

DOCKET NO. 027

RAILROAD COMMISSION OF TEXAS

APPLICATION OF ANACONDA COPPER COMPANY
FOR SURFACE MINING AND RECLAMATION
PERMIT: RHODE RANCH PROJECT,
McMULLEN COUNTY, TEXAS.

TO THE HONORABLE RAILROAD COMMISSION OF TEXAS:

PREPARED TESTIMONY OF

GLEN R. DAVIS

Robert Wilson
C. Morris Davis

ATTORNEYS FOR APPLICANT

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8007110457

AFFIDAVIT

Glen R. Davis, of lawful age being first duly sworn, deposes and states:

1. My name is Glen R. Davis. I am Manager appearing on behalf of the applicant in the above captioned case.
2. Attached and made part hereof for all purposes is my testimony consisting of pages 1 through 11, inclusive.
3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

Affiant

I, _____, a notary public in and for _____ County, Texas, hereby certify that Glen R. Davis personally appeared before me on June _____, 1980, and, after being sworn to tell the truth, the whole truth and nothing but the truth, signed the above affidavit.

SUBSCRIBED AND SWORN TO me this _____ day of June, 1980.

Notary Public, In and for
_____ County, Texas

My commission expires:

PREPARED TESTIMONY OF GLEN R. DAVIS

1. Q. Please state your name, title, and affiliation.
A. Glen R. Davis, Manager, South Texas Uranium Projects, Anaconda Copper Company.
2. Q. Please state your professional qualifications and experience.
A. I am a practicing engineer and have had substantial experience in mining. My qualifications are more fully described in Exhibit A annexed hereto.
3. Q. Was the application for a surface mining operation permit made by Anaconda Copper Company to the Railroad Commission of Texas prepared under your supervision and verified by you?
A. Yes. As manager for South Texas Uranium Projects I was directly responsible for the preparation and filing of an application for a surface mining operation permit for the Rhode Ranch project. I was duly authorized by requisite management approval to file such application on behalf of the company. I personally reviewed each and every statement in the application and approved each statement as accurate. My approval of each statement was based either upon my own personal knowledge, or upon the basis of information customarily relied upon by myself and others in similar positions to conduct the day-to-day business affairs of the company. The application was filed on Form MS-3 as promulgated by the Railroad Commission of Texas. I have a copy of it before me and will refer to the application from time to time in my prepared testimony.
4. Q. Does the application state the name and give the address of management responsible for the application and the contemplated operations?
A. Yes, this information is given in Section I.A of the application.
5. Q. Who owns Anaconda Copper Company?
A. It is a wholly owned subsidiary of Atlantic Richfield Company and is the only affiliate of that company engaged in surface mining in Texas.
6. Q. Are the statements made under the general information section of the application with respect to location, the type of permit application, product to be mined, types and method of mining operation, and other surface mining permits or other permits or licenses pertaining to mining aspects of the Rhode Ranch project true and correct?
A. Yes. As indicated in Section I.F.2 of the application, an application for a Permit to Construct from the Texas Air Control Board and an application for a Radioactive Material License from the Texas Department of Health Resources will be filed for the Rhode Ranch project. A "no discharge" permit application will also be submitted to the Texas Department of Water Resources.

7. Q. In Anaconda's permit application on page 2 of Form MS-3, under provision I.F.3. Anaconda lists steps that have been or will be taken to comply with applicable air and water quality and water rights laws and regulations and applicable health and safety standards. Are you familiar with these and has Anaconda taken or will it take the steps described?

A. I am familiar with the applicable air, water quality, water rights, health and safety requirements for the Rhode Ranch project and to the best of my knowledge Anaconda has taken or will take such steps as necessary to comply with such requirements.

Planning activities for the project have included extensive reviews of applicable laws, regulations and standards along with discussions with appropriate agencies. As a result of these activities, Anaconda is applying for the required permits and approvals, and is proceeding with design of the mine and facilities in a manner that will comply with the various laws, regulations and standards.

8. Q. What steps have you taken or will you take with respect to maintaining air quality and complying with the laws protecting air quality?

A. As indicated in Item I.F.3. of our application, the haul roads from the mine to the plant will be topped with asphalt to minimize dust. The pits are normally slightly damp which prevents blowing dust from the haul trucks. All roads will be watered down if dust becomes a problem.

Air samplers have been installed at the site.

Additionally, planned vegetation cover on the overburden pile should minimize the dust problem.

9. Q. What about water quality and water rights?

A. We will not be using surface water from water courses so water rights laws are not a problem. There is no surface water in the area. Our plan of operation results in the retention and use in the mill of all storm waters from working areas of the mine. There is no groundwater which will be impaired by the operation.

10. Q. What is the permit area proposed for the Rhode Ranch project?

A. There has been a change in our request for permit boundaries from that originally submitted with our application. Originally we asked that the boundary of the permit area be drawn to include as a part of it all of Survey 30 and all of Survey 60. However, we are now asking that the boundary of the permit area be changed to exclude all of Survey 30 and to exclude all of Survey 60 except the following portions of the NE quarter: NE-1/4 of NE-1/4 of Survey 60; and W-1/2 of NE-1/4 of Survey 60.

A map of the new boundary area has been prepared and will be submitted as an exhibit during the hearing.

11. Q. Upon what basis does Anaconda assert that it has the legal right to surface mine the area included within the permit application?
- A. The basis is set forth in I.G.1. of the application and the tables supplied with reference to that section.
12. Q. Has Anaconda submitted a list of leases and information pertaining to those leases to the Commission?
- A. Yes. The information was submitted to the Commission in a letter addressed to Carmen Ramos on June 6, 1980.
13. Q. Has Anaconda ascertained the legal and equitable interests of record in the surface and mineral estate of the permit area and in the surface estates of land located within five hundred (500) feet of the permit area?
- A. Yes. Two general methods were used to ascertain this information. Abstracts of title were obtained from the local abstract company and examined by a licensed attorney.
14. Q. Did Anaconda also identify the public bodies having jurisdiction over or in the locality of the proposed surface mining?
- A. Yes. Such information is given in Section I.G.(2) of the application.
15. Q. Have you ascertained the names and addresses of persons currently residing on the property included in the permit area?
- A. Mr. Roger Braune resided within the permit area at the time the permit application was filed. He has moved and no one currently resides within the permit area.
16. Q. What are the relocation plans for oil wells, pipelines, roads and other easements within the area?
- A. Arrangements for interested persons and owners have or will be made to relocate such improvements in accordance with all applicable governmental laws, rules and regulations.
17. Q. Have you provided with the application the maps and engineering drawings called for by Section I.E.3 and by Section II of the application?
- A. Yes. Maps and drawings showing the required information in the form requested have been included as exhibits to the application and are identified by reference in the application. I have examined such maps and drawings. Among other information the maps identify the entire area to be mined and affected over the entire life of the mining project. Based upon my knowledge of the area from on the ground inspections and reports made to me, I am of the opinion the maps and drawings are accurate in all material respects.
18. Q. What equipment does Anaconda propose to use in the mining operation?

- A. An equipment list is in Table XII.B. attached to the application. The list reflects the type and approximate number of equipment which we plan to use.
19. Q. Describe generally the proposed mining operation.
- A. The mining operations will take place within the permit area in those places delineated on Exhibits II.B.1., II.B.2., II.B.3., and II.B.4. submitted with the application. These exhibits reflect the area in which uranium exists and the mining plan. A description of our plan of operation is found in Part III of the application titled "Operations".
- Initial mining operations will involve removing topsoil from the area designated as Phase I on Exhibit II.B.1. The topsoil will be used to construct berms and dikes as shown on that exhibit.
- Overburden will then be removed to allow us to reach the ore. We estimate that about three million cubic yards of overburden will be removed to a location shown on Exhibit II.B.1. The overburden pile will be diked to control runoff and its sides will be graded to a four-to-one slope. Approximately 85 to 90 percent of the overburden sediments are unconsolidated. A few sandstone beds are cemented with calcium carbonate.
- The average depth of the ore is 105 feet. Its average thickness is 4 to 5 feet. Total ore depth is unknown at this time but it is not expected to exceed 200 feet. Ore production is expected to be approximately 180,000 tons per year.
- There will be a mill operation conducted within the permit area in conjunction with the mining operation.
20. Q. Are there any changes for the operations statement of the company made in its application?
- A. Yes. Originally we planned to dewater tailings at the mill, place the tailings in a storage area, use the water decanted as make-up water for the mill and then truck the tailings back to the pits for burial. We may still follow that plan, but we may in some or all instances transport the tailings back to the pit, then decant water from them. In that instance, water from the tailings will be handled like we plan to handle rainfall in the pits and used as mill make-up water.
- 20A. Q. Give your estimates of pit size and dimensions.
- A. This information is given in Part III.C.2 of the application. This information was prepared by persons acting under my general supervision and I affirm those statements.
21. Q. What is your anticipated mining schedule?
- A. You are referred to Section III.D. of the application wherein Anaconda has set forth a general mining schedule for the proposed years of operation 1981 through 1986. This schedule is a reasonable estimate.
22. Q. Was there a field analysis made of the characteristics of overburden and mineral?

- A. Yes. We described what we found and how we determined the information in Part IV.A. of the application.
23. Q. What type of groundwater investigation was made?
- A. Anaconda employed Ed L. Reed & Associates to provide a geohydrologic investigation of the permit area for the purpose of analysis for mining and tailings disposal. A representative of that concern will also be a witness here today.
- Generally, there is not any groundwater in the vicinity of the initial mine site area.
24. Q. Did your company look at water wells in the vicinity?
- A. Yes. Part IV.B.2. of our application reports the results of our findings. The report of Ed Reed & Associates also examines wells in the vicinity of the site.
25. Q. Did the company obtain samples of water from wells within the stratum affected by mining?
- A. No, because there is no known groundwater and no known wells which will be affected. However, Anaconda does plan to obtain a water sample from all wells listed in Table IV.B.2 and analyze the sample for radionuclides as a part of the application to the Texas Department of Health.
26. Q. What are the anticipated hydrologic consequences of mining?
- A. No impact on the groundwater will occur from the mining operation. The limited aquifers of the Catahoula Formation are stratigraphically below the ore zone and are separated by several hundred feet of clay. The ore zones of the Oakville are in dry sands.
- There is one significant drainageway that will have to be diverted during mining operation and will be re-established during reclamation of the area.
27. Q. What are the company's erosion and siltation control plans for water and wind erosion?
- A. Anaconda plans to control erosion and siltation of affected lands by construction of diversion berms and a revegetation program. Placement of berms and dikes is shown on Exhibit II.B.1, 2 & 3.
- A retention dike of approximately 3 feet in height constructed of topsoil will be placed near the edge of the flat top overburden pile. The top will be constructed to facilitate rainfall infiltration. Only a small amount of rainfall should drain from the top of the pile. Rainfall that drains from the sides of the pile will be trapped at the base of the pile by a retention dike constructed of topsoil. The collected water will be disposed of by evaporation or used in the mill or mining operation.
- The overburden pile will be covered with soil and seeded to grass.
- No wind control structures are planned.

28. Q. What will be done about potential dust problems?
- A. As I said earlier, the haulage road to the mill will be topped with asphalt. Should dust from roads become a problem, the roads will be sprayed with water.
- Some dust could come from the overburden stockpile, so it will be seeded with a grass mixture.
- Ore in trucks is expected to be moist. The stockpiles at the mill will be kept damp by a spray system if a blowing dust condition occurs.
29. Q. What are your proposed plans for dealing with toxic materials including acid drainage?
- A. The only toxic material anticipated will be rainfall that falls into the pit and dissolves uranium from the ore. Whenever there is a large accumulation of rainfall within the pit, it will be pumped out and placed in the mill process stream. There will be no acid mine water.
30. Q. What will be done with debris, and materials constituting a fire hazard?
- A. The mine and mill will be kept free of material constituting a fire hazard and debris will be cleaned from the site, or buried.
31. Q. Are the methods described for treating or disposing of debris, acid-forming materials, toxic materials or materials constituting a fire hazard designed to prevent contamination of ground or surface water or combustion?
- A. Yes, they are.
32. Q. What do you anticipate will happen to wildlife during mining?
- A. During mining, wildlife will probably relocate to an area outside the affected area. Large undisturbed areas adjacent to the pit will be available for wildlife use. After reclamation the area will be attractive to some forms of wildlife. Adjacent areas will provide ample, suitable habitat for wildlife during operations.
33. Q. Will you have a tailings pond?
- A. Not unless the Nuclear Regulatory Commission and the Health Department reject our plan to return the tailings to the lined pit areas. We do not presently plan to use a tailings pond.
34. Q. What will you do with the tailings?
- A. If necessary, a pad for holding tailings prior to transporting them to the mine pit will be constructed at the mill site. This pad will have a drainage sump. Drainage entrapped in the sump will be returned to the plant processing stream.
- Prior to burial, tailings will be dewatered, and then will be buried at approximately the same depth from which they came with a moisture content less than saturation.

35. Q. How will you deal with runoff water?
- A. The soil that is stockpiled during mining operations will be utilized to build temporary berms that will divert rainfall runoff around the open pit. The temporary storage of overburden will be surrounded by a dike to control a maximum ten year 24-hour rainfall.
- During Phase I mining a small retention pond will trap a portion of the rainfall runoff on the northwest side of the mine pit. This drainage retention basin will be removed when Phase I is approximately one-half completed. Berms and other catch basins will be used as needed during mining to prevent contamination of natural surface runoff.
36. Q. Does Anaconda plan any permanent water impoundments?
- A. No.
37. Q. Will there be a discharge from a point source from your operations?
- A. No.
38. Q. Do you intend to use explosives?
- A. If necessary a minimal amount of explosives will be used for breaking consolidated sandstone. One sandstone bed ranging from one to twelve feet in thickness is known to be present immediately above the ore bearing zone. This zone may be shot with explosives with an overburden of clay left in place. The clay approximately ten feet in thickness will prevent rocks from being ejected from the pit and will facilitate the break-up of the consolidated layer. No adverse effects are anticipated.
39. Q. Have you determined the topsoil characteristics?
- A. Table 5.3 lists the analyses of soils in the permit area. The information was supplied by the firm of Camp Dresser & McKee. A representative from that firm will testify in this hearing.
40. Q. How will you handle topsoil?
- A. Topsoil will be removed as the pit progresses. Topsoil will be segregated as it is removed. Topsoil will be stored adjacent to the pit boundary on the upslope side in a narrow berm to prevent runoff into the pit. Topsoil will be replaced following overburden replacement in the reclamation process as soon as the berms are no longer needed. Grass will be planted on stored topsoil in the short storage interim preventing water and wind erosion.
41. Q. When topsoil is replaced, what will be the average depth of the topsoil? Is there sufficient topsoil available for the planned reclamation?
- A. There is sufficient topsoil for the planned reclamation and the topsoil will be replaced to an average depth of two feet on top of the land to be reclaimed.
42. Q. What is the present condition of the land to be covered by the permit?

- A. As discussed in Part VIII.A.1. of the application, the land is in pasture for cattle grazing. About ten percent of the permit area is under an active brush control practice. About three percent is in improved pasture and the rest is covered with native brush.

The dominant native grasses consist of gramma, buffalo, mesquite and threeawn. The shrubs and trees consist of blackbrush, mesquite, Texas prickly lime, white brush and guajillo.

There are no scenic sites or visible and unusual geologic formations. No archaeological, historical or cultural sites have been found, and none are registered in the National Registry of Natural Landmarks or in the Texas Historical Commission's records. The Texas Historical Commission in its comments suggested an on-site archaeological survey be conducted. Anaconda has contracted with Texas Archaeological Research to conduct such a survey. All of the areas to be distributed will be surveyed both horizontally and vertically. Horizontal boundaries will be expressed in maximum and minimum site measurements ordinated with the cardinal points. Vertical boundaries will be established by a series of minimally destructive probes.

The survey is now being conducted. The results will be reported to the Texas Railroad Commission. Any sites of significant potential archeological or cultural value shown in the report will not be disturbed until the Railroad Commission has had an opportunity to evaluate the report.

There are no surface waters except for stock tanks.

The average elevation is 500 feet with a range from 400 to 580 feet. Average annual rainfall for a 26-year period was 23 inches (see Texas Water Development Board Report 64) based on interpretation from nearest National Weather Bureau Stations.

The average wind speed and direction based on a thirty-year period for San Antonio is 9.3 mph and SE. These data came from the U. S. Dept. of Commerce National Oceanic and Atmospheric Administration/Environmental Data Service. The primary difference for McMullen County is that there will be a slight increase in wind speed.

43. Q. What is the present use capability of the land involved?
- A. The land is capable of being developed into an improved pasture in the drainage areas at lower elevation where the soil is deepest. Improved pasture consists of brush removal, root plowing and seeding to a non-native grass. Periodic mowing for brush control may be necessary where the grass is cut for hay. The native pastures will support approximately one animal unit per 20 acres.
44. Q. What is the intended use after reclamation?
- A. All disturbed land will be restored to pasture and drainage ways will be restored. The land will initially

be free of brush but, without special controls, the brush will return over the long term. Pasture land will as much as double the original capacity for grazing. There are no practical alternative uses for the land.

45. Q. Describe how the proposed post-mining land condition is to be achieved.
- A. As noted in the application all mine pits will be backfilled and topsoil will be replaced upon the overburden and contoured by graders to approximately the original topography. The newly replaced soil will be seeded in the spring although some seeding may occur in early fall. Irrigation will not be practiced because of the lack of water. The reclamation cost is estimated to be \$2,000 per acre. Approximately 37 acres per year will be reclaimed in the initial mining phase.
46. Q. What is the general timetable for reclamation?
- A. The anticipated reclamation schedule is in Item VIII.B. of our application for the initial pit. Reclamation areas for subsequent pits will probably be at about the same schedule if they are similar in size.
47. Q. What will be done to reduce highwalls, spoil piles, and banks to control erosion and sustain vegetation?
- A. There will not be any highwalls left after mining. The original spoil pile for the initial pit will be removed and placed in the last remaining pit. The stockpiled topsoil will be spread upon the overburden and after contouring will be planted to grass. If erosion appears to be a problem in drainage areas, it will be controlled by low relief water bars and seeding the area with pindown mats.
48. Q. Describe your plans for revegetation.
- A. Planting will be by conventional methods. Topsoil will be seeded to grass after it has been replaced when the season, local weather conditions and soil conditions are suitable for seed germination. The Soil Conservation Service and the landowners will be consulted about the selection of grass. Test plots will be prepared to aid in grass selection. Fertilizing will take place where soil nutrient analyses indicate a need and, prior to final restoration, appropriate agencies will be consulted so a determination of proper rates of application can be made.
49. Q. How will vegetation be maintained until final bond is released?
- A. No animals except wildlife will be permitted to graze the pasture grasses until established. If a good cover is not established from original planting additional planting will be made until a suitable stand is obtained.
50. Q. Do you anticipate that any standing water will be left by the company's operations?
- A. No.

51. Q. How will final closing and the last steps of reclamation be accomplished?
- A. Upon final closing of any pit, the temporary stockpile of overburden will be placed in the last remaining open pit. The area will be reclaimed to pasture grass after replacement of the soil. The Anaconda Copper Company plans to practice good housekeeping at all times which will minimize debris at the operation. All equipment and scrap will be removed from the premise; roads not desired by the landowner will be plowed and seeded to grass. All fences will be restored per the landowners request.
52. Q. You have previously testified as to the mining plan and engineering techniques that will be used in the project. Based upon your knowledge, will the proposed mining plan be consistent with prudent mining practices so as to maximize the utilization and conservation of the resources being recovered?
- A. Yes.
53. Q. Considering the present and past uses of the land, does the present reclamation plan result in the affected land being restored to a substantially beneficial condition?
- A. The prevailing use is for agriculture and mineral development. This is the same use for which the land will be suitable after reclamation.
54. Q. In your opinion, can the mining and reclamation required by the Texas Uranium Surface Mining and Reclamation Act be accomplished by the methods proposed in Anaconda's application?
- A. Yes.
55. Q. In your opinion, will the proposed operation endanger the health and safety of the public?
- A. No.
56. Q. Are there any active or abandoned underground mines within or near the permit area?
- A. No.
57. Q. Do you plan to proceed with reclamation efforts as contemporaneously as practicable with the surface mining operation?
- A. Yes.
58. Q. Are there any auger holes to be filled?
- A. No auger holes are planned.
59. Q. Will Anaconda assume responsibility for revegetation as required by the Uranium Surface Mining and Reclamation Act?
- A. Yes.

60. Q. Will there be any cuts within 100 feet of any unplugged oil and gas well, or within 150 feet of any outside line of the right-of-way of any public highway, boundary of any national park, national monument, national historic landmark, property listed on the National Register of Historic Places, national forests, national wilderness area, national wildlife refuge, national wildlife and scenic areas, state park, state wildlife refuge, state forest, recorded Texas landmark, state historical sites, state archaeological landmark, city or county park, public road, public building, cemetery, school, church, or existing dwelling?
- A. No. No cut is planned within 100 feet of any oil or gas well until and unless appropriate arrangements have been made with the persons affected or the well is properly plugged. No cut will be made within 150 feet of a county road.
61. Q. In your opinion, does Anaconda's application for a uranium surface mining and reclamation permit for its Rhode Ranch project comply with the Texas Uranium Surface Mining and Reclamation Act, and all other federal and state laws?
- A. I have reviewed all aspects of the application with the company's legal counsel. In my opinion the application satisfied the requirements of the appropriate Acts.

EXHIBIT A

RESUME - GLEN R. DAVIS

Name: Glen R. Davis

Education: Master of Science degree from the University of Michigan. This degree is in Chemical Engineering.

Position: Manager South Texas Projects for Anaconda Copper Company.

Experience: Oil and Gas Production - Five years with Shell, 12 years with Amoco, 22 years with Sinclair, Atlantic Richfield and Anaconda. Uranium experience began in 1974 when I was asked to design and build the Clay West project now operated by U.S. Steel.

Duties: Management of the affairs of Anaconda in the South Texas Area. This involves only uranium production at the present time. We have an office in the Bank and Trust Tower in Corpus Christi and are developing a uranium mine and mill in the southeast corner of McMullen County.