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برنامج تقدير موارد الثروة المعدنية والبتروولية والمياه الجوفية  
MINERALS, PETROLEUM & GROUNDWATER ASSESSMENT PROGRAM

To: Project Officer, S. Arrif

From: Project Coordinator, D. T. Snow

Subject: Bimonthly Report for period November 23, 1983 to  
January 23, 1984.

re Contract NEB-0150-S-00-3035-00, ID2

AID Project 263-0105

Egyptian Academy of Scientific  
research and Technology

Desert Research Institute

Egyptian General Petroleum Corporation

Egyptian Geological Survey  
and Mining Authority

Remote Sensing Center

Your Ref.

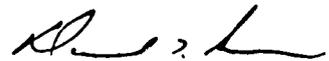
Our Ref.

Date

The attached bimonthly report is submitted herewith.

The Project Coordinator has completed the reporting of activities during this period November 23, 1983—January 23, 1984 in a manner not wholly to his liking. The sketchy paragraphs that follow were written concurrently with the more complete report for the period January 23—March 23, 1984. Of all the activities during the first period, report writing was most neglected for lack of available time. Subsequent to my wife's arrival, January 15, a major part of my time has been necessarily devoted to : a. escorting her to the infirmary for respiratory ailments brought on by Cairo dust and exhaust and by an unheated apartment (a contract for my driver was stalled for 9 months by AID, thus I did the driving.), b. searching for a missing suitcase, lost in transit to Egypt via TWA, c. trying to soften the cultural and environmental shock that threatened to deprive me of her continued presence, d. shepherding invoices for pay and allowances through the AID offices; which have in most cases been unable to provide 30-day turnaround, so essential to personal finances. I wish to have it understood that lack of support facilities for a contractor lacking a company structure can and has materially reduced my effectiveness in providing personal services. The category of Personal Services Contractor is so new and untried in AID that no precedent nor adequate preparation for this position has been available. I could work 60 hours per week to make up for the many local inconveniences before my wife arrived. On any schedule approximating 40 hours per week after her arrival, I have had to spend prime working time on domestic matters that cannot be handled after business hours, matters that would be provided by a contractor's organization. Transportation and shipping instructions, for example, were only available by telephone from AID/Washington, and they proved to be unsatisfactory. Customs clearance in Egypt has been especially time-consuming, as a result. In the immediate future, I am obliged to provide kitchen and other electrical appliances to a new residence, which effort can easily consume a month's time via the complex process of the Duty-Free Shops, whereas Embassy people have a warehouse of equipment to tap.

I am writing this, not so much to excuse myself as to help my successors, if any, in this PSC category. The cost to the government, in lost time, I would count in the tens of thousands of dollars since January. I recommend no personal services contracts be awarded unless they be factored into the support organization available to direct-hire personnel.



David T. Snow

## Egyptian Geological Survey and Mining Authority

### Task I      Regional mapping

The Wadi Qena metallogenic map is finished and ready for printing. Paper has been ordered by Bendix, so that it can be done in Cairo. The Wadi Kuffa and Ras Benas sheets have been delivered by the editor, and these will soon be finished. The cartography section is working on the 1:500,000 map series.

### Task II      Geophysical and Geochemical Studies

Aeroservice Co. is flying Area II out of Aswan. Winter wind conditions in the Red Sea Hills has interfered with the schedule. Preliminary stacked profiles and intensity maps are being delivered for areas I, IA, and III. Dr. El Hakim of EGSMA departed for Houston to review the production, and negotiations with Prof. William Hinze of Purdue Univ. are being conducted, to provide quality assurance. Some anomalies have already been detected, especially Uranium from the Duwi phosphates around Kom Ombo, and Potassium anomaly near Bahariya Oasis.

On a field trip to S. Sinai Dec. 29-30, 1983, it was decided to delete electrical exploration at Wadi Kat, but to survey Wadi Samra, where mineralization may underlie the alluvial fill. This work is in progress.

Geochemical survey work is being done by three field parties: the Talaat Godalla and Dongash gold mine areas, and W. of Abu Simbel, where the British reported copper shows.

### Task III      Economic Viability and Estimation of Potential Reserves

The potash exploration hole S. of Ras El Behar has been drilled and geophysically logged by EGSMA to 160 m. Then it was cased and cemented to 140, to prevent any circulation problems for deeper intervals. It is in Zeit Formation anhydrite and shale.

The gypsum program is being conducted by one Zif 150 drill rig and geological party at Gemsa. After reconnaissance work by Snow and A. M. Kamel, a pattern of 6 drill holes was laid out to explore a bench 10 m above sea level, where hydration is most likely to be complete. No report of the drilling is on hand as yet.

Gold mine evaluation and rehabilitation is underway at Umm Rus and Atud. Shaft repairs and dewatering will be necessary, to open the 2nd and 3rd levels. Surface mapping is being done at each, and a sampling program to extend the reserves is underway. A drill rig has been placed underground at each mine, to begin a systematic exploration of the wall-rocks, hoping to increase the reserves.

Coal exploration at Maghara is underway, two drill rigs operating at the time to firm up ore reserves and to investigate rock conditions near cross-faults of the NW trend. Additional reserves are being established in the blocks to the NE of the mine. This work was observed by P.C. and Resident Director Lepley on January 1, 1984.

The Geological Survey plans to do more regional exploration for coal in the north Sinai, because there are exposures of Jurassic and Cretaceous rocks similar to the units at Maghara. An interesting target for drilling is on the NW flank of the Homayir anticline, about 15 km W. of Maghara. Coal may underly an area about 3 times that at Maghara, and at 100-500 m depth. Thus drilling, preceeded by road-building for access, will be necessary to evaluate that prospect.

#### Task IV      Upgrading the Analytical Laboratories

No progress in this area.

#### Task V        Geological Museum

Director Raggi Eissa is in USA on a training course in museum curatorship. Modern display methods are the subject needed for optimum use of the reduced space available to the museum in its new facility on the Corniche in Dar El Salam. A plan of argumentation and equipment needs should be developed upon his return to EGSM.

#### Task VI       Mineral Commodity Program

The Mineral Commodity Summary of Oct. 23, 1983 has been modified once in January and distributed to a few potential investors, especially those expressing interest in gold resources. No ongoing relationships have as yet resulted from that source. Findings of the gypsum and potash explorations will be added to the summary, as well as some other non-metallics. It can be useful to describe industrial mineral commodities more fully in a subsequent summary, including the many value-added products that can be made in Egypt.

The work with Mr. Adel Anber and Allied Chemical Co. broke down with Allied disowning the relationship, expressing no interest in Egyptian investment. However, the clear need for bauxite exploration had kindled efforts to understand Saudi Arabia's Nubia sandstone occurrences of bauxite, and to begin explorations for similar deposits in Egypt. A reconnaissance was made by geologists Lepley, Snow, Hinnawi and Tahlawi in the W. Sinai, and further work by an EGSMa party is planned for this season. Dr. Lepley is seeking a remote-sensing technique to speed the search in new areas.

#### Task VII Publications and Documentation Center

Resident Editor Stout is using the production of Annals No. 13 as a training vehicle, providing instruction in editorial practice to two promising geologists.

### Desert Research Institute

#### Task I Groundwater Exploration

Upon receipt and registration of the new jeeps and carryall, the DRI field parties have gone to Marsa Alam to conduct the first phases of field work to establish water resources in the mining area west and south of headquarters. The first task has been completed, i.e., a review of published and unpublished reports on the bedrock geology (no work on wadi alluvium exists). A canvas of all water-points is in progress, as field reconnaissance is done. The geomorphology of the Red Sea Hills area is critical to an understanding of the wadis, where most of the groundwater is likely to be found. Second in importance may be the Tertiary clastic rocks along the coast, which can provide aquifers for confined waters. Lastly are the crystalline rocks, wherein fault zones have greatest importance because they may provide marginal supplies in the mine areas.

#### Task II Data Organization and Analysis

DRI has been unsuccessful at finding and nominating candidates for library and computer training, the problem being English-language skills.

## Remote Sensing Center

### Task I Data Organization and Analysis

Dr. Lepley has begun to requisition library materials needed at the Remote Sensing Center. Bendix's Grand Junction office has begun the search for a library specialist to assist in the Center's updating program, and to procure books.

### Task II Production of Atlas

The ERIM contract has been negotiated, but delays threaten to postpone training, production and short-course preparations.

### Task III Remote Sensing Workshops

No progress is known to have been made during this period.

### Task IV Aerial Photography

The Center indicated readiness to complete the planned photographic mission for coverage of 2500 Km<sup>2</sup> under contract to AID and EGSM. Its twin-engine Beechcraft recently overhauled, and its precision camera, recently calibrated, are ready for use. The drafting of specifications is being worked on by both parties.

## Egyptian General Petroleum Corporation

### a. Aeromagnetic Study in the Eastern Desert

The low-sensitivity survey of Area II is underway and on schedule. Already we have news of anomalous U and K radiation areas in the Kom Ombo (phosphates) and Baharia Oasis (Areas III, unknown origin). Trial and preliminary output of intensity maps and profiles are being received by GPC and EGSM for areas I, IA and III. We expect to receive some preliminary basement interpretation data by mid-March, which will facilitate a decision on the next exploration work to be done on the "Galalla" basin structure.

### b. Seismic Study in the Eastern Desert

h. Stratigraphic Study (Drilling) in the Eastern Desert

Both awaiting a.

c. Seismic Data Storage and Data Library

The program of well-data filing being produced by Standardata Co with the GPC is under study, with the objective of determining how EGPC may benefit from their experience. Meanwhile, the Geological Analysis System (GAS) of the U.S. Geological Survey is being studied. Mr. Lester Magoon from Menlo Park has volunteered to host several EGPC trainees at a short-course in March, in order to indoctrinate them in the workings of their programs, which are more comprehensive than the Standardata programs. EGPC is not ready to accept the USGS offer, for lack of trained personnel. Mr. Magoon is not available for consultation in Egypt at this time, but could be later. Another possibility is to hire Mr. Hassar El Shazly, an Egyptian Ph.D. candidate at University of South Carolina, a specialist in petroleum information systems. He would teach his own methods to a group of EGPC employees.

d. Source Rock/Oil Migration in the Western Desert

e. Sedimentary/Petrography Study in the Western Desert and Gulf of Suez

No developments in these areas, which may not be implemented.

f. Estimation of Existing and Potential Oil and Gas Reserves in the Gulf of Suez

EGPC has issued a call for bids on a study of reserves and geochemistry for the Gulf of Suez, and several responses are in hand. It is pending acceptance by the collective companies operating there, who are asked to fund the study and provide data.

g. R & D Feasibility Study of Enhanced Oil Recovery

P.C. is gathering information and general education on enhanced oil recovery technology, and particularly, opportunities in Egypt for field stimulation.

i. Training Equipment, Ras Gharib Training Center

An extensive list of training aids, including a CRT for the Cairo language lab,

plus video and audio equipment and cameras for Ras Gharib, has been under consideration. It has been revealed that the general cost level of the most important item, a Drill Floor Simulator, is probably in excess of our total budget for training aids. Thus the decision of GPC has been to concentrate future acquisition efforts on that one item, deferring all others.

Project Coordinator Activities included one field trip to the Sinai, in company with EGSMa geologists. Mr. M. Hinnawi conducted a tour of the Nubia sandstone stratigraphy near Gebel Durba, where abundant white sands and kaolins lie close to the sea. Examination of lateritic paleosols for bauxite proved this environment unattractive, but similar conditions developed elsewhere on basic volcanics, say in Wadi Fieran, Sinai, or in Wadi Natash, Kom Ombo may be more likely. Plans were laid for EGSMa reconnaissance searches for bauxite.

The copper prospects in Wadi Kat and Samra were examined and presumed largely negative, but a syenite pluton in Wadi Kat may be valuable for ceramic materials.

At Maghara, the coal-mining complex was seen. It is remarkably well preserved, considering dormancy since 1967. Staff and workers are eager to start production, and exploratory drilling is in progress, extending reserves into fault blocks east of the workings.

The work of the EGSMa ad-hoc committee to revise the model concession contract was finished. At Director Essawi's invitation, I wrote an extensive, but constructive criticism of the product, submitted later to Chairman Kamel. Though some work has been done by Mr. H. Izzat on the contract, I am unaware of any changes made subsequent to the committee's report. A conference with the Minister of Industry and Mineral Wealth has been tentatively scheduled since P.C. feels that this is the most vital work of MPGAP in the mineral area, if investors are ever to become partners in the Egyptian mining community.

Mineral-market data acquisition has been pursued by scanning lists of periodicals and ordering subscriptions and specific volumes for our EGSMa library. No staff has yet been designated for extraction of data-files, nor has the computer been purchased.

The Project Coordinator made a brief visit to King Abdullaziz University Jeddah, on invitation to examine a masters-degree candidate. In addition to consultations with Egyptian professors having knowledge of Egyptian mineral deposits of interest to MPGAP, a visit to a cement plant was made, and a sample of Egyptian marble was delivered to a potential buyer. It was found that the cement plant is

not a potential gypsum market, but a plant further south on the Red Sea coast does buy 50,000 T/yr from Greece. The stone dealer is interested in the Turkey marble, and asks for a quotation. Saudi Arabia is a large possible buyer, since most buildings are being faced with Cararra.

#### Contractor Performance

The Resident Project Director went on leave to the US for family matters. Congratulations on the birth of Benjamin Lepley on December 5. Since Dr. Lepley's return, the office has shown new vigor, with new staff, Mr. Sami Riskalla as Administrative Manager and a new secretary, Mrs. Suzette Salama and new physical facilities, including a Xerox machine and other office equipment. An extended visit by Mr. Don Kooker, from BFEC's Grand Junction office, helped get accounting and business procedures operating smoothly.