall be stored on-site and shall not be retained for a period in excess of the manufacturer's stated shelf life. Expired chemicals may be disposed of in the pond.
3. Prior to disposal, any accumulated sludge generated in the disposal facility shall be analyzed for composition and disposal pursuant to requirements determined by the OCD.
4. If any of the required systems become inoperative, the Aztec district office of the Division will be notified immediately.

X. Closure Plan

- A. When the facility is to be closed, the operator shall provide for removal of all fluids and/or wastes, back-filling, grading and mounding of pits, cleanup of any contaminated soils. Wastes shall be disposed of in accordance with statutes, rules and regulations in effect at the time of closure.
- B. 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.

XI. Flood Protection

- A. The facility will be constructed such that there will be no storm water runoff from the boundaries of the facility.
- B. The operator will immediately notify the Aztec district office of the Division of any flooding or washouts.

XII. H₂S Prevention and Contingency Plan

- A. In order to prevent development of harmful concentrations of hydrogen sulfide, the following procedures shall be followed:
1. Daily tests shall be conducted and records made and maintained of the pH in each pond, and if the pH falls below 7.0, remedial steps shall be taken immediately to raise the pH.
 2. Weekly tests shall be conducted and records made and retained at the facility of the dissolved sulfide concentrations in the ponds.
 3. Tests shall be conducted, and records made and retained at the facility of such tests, to determine the dissolved oxygen levels in each pond:
 - a. Tests shall be conducted at the beginning and end of each day, or at least twice per 24-hour period.
 - b. The sample for each test shall be taken one foot from the bottom of the pond.
 - c. The location of each test shall vary around the pond.
 - d. If any test shows a dissolved residual oxygen level of less than 0.5 ppm, immediate steps shall be undertaken to raise the oxygen level to at least 0.5 ppm, which measures may include adding bleach or increased aeration.
- B. In order to prevent any harm by hydrogen sulfide gas, Tests of ambient H₂S levels shall be conducted, and records made and retained. Such tests shall be made at varying locations around the berm of the pond and shall be conducted twice per day. The wind speed and direction shall be recorded in conjunction with each test.
1. If an H₂S reading of 0.1 ppm or greater is obtained:
 - a. A second reading shall be taken on the downwind berm within one hour;
 - b. The dissolved oxygen and dissolved sulfide levels of the pond shall be tested immediately and the need for immediate treatment determined;
 - c. Tests for H₂S levels shall be made at the fence line, downwind from the problem pond.

2. If two consecutive H₂S readings of 0.1 ppm or greater are obtained:
 - a. The operator shall notify the Aztec office of the OCD immediately;
 - b. The operator shall commence hourly monitoring on a 24-hour basis;
 - c. The operator will obtain daily analysis of dissolved sulfides in the pond.
3. If an H₂S reading of 10.0 ppm or greater at the facility fence line is obtained:
 - a. The operator will immediately notify the OCD and the following public safety agencies:

State Police
County Sheriff
County Fire Marshall;
 - b. The operator will initiate notification of all persons residing within one-half ($\frac{1}{2}$) mile of the fence line and assist public safety officials with evacuation as requested.

XIII. Additional Information

The operator shall notify the Division of any additional information change in conditions which may be relevant to this permit.

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XIV. Certification

Sunco Trucking Water Disposal Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sunco Trucking Water Disposal Company further acknowledges that this permit shall not become effective until Bond satisfactory to the Division is posted and that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect fresh water, human health and the environment.

Accepted:

SUNCO TRUCKING WATER DISPOSAL

COMPANY

by _____
Title