

# WAYNE B. NORRIS

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## Environmental Engineer / Scientist

### SUMMARY

- Several decades of developing environmental plans and reports for multiple audiences.
- Over 10,000 pages written, including oil spill manuals, air quality compliance documents, user documentation, patents, legal briefs, press releases, sales and marketing materials, company manuals, ISO 9001 compliance manuals, and draft legislation. I have submitted compliance plans to, and worked with, EPA, DOT, DOE, MMS, FAA, NTSB, USCG, California Department of Fish & Game, OSHA, numerous local APCDs and AQMDs, and the California State Lands Commission.
- Broad career experience in the environmental, engineering, commercial, and research communities.
- President and founder of Norris Associates, an environmental firm formerly in Santa Barbara
- Experience in air and water pollution and abatement procedures, hazmat, and compliance
- Extensive management and program planning experience
- Extensive field work.

### ENVIRONMENTAL EXPERIENCE

#### Chief Scientist, Morton Associates, Santa Barbara, CA

I was the Senior Scientist and Principal Author of the Oil Spill Emergency and Contingency Plans (OSCEPs) for 8 offshore oil platforms operated by Chevron, which included both liquid and gas release events, with both paper and computer based deliverables. I was also the Senior Scientist for extensive work involving numerous land-based facilities, including oil and gas wells, production facilities, refineries, and crude and product pipelines in the Santa Barbara, Kern, San Luis Obispo, Kings, Fresno, Merced, Stanislaus, San Joaquin, and Contra Costa Counties. The work covered oil spills, fugitive and event-based gaseous emissions, prevention technology, abatement technology, and disaster planning. I authored the *Commercial Fisheries Handbook for Proposed Exploratory Drilling Operations, Cavern Point Unit*, and was a contributing scientist in related documents. I also participated in financial assessments of Unocal properties during its US domestic asset sale. I had 3 direct reports and a staff of 7. In this role, I performed large amounts of field work, including tracing pipelines, measurements of various process plant data, field botany, samples collection, and conducting drills.

#### Environmental Engineer, McCloskey Associates, Santa Barbara, CA

I created the Fugitive Air Emissions program for the Unocal Northern Santa Barbara County facilities, including the software and the written procedures.

#### President, Norris Associates, Consultants, Santa Barbara, CA

I created and ran an environmental consulting firm with 6 employees. Projects included:

- Residential developments;
- A power plant in Omaha, NE;
- The Hyperion Sewage Treatment Plant in Los Angeles, CA; and
- Oil drilling offshore Orange County, CA.
- Aerial magnetometer drupe surveys, northern Santa Barbara County

We developed oceanographic, thermal plume, and atmospheric chemistry software and used fuzzy set theory to model governmental decision making.

Resume of Wayne B. Norris

**Software Analyst, Ecomar, Inc., Santa Barbara, CA**

I wrote the water column analysis software for the sedimentation monitoring activity during the Exxon Tanner Bank Exploratory Drilling Project.

**Software Analyst, Oceanographic Services, Inc, Santa Barbara, CA**

I wrote statistical wave-height analysis software for oil activities in the North Sea, South Africa, and Indonesia.

**Independent Consultant, Santa Barbara, CA**

I wrote atmospheric chemistry and physics software for exhaust plume releases from Titan IV launches at Vandenberg AFB [incorporating synoptic winds, UDMH/N<sub>2</sub>O<sub>4</sub>/Al<sub>2</sub>O<sub>3</sub>/NH<sub>3</sub>/H<sub>2</sub>O entrainment.

**Physicist, Rockwell International Science Center, Thousand Oaks, CA**

I did microwave research in support of the first Environment Impact Statement ever written under NEPA guidelines in California, the Ormond Beach Power plant initial study.

**EDUCATION**

UCSB: B.A. Physics

UCSB: Postgraduate Advanced Mathematics and Physics, Human Factors, and Ergonomics

University of Texas, Austin: Professional Certificate, HAZOPS and Risk and Management

Santa Barbara City College: Courses leading to designation as a CPA

## Wayne B. Norris Environmental and Safety Engineering Experience and Capabilities [*reproduced from my website*]

**ENVIRONMENTAL WORK:** I was Chief Scientist for the firm that produced the Oil Spill Contingency and Emergency Plans [OSCEPs] for the Chevron oil platforms in the Santa Barbara Channel, one of the most environmentally sensitive areas in the world, and a principal author of those Plans.

I served in a similar capacity for the OSCEP for the over-300-mile Kettleman-Los Medanos-Richmond ["KLMR"] pipeline running thru the backbone of California's San Joaquin Valley. I performed scientific work on Santa Barbara's coastal Phillips Gas Plant abandonment project, California's Estero Bay coastal oil tanker terminal, and the Gosford production field in Bakersfield, CA. I created a fluid flow mathematical simulation using the Navier Stokes equation for predicting spill volume prior to response for varying pipeline topologies, puncture geometries, oil gravities, and oil temperatures. I created a current, wind, and bathymetry mathematical simulation of land and ocean oil surface spreading. I created a seismic damage simulation for oil related facilities.

I also did preliminary studies for possible LNG transport accidents from Valdez, Alaska to Yokohama, Japan, as well as numerous other oil and gas related projects. These OSCEPs and plans were responsive to regulations of the EPA, DOT, DOE, MMS, FAA, NTSB, USCG, California Department of Fish & Game, OSHA, numerous local APCDs and AQMDs, and the California State Lands Commission.

I wrote the *Commercial Fisheries Handbook for Proposed Exploratory Drilling Operations, Cavern Point Unit*, the MMS-required handbook describing the relationship between oil activities and the 46 distinct fisheries in the Santa Barbara area [I had previously worked as a commercial sea urchin diver in the same waters]. I developed INSP, the relational database management computer software system for air pollution maintenance and monitoring used by Unocal's northern Santa Barbara oil facilities. I also performed economic analysis of Unocal's California properties sale to Torch Petroleum and Venoco, Inc.

I worked on pipeline safety studies for Pacific Offshore Operators International [POOI], and I developed and taught oil spill and emergency response classes for Shell Western Exploration and Production [SWEPI].

I was part of the team that produced California's first Environmental Impact Report, in 1971, for Ventura County's Ormond Beach power plant. The report was responsive to the California Environmental Quality Act [CEQA], which was the model for the National Environmental Protection Act [NEPA], enacted shortly thereafter. I later did hazardous materials analysis at Vandenberg Air Force Base relating to Minuteman missile launches and rocket fuel spill and storage problems [unsymmetrical dimethyl hydrazine, nitrogen tetroxide, ammonia, and entrained water vapor]. Soon after, I formed my own company to do environmental work, doing projects that included Los Angeles's Hyperion Sewage Treatment Plant ocean outfall next to Los Angeles International Airport, residential developments in the City of Carpinteria, CA, and a nuclear power plant for the Omaha, Nebraska Public Power District [OPPD] [never built].

I performed sedimentation and drilling plume analysis for the Exxon Tanner Bank exploratory drilling project, and did North Sea oil exploration impact studies for the Government of Scotland, including wave height and wind speed statistical models.

Earlier, I worked as an oilfield diver/tender on the SEDCO 702 semisubmersible rig for Petroleo do Brasil [Petrobras] in the Compos offshore oilfield in Brazil.

**SAFETY ENGINEERING:** I have performed numerous engineering activities directed toward safety issues, including writing hundreds of documents explaining the safe and proper use of equipment and procedures to diverse audiences, including the general public, the aviation community, the petroleum industry, the aerospace community, and the computer community.