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The Coal Project In Kazakhstan

May 1993- January 1994

Partners In Economic Reform



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Partners In Economic Reform, Inc.

May Field Report

**PIER Liaison and Coordination Office
Almaty, Kazakhstan**

Alan M. M. Irving

KAZAKHSTAN - THE COAL PROJECT - INITIAL IMPRESSIONS

June 4, 1993 Alan M. M. Irving PIER Almaty

Since arriving in the Republic of Kazakhstan on May 17, 1993, the need to restructure the coal industry and reduce the drain it is placing on the current weak economy, as the country struggles to begin moving towards a free market system, is readily evident. The last seventy plus years of communism have not been kind in providing the miners with safe and healthy (both physically and mentally) working conditions, nor have there been incentives for an efficient productive industry. The emphasis has been on total production of material - not just coal (quality, transportation and consumption are someone else's worries) - no matter what the inflated costs in terms of people might be. Kazakhstan - a mineral breadbasket - accounted for 25% of the former Soviet Union's coal production, with annual productivity per man of less than one ton per man.

Today the country, in developing its present and future coal reserves, is looking to resolve technical and labor/management inefficiencies of the past while also seeking ways to deal with the ensuing costs of mechanization and free market competition, including the retraining of a displaced workforce. The present coal industry unsure of the consequences, though knowing the necessity to restructure, gives PIER the unique opportunity to provide expertise and assistance in helping the people involved, from the mine face to the market place, to begin working together to make this transition.

The first and longest step for Kazakhstan's workforce is to recognize the economic and social benefits to be gained by working together - labor and management (production and administrative personnel) understanding and being more responsible to the environment, while remaining productive and responsive to the needs of the consumer - industry and utility, and ultimately the people. The solutions have not been easy, but in 1993 the U.S. will produce over 1 billion tons (7000 + tons/man).

While our mining conditions are not the same as Kazakhstan's, there are many common denominators to the problems and interests we each have, and beginning with an open dialogue we can learn from each other and start to develop and implement together the necessary solutions.

Partners In Economic Reform, Inc.

June Field Report

**PIER Liaison and Coordination Office,
Almaty, Kazakhstan**

Alan Irving

June 22 - Tentekskaya Mine. Victor Loktionov (Chief Engineer). Mine facts (per Victor): Mine began 1979; capacity: 3 million tons/year; 40 yr. currently mining at rate of 60,000 t/yr. Employees: 3200 (2200 miners). 7 longwall sections - seams avg.: 1-4 m (6 seams being mined out of 13).

1st stage (level) has 10 year life remaining (raw ash 38%, cleaned 10%)

2nd stage under development (Reserves 35 million) haft in place.

Problems: Mining thin seams (best quality reserves) 1-1.6 meters thick, drifting (slope) between seams 17-18. Soft Top & Bottom, Low mechanization, methane (possible "commercial" removal).

PIER Safety Equipment Transfer Ceremony (1130 am Shift Change)

Ozorovsky made introductions and gave background of PIER.

Jim Bigus stressed US government's backing of PIER Coal Project, and support of Kazakhstan's coal industry development (production/administration relations; safety, environment, transportation) in order to attract investment. Apologized for Ambassador not being able to come.

John showed personal mine safety equipment (goggles, boots, earplugs, methane detectors). Victor accepted enthusiastically on behalf of mine and Karagandaugol and talked of technical exchanges.

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June 22 Tentekskaya Mine Underground Tour.

Went underground (with Kazakh TV crew filming our visit) traveling by rail to nearby (5 km) "experimental" longwall section 30 pitch. Cutting done with a plow shearer (ripper) on 300' face, 1.5 seam advancing 6'/day. (Developing a "unique 90 belt transfer station coming off face) Fairly clean, though roof supports showed evidence of stress. (Methane problems lesser at this relatively shallow depth).

Karagandaugol produces 55 million tons/yr. 021 deep mines, 3 open pit.

Yuri Krivodanov reported Karagandaugol is looking to directly sell 250,000 tons for export this year.

June 23 - Pavlodar Regional Administration Dinner

Ambassador William Courtney

Craig Karp - Economic/Commercial Officer

Larissa Golubeva - Economic/Commercial Assistant

Nikolai Sorhno - AID, Industrial Specialist

S Johnson - Director, International Executive Service Corps (IESC-AID grant)

Akhmetov, Daniyal - Head of Pavlodar Regional Administration

Lovrinenko, Yuri - Deputy Head

Pavlov, Alexander - Deputy Head - Economics

Riumkin, Nikolai - Mayor of Pavlodar

- local member of Supreme Soviet

Introductions, and explanations of purpose of visit, including PIER Coal Project.

June 24 - Ekibastuz

Strichishin, Vassili - Deputy Head of Pavlodar Region -
Industry, Transport, Communication

Alikhanov, Murathan - Deputy Dir. - Industry, Transport,
Communications

Akbaev, Tulegen - Deputy General Director,
Ekibastuzugol

Mukishev, Vladimir - Deputy Commercial Director
(Drove us around)

Gainulin, Rais - Deputy Commercial Director

1 out of every 10 tons coal produced in former USSR
came from Ekibastuz mine, the largest open pit mine in the world
(6 km wide & 12.5 km long reserve) Currently producing 82
million tons per year. Main mine divided into 3 operating pits:

Severny (oldest 1954; nearest to city) 20.2 million t/yr..

Bogatyr 54.6 million t/yr. (4.5 km long & 3.8 km wide)

Vostochny (newest 1974) 14.02 million t/yr. (2.8 km)

Ekibastuz started commercial open pit operations in 1954,
following completion of geological studies begun in 1949 and
subsequent development work. This coal field was originally
worked in the last half of the 1800s by French and British
(underground), following its discovery by a shepherd in 1866,
who left two blocks of salt to mark coal out-cropping while he
went to report his finding. City population: 160,000 (23,000 in
mines); 150 industrial plants. (The Majkubene mine located 70
km away is just beginning limited commercial operation (1.6
million t/yr.) of high quality brown coal. This is an open-cast
mine, looking for investors to expand its development.)

Currently the coal seams (130 m total thickness) are being
mined at depths from 120-200 m below the rim, with ultimate
projected depth of 500 m. Total coal reserve: 11 billion tons (1.7
billion already mined) (50 sq km total area). Coal haulage:
railroad (1.268 km); Conveyor belt to pit railhead (Vostochny -
conveyor belt to rim). No Coal Cleaning Plants (Avg. ash 38%
35-43%) Overburden is hard rock, which must be first blasted,
before being loaded out by rail and hauled to monstrous gob piles
(dominate horizon 50-100 m high). Coal partings in excess of 50
cm also segregated and gobbled. (Inner overburden high in
aluminum oxide and silicon dioxide - looking to commercialize
future extraction/production). Present refuse piles are presenting

tremendous environmental stabilization and leeching control problems. Coal seams: Lower Bank, #4 Avg. thickness 18.9 , (4.1-30.6 m)

Rock separation: 73-155 SE end; 40-70 m - NW end

Coal contain rock

Seam III 95.1 m avg. thickness (~150 m), avg. coal mass 77.5%

II 35-38.3 m avg. thickness (-46 m) least partings

Shale parting

Seam I 22.6 m avg. thickness (thin shale/rock partings) avg. coal mass 90.7%

IA (Uppermost band) .5-2.9 m avg. thickness. High coking characteristics

Toured rim of mine with Vladimir Mukishev, and coal blending and rail load out facilities.

Ekibastuzenergo

Power Plant #1 - Boichenko, Grigory, Director (8 & 500 km)

Discussed necessity of coal and energy companies having to closely work together to control coal quality & handling, burn efficiency, stack emissions and ash disposal. (Only began talking to each other with creation of Ministry of Energy and Fuel - great need). Environment is #1 joint concern!, controlling pollution - need to build coal cleaning plant. Plant #1 was designed to handle high ash coal, but wants to reduce ash disposal problems. (Burns 30,000 t/day)

Other problem areas in power plant #1: work conditions (noise); maintenance; mechanization; sulfur and NiO₂ emissions.

Asked, but did not see coal handling facilities. Keep 6/7 day inventory. (Ambassador visited Power Plant #2, 6/25. Only 1 generator on line).

The proposed 1.5 mkv project has been put on hold - low power demand, and concern about future of Russian power imports; and realignment of internal utility coal/power requirements, both in Russia and Kazakhstan.

At #1 they keep 2 generators down at a time for service & maintenance. Plant is operating at about 40/50 % capacity. There is a Kazakhstan regional power grid (Ekibastuzenergo produces about 60% of the country's power needs, exports balance)

June 25 - Ekibastuzugol - Meeting and tour inside Bogatyr pit & Vostochny. Belik, Nikolay - Technical Director, Chief Engineer

Artuyev, Sergei - Deputy Technical Dir. Safety

Marchuk, Anatoli - Deputy Technical Dir. - Science & Technology

Talk of the need for investors to invest in reserves (Particularly Majkubene). Wants to develop a technical team, including energy people, to address: clean coal technology (coal processing & handling, * power plant emissions (sulfur, NiO₂, particulate), dust in pits - need to build wing barriers (gale force winds at rim, rising from pits, and design dust catching equipment in excavation areas. (* Washability studies indicate a 38-38% reject, A 25-50% reject. Russians are in 3/4 months arrearage on payments for coal - R 32 billion

Methane - evident from bubbling taking place in puddles. (looking at commercialization). Put temperatures range from -40 to +40 C. Excavators (bucket wheel) of Russian & East German build have a capacity of 5000 t/hr, but only operate at 50%, due to rail load out constrains (Trains 1000 t 15 minutes into pit, 10 minutes to bad, 15 minutes out to stockpiles. Switchouts create further delays). Overburden (rock of top coal seam blunted, and loaded out into rail cars by bucket shovels (15 cub.m) 24 hour operations

Productivity (tons/man/month)(1988):

Severny - 1000

Bogatyr - 4278

Vostochny - 1682

Majkubene - 433

Need to design new crushers to facilitate handling of overburden and expand conveyor at Bogatyr.

At Vostochny on all conveyor belt operations - 4 excavators load directly to movable belts (5000 tph; 4.2 m/sec), transfer to belt to run (13 incline) - 1 belt system per excavator/section (each section's ash quality different). Coal is then stacked in any one of 4 stockpiles to achieve layered

blending, averaging 38% ash. (Ash levels determined by original "extensive" core sampling analyses). Drum reclaimers (Italian) further mix coal, which is belted to train load-out, and there pre-measured per car capacity avg. 50-75 t and shipped in 70/80 car trains (5000 t). Nearest power plant 25 km (Coal also shipped to Ukraine and Urals). Weight limitations of rails, and long distance transport (max 90 km/hr) and distribution systems -

Problem Areas, as well as high tariffs, will have to be addressed in near future by PIER with State Railroads.

In candid conversations, Ekibastuz labor/management relations are not a major problem, rather the relations and accountability between the mining company and the Association are the biggest cause for friction (The Association takes 90% of the revenues, but only 10% of the miners live in Ekibastuz)

June 26 - Return to Almaty. Coal/energy predominated conversations. Want help

The engineers and technical people are very knowledgeable and candid about of the problems and their impact. They are looking forward to further exchanges. The idea of establishing a technical cooperation center with Ekibastuzgol was well received, and it needs to be developed. (Sending team here of open-pit mining, reclamation, coal processing and cleaning, combustion/emission engineering, experts to make an evaluation.

Partners In Economic Reform, Inc.

June Field Report

PIER Center for Cooperation and Development,

Karaganda, Kazakhstan

John Marunich

May 18 Met with Leonid Solomin, President Independent Miners' Union, Kazakhstan and his vice-president Yevgeny Zhovtis. A retraining program was discussed in regard to the impending transition. Solomin quoted 200 billion rubles as the amount of capital needed for such a project in Kazakhstan. Investment protection was discussed recently laws were adopted defending the interests of foreign businesses.

May 19 Met with Sergazi Baimukhametov, First Vice-President of "Kazakhstancoal". The state will supervise and control joint stock companies beginning September 1. During the first stage 10% of all shares will go to workers and the state will retain 90%. In the second stage (no date) the workers keep their 10%, the state keeps 51% and 39% will be sold. **Kazakh coal industry is interested in American roof bolting technology, ventilation methods and self propelled equipment. There is a psychological barrier to overcome in the use of roof bolts as well as a lack of drilling equipment. Baimukhametov is personally interested in technology to predict/prevent outbursts which are a result of methane and the pressure associated with the extreme depths of Kazakhstan coal seams.**

Met with Sakhan Sadykov, President "Kazakhstancoal". Sadykov is interested in foreign investment to purchase new equipment and technology, and work on the health and safety after this. Health and Safety will be consequences of new technology.

May 20 Arrived in Karaganda. Met with NPG. Pavel Shumkin, Vice-

May 24 Met with Ogorovsky and Vanner received in depth regional briefing. Apart from the mines there are departments for rail transportation, auto transportation, and a department for equipment assembly and disassembly. Karagnadaugol has three plants that repair equipment, most new equipment comes from Ukraine. New equipment purchases are on the decline.

May 26 Visited the Kostenko Mine:

General Director, Grigory Prezent, shared some thoughts. We need to attract investors and study the legislative system. Discipline of workers is very high. We are employing a new wage system and wages are better here than anywhere in the region.

May 28 Addressed NPG leaders from local mines at the NPG headquarters. Outlined the project and gave presented PIER credentials. Questions were focused on wages and benefits. Toured a mining equipment rebuilding facility. 400 employees work one daily shift while loading and unloading is done on the back shifts. Safety is taken for granted at the factory no hearing or eye protection is worn. The shops and work areas were maintained in a neat and orderly fashion, a stark contrast to underground conditions.

May 29 Toured the Tentekskaya mine:

General Director, Vladimir Maslyanik reiterated that the best assistance would be foreign capital and reliable equipment. However, Mr. Maslyanik did sign a cooperative bargaining agreement with the NPG and has some desire for mutual cooperation.

June 2 Met with Viktor Kafidov, Head of Complex Mechanization Processing Factories Organization, located at the college for upgrading specialists. Met college director Nurken Dziumagkhinov. They do much of the training for the coal region. The equipment though primitive by US standards is representative of the Kazakh industry and provides an opportunity for hands on training. Areas of interest include:

- o methods of teaching-how to operate in a market economy
- o technical English language instruction
- o provisions for a regular exchange of technical information
- o retraining dislocated workers

June 3 Visited another rebuilding shop this afternoon. Met Chief Engineer, Anatoly Butryn and Director, Alexander Pomeshtchikov. The facility is an independent operation with its own private bank account, but retains some ties with Karagandaugol. The shop is self sustaining and employs 2500 people. They do some casting, and a majority of parts fabrication. They manufacture nuts and bolts and rebuild hydraulic components. Once again no eyewear or hearing protection.

June 8 Toured the central processing plant for the Karaganda region. Director Nikolai Fyodorovich and Chief engineer Pavel Moiseyev were our guides. The director was very interested in the Coal Project and is interested in getting western specialists to visit his plant. **His concerns center around getting new equipment and materials.** Since the plant is independent they have no control over the quality of raw coal received. Availability of flocculants is limited and spare parts are scarce. **The director would like to contact western firms to explore acquisition of these as well as centrifuges and pumps.**

June 9 Visited the surface facilities at Stakhanovskaya mine, which includes a degassification plant. The director Alexander Kramskoy is for the Coal Project and anything that brings something beneficial. the director would like our assistance in methane gas recovery technology and added that he needs government support to do research.

June 22 Went to Tentekskaya mine for presentation of safety equipment. The presentation took place in an auditorium with approximately 300 miners in attendance. After the ceremony we took part in an underground tour.

June 24 Arrived in Ekibastuz were accompanied by Muratan Alikhanov, Deputy Director of the Department of Industry, Transportation, and Communication for the Pavlodar Regional Administration. Met with deputy directors Rais Gainulin, Tulegen Akbaev and Vladimir Mukishev. Toured the open pits, Bogatyr pit resembles a man made Grand Canyon.

In the evening the group toured the state regional power plant GREC #1 and met with plant manager Grigory Boichenko. The plant has eight 500 MW generators and burns 30,000 tons of coal per day. Boichenko emphasized environmental concerns and the need for preparation facilities in the region. The boilers are designed to burn high ash coal and there are no funds available to build prep plants. This plant provides 25% of all Kazakh power.

June 25 Met with Technical Director-Chief Engineer for Ekibastuzugol, Nikolai Belik; Deputy Director of Science, Anatoly Marchuk; and Deputy Director of Safety, Sergei Artuyev. Belik reviewed the Coal Project and voiced these concerns

Improvement of coal quality

- their coal is good for power generation
- the largest power stations in the Urals use their coal
- their coal is low sulfur
- ash is a problem
- they need coal processing
- they need investors

Dust control

- tried to plant vegetation to contain natural dust from winds

New Technology

- poor economic situation leads to unfavorable production
- depth of reserves limits them to use conveyors for overburden
- need crushers, which requires investment capital

Overburden at low depths

Social and political problems caused by the dissolution of the USSR has hampered production. They ship coal abroad but do not receive timely payment from other republics.

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July Field Report

**Center for Cooperation and Development
Karaganda, Kazakhstan**

John Marunich

JUL 1 Went to NPG office to sort out safety equipment for tomorrow's delivery to the mine named after the 50th anniversary of the USSR, hereafter referred to as the 50th Anniversary Mine. This will be the third mine to receive safety equipment. NPG delivered the second set to the Lenina Mine and Pavel Shumkin presented the equipment to the mine director and the miners on PIER's behalf.

Met a German at the hotel who works for Scharf, a monorail manufacturer, with an office in Pittsburgh, PA. I didn't get his name, but he told us that Mamontov was in Germany as a guest of his company.

JUL 2 Stephen Fox, of MSA a safety equipment company located in Pittsburgh, called me to discuss his upcoming visit and desire to utilize PIER's Karaganda facilities. I agreed to assist him in whatever way I can. He is due to arrive in Almaty on July 10, and I called Alan and asked him to confirm Fox's arrival with the State Industry & Mining Inspectorate in Almaty which he has done. Alan also arranged to meet with a Malkybayev who is Fox's contact in the Mining Inspectorate.

Went to the 50th Anniversary mine for safety equipment presentation. The mine director was on holiday and our host was Igor Drizhd, the mine's chief engineer and acting mine director. Drizhd gave every indication that he is reform minded and admitted that officials in the coal industry must become more cooperative with potential investors. He was even critical of the official trade union. Drizhd said the main thing here was to select reform minded people, educate them, let them see with their own eyes, have them educate people here and realize the change to a market economy. The engineer added that there was a large gap between KaragandaUgol and the mines, its old fashioned and they try to manage like the Red Army. Interestingly, Drizhd's father was the general director of KaragandaUgol for 15 years, prior to Solomatini, and was practically forced to resign by the NPG because of their strikes.

I made the equipment presentation in an auditorium with app. 100 miner's in attendance and was generally well received. One guy complained that the canvas work gloves would prevent a worker from retrieving his hand if it became caught somewhere, whereas the mittens now employed would not allow a worker to place an individual finger into a hazardous situation. I explained to the concerned gentleman that one of the benefits of a well structured safety program was to teach workers where they shouldn't put their hands, and to provide guards on equipment to prevent such incidents. I concluded my presentation and Drizhd took the stage to thank us and assured that the equipment would be fairly assessed, and would inform me of the items they would like more of. We then had an underground tour.

JUL 5 Ozorovsky also informed us of a wage agreement dispute at the Tentetskaya Mine, the mine which signed an agreement with NPG. The workers claim a breach of the collective bargaining agreement on management's part and have formally threatened to strike on Friday if their demands are not met. The incident originally involved a single section, but the rest of the mine is supporting that section. Safety violations are listed as the foremost concern, followed by

wages, and a barter agreement Tentekskaya has with Austria whereby certain goods (televisions, VCRs) are to be made available to miners in exchange for coal.

JUL 8 Had a briefing with Ozorovsky before our afternoon meeting with Viktor Schukin. He gave me more information on the threatened strike situation. According to him the Official Trade Union is trying to instigate strikes on behalf of the coal enterprises because the enterprises are running short on supplies and may be forced to shut down anyway. If this happens workers must be compensated. Also the Regional Administration has suggested that the miners go on vacation to ease the situation, but vacation is paid leave. If a strike does occur, the miners will be acting illegally and they will be ineligible for pay. The miners can afford to miss two months of wages at most, and will be forced to return to work under whatever conditions the Association deems. The Association can then force the workers to make concessions. One of the demands of the workers is to remove/replace the head of the section where the dispute originated. Strikes have been successful in the past to oust an official the workers claim is unfit. The present threat has been postponed for one week.

JUL 9 Met with Viktor Chaika as planned and Victor Spitsen, Deputy Director Contracts and Labor. They asked about the possibility of solving three of their main problems.

1. Teach us how to make other products, particularly with coal from the Shubarkol open pit
2. We need more training and advanced technologies to increase our labor productivity
3. Assistance with market economy relations and social net under market conditions, provide with pensions and new job qualifications

Chaika said it was difficult to identify problems and to avoid closing mines.

JUL 11 Met with Mamontov. Ozorovsky and Schukin were also present.

I asked him about an undeveloped mine site, I had heard about through the mass media and mentioned the idea of a model mine. He said a feasibility study was on going, but the idea of a model mine was unappealing if equipped with new technology and equipment, because all the mines would be demanding the same. He also expressed concern over their ability to receive technical support and spare parts for any modern equipment.

JUL 14 Met with Almukhin Telgarin, Deputy for Technical Inspection and Nikolai Bilsky, Chief Mechanical engineer at KaragandaUgol to exhibit our safety equipment and expedite the approval of the methane detector. Telgarin agreed to help and asked that we translate the instructions into Russian. Both men were impressed with the equipment and expressed regret that they did not have the finances to purchase more equipment. We explained PIER's intentions of providing more safety equipment following a field test of this equipment and with input from the Kazakh mine industry.

JUL 15 According to Ozorovsky KaragandaUgol is reducing its workforce by 30% at the Association as a result of decreased production and plans to

reorganize as a holding company. He doesn't feel that the layoffs will affect the mines. The NPG has written letters to the Prime Minister, the Minister of Industry, the Minister of Fuel and Energy, KaragandaUgol and the regional administration concerning the formation of a tri-partite committee to address the needs of the region.

The threatened strike deadline has been moved to July 19.

JUL 19 Viktor Kafidov and Viktor Mukin from the Institute for Operating Specialists phoned this morning requesting a meeting. They would like to set up a technical and business English language training program as soon as possible utilizing their institute and possibly another neighboring institute. They have a class of specialists who know some English already for a course when instructors can be provided. I took the opportunity to demonstrate our safety equipment and give a short presentation on the US mining industry using the Tygar River Mine map.

JUL 21 Word today is that KaragandaUgol will be made into a holding company and the proposal is being drawn up for the Prime Minister's approval.

Partners In Economic Reform, Inc.

August Field Report

**Coordination and Liaison Office
Almaty, Kazakhstan**

Alan Irving

Have just returned from Ekibastuz, where PIER has successfully concluded a "Agreement of Intent" with EkibastuzUgol and EkibastuzEnergo to establish a joint technical Cooperation and Development Center, as we have discussed in Washington. The English translation for your approval follows.

The proposed emphasis of its program is to focus, at least in the beginning, on the health and environmental (Clean Coal) benefits to be gained by the workers and management, as well as the entire Pavlodar region, from clean safe working conditions in the pits, at the coal storage and processing facilities both at the mine and at the power plants (CPEE #1 and #2), and at the coal refuse and ash disposal (reclamation) sites. This will include the technical exchange of information and the development of programs and training to create applications of the technology, including the clean and efficient combustion of coal. It is hoped that such positive actions can provide incentives for the international community to become involved in the great potential role Ekibastuz Coal Power can play in Kazakhstan's economic growth and stability.

This proposal was discussed again with Ambassador Courtney, before his returning to the States last weekend (annual leave), and he continues very strongly to support PIER's work in Ekibastuz, and the definite need for such a Coal Project Center to assist the region.

Partners In Economic Reform, Inc.

August Field Report

**Center for Cooperation and Development
Karaganda, Kazakhstan**

John Marunich

AUGUST

AUGUST 2

Met with researchers from the Academy of Sciences - **Alexei Miranovich Li**, Director; **Uasilya Hairovo Orazbekova**, Deputy Director; **Vasili Ivanovich Pushkarov**; Gelman, Scientific Secretary; and Ozorovsky. The academy conducts coal research. They are primarily interested in the utilization of brown coal from the Maikubensk and Shubarkol basins. Problems for them are indicative of the industry as they lack the financial resources for practical application of their research. Lack of governmental understanding was also cited as an obstacle, coupled with deficient equipment and technology. Three concerns discussed were listed as priorities at a recent conference of chief engineers from Karmet (steel plant) -

1. Degasification of mines and practical application of the recovered methane
2. Coal gasification (the academy has literature from and has conferred with Texaco regarding this technology)
3. Getting special coke from the Shubarkol and Maikubensk coals
 - Karmet supplies gas to itself for use in the steel making process
 - One grade of gas (1200 - 1300 kilo calories) is used in the construction of bricks
 - Another grade of gas (3000 -4000 kilo calories) is used for metallurgy, chemical industry, and domestic purposes
 - An American company (no name was given) is contracted to do research on these coals in 1996

Delivered a methane detector and printed Russian instructions to **Telgarin** (Karagandaugol head of health and safety). He promises to assist in expediting the approval process.

AUGUST 3

Met 3 reps from the German firm Metalgalleschaft. They are here trying to purchase Shubarkol coal for use in the UK, saying that it is cheaper than British coal. These folks even came equipped with anti-radiation tablets.

AUGUST 4

Discussed the reaction to and opinion of the safety equipment issued miners. Listed in order of preference are ear plugs, safety glasses, canvas work gloves, rubber gloves (these are popular with the women who perform surface work and are exposed to harsh chemical solutions), respirators (these are popular, but workers complain that they are difficult to wear all day, especially when they perspire heavily), boots (there are only 2 miners at 2 different mines wearing the boots daily. The complaint is that they are too heavy and miners here walk great distances to and from the work site. If we send any more they should be the Iron Age style that I use which have a smaller metatarsal guard and are less bulky, methane detectors (the gripe with these is that unlike the domestic units they do not detect CO, and the people who are using them are carrying a Russian model as well). Personally I haven't seen a detector here that does both.

AUGUST 9

Meeting with Mamontov -

1. Visit to the States - Mamontov expressed interest in visiting the following when he comes - underground mines, open pit mines, World Bank, AFL-CIO, NCA, MSHA, Export-Import, DOE, USAID, coal gasification experts, coal mine degasification experts, preparation plant, the Newport News coal terminal, underground haulage systems. He expressed a desire to contact Enron Corporation specifically about gasification and degasification. He's not particularly interested in talking to equipment manufactures, but would rather assess equipment at the mine sites to see what he may be interested in. He doesn't want to talk to any rail road people, stating that US experience is of no use to him. Previously he met with some Germans from the World Bank and felt they were condescending toward him.

2. US experts to Karaganda - Start with processing people who can assess the Shubarkol coal and determine if it has any value for liquefaction, gasification, chemical industry, etc. Specialist on the equipment necessary for the processing of this coal into other products (he mentioned activity of this sort and utilization of coal as such in South Africa). Methane recovery experts. He would like to begin with these specialists and choose others as progress dictates.

3. Mamontov meeting with Ambassador Courtney - He asked me to arrange a meeting for him with the ambassador in Almaty for tomorrow if possible, after being informed that Mr. Courtney is leaving for the States on Saturday for his annual, 1 month leave.

AUGUST 10

Confirmed meeting of Mamontov and Ozorovsky with Ambassador Courtney for tomorrow.

Met with Gelman from the Academy of Sciences. He gave me some technical data of the Shubarkol coal that we'll have to translate in D.C. when I return.

AUGUST 11

Flew to Moscow. Had phone conversation with Bill Barney of United Investments from Houston. Barney and his colleague Ted Miller are headed to Karaganda with Biamukhametov to try and sell open pit mining equipment.

AUGUST 18

Called Ted Durney from Coal Technology Corporation in Bristol, VA regarding assessment of brown coal in Shubarkol Basin and its potential for gasification, liquefaction, and chemical applications. CTC is more involved with bituminous coal research, but Durney's supervisor, Chang, has some experience with brown coals, and Ted agreed to get back with me after meeting with Chang.

Partners In Economic Reform, Inc.

Field Report

**Coordination and Liaison Office
Alamty, Kazakhstan**

Alan M. M. Irving

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Since returning to Kazakhstan PIER has begun to solidify its objectives. That is to establish working relationships, from the mine face to the marketplace, with the coal industry and the government, (particularly the Ministry of Energy and Fuel Resources) in order to create innovative programs now for this critical sector, both as a resource and in manpower, so that it can continue to satisfy Kazakhstan's developing economic needs.

First an operating "Agreement of Joint Activity" was successfully negotiated by John Marunich and signed with KaragandaUgol and the Independent Trade Union of Karaganda (NPG). This will now allow the Cooperation and Development Center to be set up there and to begin to develop and implement programs to assist in the safe and efficient undergrounds mining and processing of the coal, through productive labor/management relations, and competitive (export) marketing.

With this, an exchange of technical experts now will proceed to evaluate the development of programs to address protecting the ENVIRONMENT through the safe and efficient mining and cleaning (quality/market enhancement) of, and the effective combustion of coal, and the beneficial disposal (reclamation) and/or use of the refuse and ash.

Beginning with these events (as well as, working with USAID/USEA to invite a coal specialist from each Region for the September Clean Coal Conference in the U.S.), the COAL PROJECT is now ready to focus on assisting the Industry in the prioritizing and removing of the specific liabilities that are hindering the international investment in its modernization. PIER, Almaty, can now begin to work with the government and the Coal Industry (including KOMIR, the New State coal mining holding company, effective October 1), to better understand the need for and benefits of restructuring their regulatory/operating relationship (privatization?). There is a need to learn economic basics and accountability, as Kazakhstan moves slowly towards an "unknown" free market system, and looks to deliver to the markets beyond.

Aware of PIER's technical expertise and support, the Coal Regions are now ready to go forward to obtain and apply the training and equipment necessary to meet their mining needs and social responsibilities. It is also critical for Washington, to realize its preconception of "nomadic" Kazakhstan being undeveloped are not realistic, and to know that there is a skilled workforce in place, ready to work, but in need of organization, which had previously come from Moscow, and wanting help to replenish the tools with which to get the job done right. It is necessary for us to understand this and invest for the long-term, if the U.S. is to benefit from helping to develop the great resource and industrial potential of Kazakhstan, the eighth largest "independent" country in the world.

AUG 5 Talked with Mr. Gordon Mott a representative of CSX Rail in Poland. Mr. Mott participated in the PIER sponsored Moscow seminar in early May 1993. Mr. Mott was briefed on the transportation system of the Kazakhstan coal industry. He agreed there is a need to develop a partnership with the State Railroad and the Coal Industry. We also discussed the necessity to reestablish an integrated rail system within the NIS, all of the republics' industries are being hampered by the inability to move and process materials and goods.

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AUG 6 Attended an American Business roundtable at the Embassy, with an update of the Kazakh governments moves towards privatization, beginning with small business development over the next few years.

AUG 12 Briefed Susan Weidner, US Embassy Senior Commercial Officer. Stressed PIER's work as a technical and commercial coordinator between the US and Kazakh coal industries.

AUG 16-19 Traveled to Pavlodar with Dejaksaliev, Foreign Relations Ministry of Fuel and Energy. Met Mr. Saydkov and Baimukhametov of KazakCoal(KOMIR), who talked of wanting closer cooperation with PIER.

AUG 17 EKIBASTUZUGOL Met with Nikolai Belik Technical Director and Chief Engineer, Erken Aubakirov Commercial Director, Vladimir Mukishev Deputy Commercial Director, and Sergei Artuyev Deputy Technical Director. Discussed how PIER activities could benefit the further development of quality enhancement/marketing program and as well as assisting in their necessary close cooperation with EkibastuzEnergo on the use of Clean Coal technology, and the mutual benefits of exporting clean coal and or energy. They asked if the World Bank has specific criteria to be satisfied, or merely recommendations, before the Kazakh coal industry would be able to apply for assistance.

EKIBASTUZENERGO Met Mr. Fedorchenko Chief Engineer, Grigory Boichenko Director Power Plant 1(GRES 1) and Dmitry Seryakov Vice Chief Deputy Foreign Economics. Discussed cleancoal technologies and programs. They would like a program that would assist them in meeting the national plan to increase their coal fired generation and the development of industry in the region and the country. They would like to develop a technical exchange program.

Toured the ash disposal site for GRES 1. The ash (up to 12,000 tons per day) from the power plant is mixed with the plant's discharge water and pumped untreated 22 km into a lake supplying GRES 2, where the water drains to supplement the natural water supply for this plant, which in turn disposes of its ash in the same manner back into this lake. No attempts have been made to reclaim this site, which is void of even the slightest vegetation. In the summer to battle the blowing dust they attempt to keep the dried sludge covered with 2" of water, otherwise the city gets buried. This is a high priority environmental area for Kazakhstan.

AUG 31 Met with Badaker and Baimukhametov who were very pleased to receive a demonstration of the PIER safety equipment being distributed in the Karaganda region. Baimukhametov explained KOMIR. 51% will be owned by the state, which will have full authority over all coal mining, both regulatory and operational control. Responsibility for social issues has not yet been decided. KOMIR will retain all constitutional right to coal reserves. This led to the question how in the US, the Federal leasing program works, if Kazakhstan is to eventually move towards privatization of the coal mines. They would like further information on this issue. The ABA is putting on a program in this legal area in mid-October.

SEP 14 Orynbasar Mulhibaev, Chairman of the State Committee for Inspection of the Safe Operation in Industry and Mining met with PIER staff. He

discussed their activities in Karaganda particularly their newly organized Institute for Safety and Inspection. They are struggling to increase enforcement of Kazakhstan's existing safety regulations.

SEP 16 Met again with Ms. Weidner to discuss more in depth the Kazakh coal industry and its needs, and how PIER is looking to work with American businesses here and in the States. The objective is to attract US investment and obtain modern mining technology and equipment, and cheap clean power could result in big returns for US investors. It was requested that PIER make a brief presentation at the monthly American business roundtable.

SEP 17-20 Traveled to Karaganda. Gave a Charter Conference of the NPG an overview of the US coal industry. Explained the steps the US took during the 1970's to double production and increase safety and health, and environmental responsibility simultaneously.

SEP 20 Met Alexander Saybel, General Director KaragandaEnergo to discuss problems of coal handling and ash disposal, particularly with coal coming from Ekibastuz (70% of total coal used at KaragandaEnergo comes from Pavlodar/Ekibastuz). He spoke further of the need of mines to reduce moisture content to 8%. Also the desperate need for reclamation in order to reduce the tremendous general hazardous dust problems resulting from present methods of disposing ash from the power plants. KaragandaEnergo is currently operating 5 power plants in the basin consuming 15,000 tons of coal per day as well as 4 power plants in the Zhezkazgan region.

SEP 21 Introductory visit to the Tselinnaya Railway, Karaganda Division. Met Chief Yuri Rasstrygan. Discussed the state of the Kazakh State Railroads and the importance in developing future methods of allowing coal to be competitive in existing and potential markets. While they are receptive to working with the coal industry they take directions from the Ministry of Transportation.

Toured the Karmet Steel plant in Timirtau. Met Chief Engineer Vladimir Myrko and his deputies. Karmet is a fully integrated steel plant producing 2.4 million tons of coke per year, using 7 ovens. Presently they are using 23,000 tons of coal from KaragandaUgol and began two months ago buying coal from Ekibastuz. Interestingly, KaragandaUgol has three months supply of coal in inventory, due to a lack of demand, yet claims it can not deliver the processed coal requested. Meanwhile the processing plant at Karmet has excess capacity.

SEP 24 Met with Murat Bekzhanov and Mirgaly Kunaev Directors of Kazutah-Mineral. This is a joint venture with the Ministry of Geology the Institute of Mineral Resources and Utah Mineral, USA to compile data on Kazakhstan's mineral deposits, and offer various reserves determined to be of commercial value to investors for development.

SEP 28 Follow up meeting with Kazutah-Mineral. PIER discovered the coal industry was interested in developing the Turgay Coal Basin (Lignite) about 300 miles west of Karaganda, which is comprised of 20 coal fields containing an estimated 65 billion tons in reserve (30% proven), particularly the Svyatagorsk Reserves. When questioned it was admitted that the quality was significantly less

than Shubarkol (Karaganda) and Majkubene (Ekibastuz) coal reserves, but rich in precious metals.

OCT 1 The American business roundtable convened and as requested PIER presented a brief overview of the Kazakhstan coal industry. PIER's involvement in providing technical assistance and training, while working with government to help resolve some of the issues facing them and industry, as they move towards a market economy was also discussed.

"The Coal Project while working to increase productivity through efficient and safe mining techniques and effective equipment utilization, is looking to attract American business to participate in and benefit from working directly with the Kazakhstan coal industry in its quest to modernize and meet its objectives, and provide incentives to become further involved with its growth."

Many were quite interested and very surprised at the magnitude of the Kazakhstan coal industry and of its great importance to the country's future.

Partners In Economic Reform, Inc.

Field Report

Cooperation and Development Center
Qharagandy, Kazakhstan

John Marunich

SEP 2 Talked with representative of Mine Safety Appliances, Steven Fox. He will be traveling to Qharagndy and would like to coordinate his trip with PIER.

SEP 13 There is a cholera epidemic in Almaty. The central market has been closed as have local schools in an effort to contain the outbreak and prevent further spread.

Met with Viktor Badaker at the Ministry of Fuel and Energy and briefed him on Qharagandy progress.

SEP 14 Met with Orynbasar Mulkibayev, Chairman of the State Committee for the Inspection of Safe Operations in Industry and Mining. He offered his assistance in getting approval for US equipment in Kazakhstan.

SEP 17 Attended the NPG conference in the KaragandaUgol coal association auditorium with Mr. Biggus. there were representatives from the Kuznetsk basin of Russia as well as from the Vorkuta coal region of Russia. Items discussed included:

- NPG members must be held accountable for their actions;
- NPG aims are for the protection of the workers;
- trade unions were created because workers were taken advantage of, NPG leaders in Ukraine do not understand the aim of trade unions;
- presently the industry cannot survive without subsidies;
- the coal association is responsible for supporting the city, a lot of money is spent to that end;
- government must create conditions favorable for coal enterprises;
- is it possible to ignore the interests of the administration and associations, and defend the miners interests? We want to develop a strategy that defends the administration and workers' interests;
- NPG and state unions must work as partners for a common good;
- NPG is asking for equal rights, the only unions with full rights are the state unions;
- state social insurance programs need to be addressed;
- we must develop a ownership system where workers own part of the mine, the expected result is that mines will become more profitable; and
- we need to spell out the functions of the NPG and create tax reductions

SEP 18 Don Slamen of the International Confederation of Free Trade Unions announced that the NPG was accepted into the MIF (Miners International Federation) and that they could count on their full support. He emphasized that the NPG couldn't wait for their assistance but must rather build a strong organization with strong membership support.

SEP 20 Met with the General Director of the KaragandaEnergo corporation, Alexander Saybel, and the Head of the Production and Technical Departments, Ludmilla Agafonova. Saybel outlined their problems:

- they oversee 9 powerplants, 5 in Qharagandy and 4 in Dzhkazghan
- the plants are operating at 80% capacity, burning 12,000 tons of coal/day
- Qharagandy supplies 30% of the coal and Ekibastuz 70%
- moisture content is a big problem as they require 8% moisture in their

coal but the standard set by coal suppliers is 12.5%. They claim the technology doesn't exist to dry their product to 8%

- high ash content presents further problems, dust and pollution, the ash piles are 3-4 feet high, it is too expensive to cover them with soil and seed
- we are interested in building ash processing plants next to the power stations; we would be interested in a joint venture project
- unloading coal cars especially in cold weather is a difficult process
- there is definite need in better communications between government, coal suppliers and the coal consumers
- we are just beginning to implement sulphur emission standards to come into international compliance

Met with the Qharagandy Polytechnic Institute, Deputy Director Zora Mouldagoliev, and the head of the teaching department Gennady Valschtein. We briefed them on PIER activities and the upcoming visit of the University of Kentucky professors. They briefed us on the Institute:

- 5000 day students, 5000 evening students; 800 instructors
- train in 25 fields
- 50% of students study Kazakh language
- 7 faculties: mining and construction, transportation and railroads, mechanical building, electrical mechanics, engineering, economics, and information technology
- provide a bachelors and masters degree program
- after the fall of the Soviet Union many of the better students moved to Egypt and Turkey to study

SEP 21 Met with officials of the Tselinnaya Railway, Qharagandy Division. Yuri Rasstrygin, Chief; Kazibek Sarsembaev, Deputy Head of Karaganda Railroad; Vyacheslav Lukyanchikov, Chief Engineer Karaganda Railroad; and Alexander Konoshenko, Deputy Chief Engineer. Gave an overview of the project. Described the relationship of the US coal and rail industry. Rasstrygin gave an overview of the rail industry:

- Would like English language training
- Shubarkol rail line needs developed. Coal presently is attractive and if KaragandaUgol approves the plan we can carry it out
- we need investments
- our limits are 55 cars @ 70 tons per car at max speed of 90 km per hour

Met with representatives of the Karmet steel plant in Timertau. Director of coke and chemicals production, Yuri Grulozibov and Chief Engineer, Vladimir Myrko. Overview of Karmet:

- process 2.4 million tons of coke per year
- 23,000 tons of coal per day from Qharagandy
- imports a small quantity of coal from Russia
- there is a shortage of coking coal from Qharagandy (it is interesting that KaragandaUgol claims production is down due to a lack of markets, yet the steel plant claims it can not get enough coal from the association)

- Shubarkol coal replaced coal from the Kuznetsk basin after the Soviet Union collapsed
- started using coal from Ekibastuz a few months ago
- 7 batteries of coke ovens, 2 are being rebuilt, a new battery was halted due to lack of funds, and an additional battery is in design
- Keyser Engineering a US firm is involved in the construction and design of the new batteries
- they produce mostly furnace coke, but also some foundry coke, and some goes to a ferro alloy plant
- presently they are looking for financing to build an environmentally safe plant
- in order to have a good quality coke the coal must be processed, but since there is a shortage of coal it is not being processed

Karmet has a processing facility and is wanting more coal to process and sell to other enterprises

SEP 24 Met with Nuraly Bekturganov, Deputy Head of Administration for Education. The administration is interested in all proposals to study and reach a market economy.

SEP 27 Met with representatives of the Mine Safety Institute. Bulat Abdrukhmanov, Director; Vladimir Goncharov, Deputy Director Science; Ivan Yatseko, Head of Laboratory Expertise; and Konstantin Abramson, Head of Laboratory Equipment. They outlined the institutes activities:

- research for mine safety problems
- approve new equipment
- work to improve existing equipment
- work to improve ventilation, dust control, degassification, prediction of outbursts
- test and approve explosives
- advise to the viability of mining in certain areas
- 8 laboratories under their supervision
- staff consists of 150 persons, 90 of which are scientists

OCT 6 Met with Narmanbet Tuliepov, Director for Social and Personal Problems for KaragandaUgol. He will be the Coal Project liaison with KaragandaUgol in the future. He listed local concerns...

- Karaganda is currently looking for warehouses to store vegetables they lose 20-30% of the annual harvest to spoiling
- Israeli firms are looking to increase milk production of the dairies
- they are working on organizing bread production
- the President and Vice President have charged Mr. mamontov with responsibilities of local housing, taxes, investments and loans.
- last year KaragandaUgol paid the government 17.5 Billion Rubles and have not seen benefits for these taxes

OCT 7 had a meeting with the Mine Safety Institute. We were introduced to a Kazakh who was working in the United States. Filip Gelfand is working with Intercontinental Resourced Development Ltd. (IRD). IRD has a joint venture with

two Kazakh companies. They are working on a project with the ExIm Bank in import-export of agricultural supplies, machinery and technology. The Director of the Safety Institute, Mr. Abdrahmonov, is interested in opening relations with an American University. We will pursue this further. PIER staff then demonstrated and explained the US safety equipment and a US mine map.

OCT 8 Returned to the Safety Institute, met with Konstantin Abramson. Mr. Abramson explained that the institute tests and approves foreign equipment being used in tel. Kazakh mines. He demonstrated an instrument being used to predict outbursts.

OCT 11 Received a request from the Red Cross today to facilitate the sale of 600 bags of household coal to be shipped to Kyrgystan for the winter.

OCT 15 Delivered a lecture to 21 coal miners at the Institute for Operating Specialists. The subject was an overview of the US coal industry. I will lecture to this group again on US mining methods and mine design, as well as demonstrate personal safety equipment.

OCT 18 Sent a fax to David DeLuciano of the US Department of Commerce, presenting an overview of the Karaganda coal industry and the equipment utilized. He requested the information to develop an American corporate presence in the NIS.

OCT 19 Met with Yuri Rudenka, technical Director of Mine Safety Problems for KaragandaUgol and his deputies Alexei Pimmenov and Valery Sergeev. Rudenka will host the visiting professors from the University of Kentucky. His comments...

--after the collapse of the Soviet Union Kazakhstan began issuing mine safety standards

--article 13 of the standards state that if international standards differ with state standards the more strict of the two will be enforced

--would like a copy of the US codes and regulations. Would like to consider the technical compatibility of these laws.

--the safety services of KaragandaUgol supervise the whole industry- degassification, spontaneous combustion, ventilation, health standards, outbursts, and accident investigation.

--the department is interested in exchanging specialists, **not students**, who work in these fields.

OCT 20 Delivered the second lecture to the same 21 coal miners at the Institute for Operating Specialists. Today we demonstrated personal safety equipment. We also reviewed a map and plan of a US mine. We covered the cycle of the room and pillar mining technique. We are trying to convey the message that room and pillar is continuous work except for place changes; that roof bolting provides a safer and versatile work environment for continuous and longwall mining; and the improved ventilation realized reduces the hazards associated with dust and methane.

OCT 21 Attended a legal seminar at the Ministry of Fuel and Energy arranged by PIER Almaty. The Keynote speaker was Dr. Charles Lipton of the

American Bar Association. Participants included Tom Eighmy of US AID, Mr. Rolf Manfred US AID IDEA, Sergey Baimukhametov First Vice President KOMIR (a holding company that replaced KazakhCoal), Viktor Badaker Ministry of Energy; Foreign Affairs, Bakhitdejan Dejaksaliev Ministry of Energy; Head of Foreign Affairs, Dr. Shakarim Zhanseitov Ministry of Economy; Foreign Investment, Dr. Vladimir Arefyev Ministry of Geology, and Dr. Airat Nurgaziyev Ministry of Economy Foreign Investment. The purpose of the seminar was to address the legal issues that confront Kazakhstan as the country's coal industry approaches privatization.

OCT 22 Spent considerable time arranging logistics to have a key PIER partner, Yuri Krivodanov evacuated to Moscow for emergency medical treatment. Mr. Krivodanov a key reformist and crucial PIER partner was diagnosed with pancreatic cancer this week. PIER with the AFL-CIO are attempting to assist him in receiving proper care.

OCT 28-31 Accompanied Drs. Sweiggard and Unrug on their technical advisory mission. Detailed report to follow.

Partners In Economic Reform, Inc.

Field Report

**Coordination and Liaison Office
Almaty, Kazakhstan**

Alan Irving

Six mine construction workers were killed November 17, in an explosion and roof collapse, while routinely extending a water/gas drainage tunnel under one of the open pit sections. Cause of the explosion is unknown.

Ekibastuzugol- General Director Kalandarishvili and Technical Director Belik were removed today for not fully focusing on mining activities. Ekibastuzugol was becoming too involved in unrelated mining activities, including operating a fruit juice plant and a brewery.

November 18 met with Mr. Bajmukhametov. He advises that the recent shake ups with Karaganda and Ekibastuz coal associations are part of the State Coal Holding Company's (KOMIR) plans to assert more centralized control of the Kazakhstan Coal Industry and future development of its coal reserves.

An Overview of the Kazakhstan Coal Industry - 1993

In 1992 the Kazakhstan Coal Industry produced 122 MMT. In 1993 domestic production now is estimated at 106 MMT. 85 MMT will be consumed domestically (utilities 45.5 MMT @ 60% capacity), while the balance shall be exported, primarily to Russia (85%) and Ukraine (10%) KaragandaUgol and EkibastuzUgol will produce 73 MMT and 33 MMT respectively (versus 1992: 81.2 MMT and 40.3 MMT).

1993 Distribution

UTILITIES	45.5
METALLURGICAL	32.5
HOUSEHOLD	7.0
OTHER	---
EXPORTS (non-CIS)	25.0
IMPORTS (coking)	4.0

(Declines in production are attributed to economic conditions.)

Since arriving in Kazakhstan in May of this year, PIER has been working with the strong cooperation of and through the Ministry of Energy and Fuel Resources and the coal regions to evaluate, develop and implement programs, subject to USAID approval, to provide technical assistance and training to the mining industry in the areas of health and safety, productivity and efficiency, quality control and marketing. An office has been established in Almaty to work with the state mining agencies, and a joint technical cooperation center in Karaganda. We hope shortly to have approval for a comparable center in Ekibastuz. PIER is seeking to work with the coal and utility industries on the environmental concerns, resulting from the country's dependence on coal fired generation of its energy needs.

With the breakup of the Soviet Union and unlike Russia, where the command and support structures remained in place, the Kazakhstan coal industry was left with a leadership void and remnants of institutions that had previously directed it from afar. The government, through the Ministry of Energy and Fuel Resources newly created State Holding Company KOMIR, and the mining companies currently are struggling to put the pieces together and redefine their regulatory/operating relationship, in order to resolve a very fragmented and potentially economic explosive situation. Within the last month, mine company managers were replaced

by KOMIR, as it begins to assert its day to day control. There is a need to develop responsibility and accountability (economic and social) between labor and management (production and administrative personnel) and to be able to understand each other and work together. The Code for Underground Mineral Resources must be written to be workable in a free market economy.

The industry, though skilled and knowledgeable of Western technologies is wanting to learn and apply our technology and methodology to increase its efficiency and productivity, while addressing mine safety and health issues, and of the necessity to deliver a quality product to markets here and for export. It is looking for technical and financial assistance to further develop, mine and process its large coal reserves (Shubarkol and Majkubene), in an environmentally responsible manner, while seeking help to deal with existing mining and reclamation problems. PIER is working to provide programs to help the industry realize and begin to solve its problems, thus showing a commitment to removing the mining, environmental and marketing liabilities that up til now have dissuaded the international business and financial community, led by the World Bank, from investing in and providing modern equipment to the industry.

Ekibastuz (the power generating center of Kazakhstan) with the largest open pit operation in the world (high ash steam coal), and Karaganda (60% coking coal) with its underground mines, are looking for assistance in resolving specific issues in the areas of safety, mechanization, cleaning and processing, reclamation (environmentally safe disposal and or use of mine refuse). On the other hand, some inefficient and unproductive underground mines will have to close (already determined in principle by the government), and the miners retrained for a hopefully expanding work force, as Kazakhstan moves forward to process its resources.

At the same time, the regional utilities have requested similar help in the cleaning of the high ash (+40%) coal and in the disposal of the resulting refuse, at least through the year 2000, while the use (and financing) of other facets of US Clean Coal Technology are explored. Coal fired power provides for 80% of Kazakhstan's energy consumption, and will continue to do so, at least until sufficient oil and gas are produced and pipelines built. While there is a power deficit, it is not the current generating capacity, rather lack of transmission facilities (now being built through the year 2010). Kazakhstan has an installed capacity of 16,000 MW of which 12,000MW is coal fired.

If the US, PIER, is to assist in facilitating the transformation of the industry to coal mining enterprises which can survive and compete in a market based economy, it must look not only at the industry itself, but also beyond at the great importance it is given as an economical, domestic source of energy needed for regional and national economic development and growth. We must understand and consider its macro impact, and not just target assistance at an immediate return on investment from the industry's bottom line alone, but at the greater overall benefits to be delivered in meeting Kazakhstan's different economic and political situation. What programs worked elsewhere in the CIS, may or may not be appropriate here.

There is a need for PIER to help learn cost accounting and the legal and business issues affecting mineral resources and land management. Their mining engineers

and specialists must be shown the benefits and trained in applying modern technologies and methodologies in order to develop and restructure mine operations from which coal can be produced safely and efficiently. Mining personnel must understand the equipment necessary to extract coal effectively and profitably. There is also a need to learn cost accounting and to resolve legal issues affecting the mineral resources and land management, which ultimately affect the government's efforts to develop cooperation within and better assessed in its desire to privatize the industry.

While there are no guarantees that American business will succeed in its investment here, they will be left out of the running if they do not start now to put the pieces together, as their competitors are now doing. Cheap clean energy produces incentives for building industry, competition and profitability, and thus economic stability.

PIER, within the framework of its present grant from USAID, is prepared to finalize its current evaluation of the industry's needs, prioritize and propose programs to begin to train and provide the industry with an understanding of why and how it can address immediate concerns. PIER can then prepare the industry to work towards acquiring the long term commitments it requires to continue to produce coal, successfully and profitably, and to deal with the resulting social and economic "safety net" consequences. However, PIER will have to obtain additional resources to accomplish this next level, once it is more clearly defined.

1993 Utility Coal Consumption

EkibastuzEnergo	12.0MMT
PavlodarEnergo	13.3MMT
KaragandaEnergo	9.3MMT
AlmatyEnergo	3.8MMT
AltayEnergo	2.0MMT
KalinEnergo	3.8MMT
YuzhkazEnergo	0.8MMT
KustanayEnergo	0.3MMT

Kazakhstan will be a net importer of energy in 1994 (import from the South/export to North)

Partners In Economic Reform, Inc.

Field Report

**Cooperation and Development Center
Qharagandy, Kazakhstan**

John Marunich

NOV 2 Met with Igor Lavrif, NPG representative of the 50th anniversary of the USSR Mine. He has arranged a mine tour for Friday.

NOV 3 Met with Nuraly Bekturganov, Deputy Head of the Karaganda Regional Administration. He commented that the attitude of institutions and organizations around town are very favorable and that the Coal Project enjoys a good reputation. He was quite interested in the ABA seminar (Mr. Lipton) and the visit of the US experts Sweigard and Unrug. I updated him on future plans to conduct programs on roof bolting and spontaneous combustion.

The Administration is going to apply to the Supreme Soviet to complete the Karaganda international airport which is under construction. The question of currency exchange is still unresolved. He says the major concern is to preserve a stable situation in the Republic. A rubber factory had to close because 99% of its raw materials were coming from Russia and that relationship had ended. Many factories have closed because they cannot pay wages. Bekturganov believes the economic hardship will continue but takes rest in the idea that Karaganda is full of industrious people with great potential. He feels relations with Russia are a major problem and is therefore attempting to create joint ventures with Turkey, Germany, Finland and Israel.

Spoke to a meeting of NPG representatives to summarize activities of the Coal Project and discuss future plans. They were interested in social safety net, retraining proposals. There is also a lack of medical supplies at the mines.

NOV 4 Met with fire prevention specialists at VOSTNII - Vladimir A. Alexandrov, Chief of Laboratory for Fire Prevention; Arkady I. Yugay, Leading Specialist; and Yan D. Vitebsky, Senior Specialist. The department is conducting research on spontaneous combustion, oxidation, and self heating. Karaganda averages 3 to 5 underground mine fires a year. I was shown some equipment, an ohmmeter which is used in conjunction with a thermal resistor to measure heat in blocks of coal. Holes 2-3m in depth are drilled into longwall panels on 50m centers, the resistor is inserted into the holes and wired to the ohmmeter which reads the resistance. An accompanying chart plots temperature vs. resistance and this chart is used to determine the temperature within the block of coal. As the temperature rises the resistance decreases. Mean temperature is 25 degrees celsius and preventative measures are taken at 40 degrees. These measures include limiting the oxygen supply to the affected area, or the use of anti-pyrogens. The underground areas most susceptible to fire are even with the fall line on longwall panels, and tunneling sections don't pose a threat. They are very interested in monitoring systems such as the MSA "DAN System".

NOV 5 Met with Viktor Chaika at Karagandaugol to discuss the Sweigard-Unrug visit. I expressed encouragement by Unrug's assessment that roof bolting technology could be successfully applied in some Karaganda seams. Chaika said 30 years ago technological innovations were encouraged, but not now. He gave me some contacts at KNIUI who studied roof bolting some years ago. He mentioned that Karagandaugol was going to put together a list of six priorities regarding mine safety, provide information, and attach their wishes as far as solutions are concerned. He added that some areas will require US specialists,

while others will require only information and literature. He underlined that mine safety was related to economics and the Coal Association needs to work in all directions. He encouraged PIER work with the Institute for Operating Specialists.

NOV 10 Talked to Karaganda today from Almaty. Mamontov General Director of Karagandaugol returned to Karaganda to defend his position of General Director. While he was vacationing Nyfodov was lobbying to have Mamontov, and his deputy Yevtenko replaced. Nyfodov claims they have mismanaged the association contributing to the deteriorating economic welfare of the coal enterprises. Furthermore, Yevtenko is accused of illegal activities.

There are also plans for a meeting of officials from Karagandaugol, the Karmet Steel Plant, and the State Railroad to discuss mutual concerns. The meeting if realized, will be the first in the region, and was promoted by PIER during the last few months.

NOV 12 President Nazerbayev appeared on television tonight to announce the new currency exchange. Beginning Monday old Roubles may be exchanged for the TENGGA at the rate of 500 R per TENGGA. A limit of 100,000 roubles per individual has been set (25\$US). The rate of TENGGA per dollar has been set at 4 to 1. Small Rouble notes less than 1000R will be acceptable currency throughout next week. All denominations of Roubles may be exchanged until Wednesday.

NOV 14 Mamontov has been replaced by Gregory Prezent today as the General Director. Prezent was the General Director of the Kostenko Mine in Karaganda.

NOV 16 According to Viktor Badaker of the Ministry of Fuel and Energy Mamontov was replaced because production was off by 25% and he lacked leadership qualities. He also stated that the new General Director PREzent sees no need to include labor on operational decisions.

NOV 17 Not only was Mamontov replaced but most of his staff as well. Technical Director(Chief Engineer) replaced by Asibayev former Director of the Karagandainskaya Mine. Director for Social and Personnel replaced by Pirzadayev also a mine director. Economic Director Yevtenko replaced by Hodjaev, formerly Economic Deputy Director. Viktor Shchukin, another Economic Deputy Director resigned his position. Hodjaev is the only new guy and I think he was a fine choice. He has studied western economics/management and appears to be a progressive thinker.

NOV 18 PIER Project Director in Almaty met with Baimukhametov to assure PIER's status in light of the recent shake up. He is still very supportive of the Coal Project and wants to pursue roof bolting technology in Karaganda.

NOV 19 Lectured 23 miners at the INstitute for Operating Specialists on US mining industry, room and pillar mining, and roof bolting technology. Demonstrated safety equipment.

NOV 23 Received second shipment of safety equipment from the US.

DECEMBER 1993

DEC 1 Had meeting with Valeri Stratov, Deputy Director on Underground Mines at Karagandagiproshakht, which was arranged by Victor Kafidov. Stratov invited me to lecture at Giproschakht, the institute responsible for mine design.

DEC 2 Delivered lecture to 30 engineers at Karagandagiproshakht on US mining methods and mine design.

DEC 3 Baimukhametov said that KOMIR had met to discuss production plans. They plan to start "withdrawing" from some of the Karaganda mines in 1994, but don't expect to actually close any for 2 or 3 years.

DEC 8 One alarming bit of information I picked up today. There have been 49 coal industry fatalities year to date in Karaganda. That's one per week. Divide that by the 33 million ton production figure for 1993 and that's 1 fatality per 673,000 tons. Using a clean coal yield factor of 60% that figure becomes 1 death per 400,000 tons.

DEC 9 Met with Murat A. Pirzadayev, Karagandaugol's new Technical Director. Victor Chaika joined us. Pirzadayev was a little cold initially, stating that he didn't see anything concrete in the program for Karaganda, echoing the need for investments and immediate financial aid. He said that Karagandaugol was capable of applying new technologies if given the financial resources. I stressed PIER's desire to assist in the application of new technologies and our proposed work plan for 1994. He agreed that all the things in our plan were burning issues for them, and gradually became more receptive and expressed interest in cooperation with such programs. I also told him it was important for a Kazakhstan coal industry delegation to visit the States and meet with representatives there to voice their needs and concerns. I also reminded him that I needed to meet with Prezent who returns to Karaganda on Saturday.

Had an informal discussion with Chiaka following the Pirzadayev meeting. Chiaka has been the most cooperative person at Karagandaugol. He just offered the following comments

- Don't get frustrated
- Karagandaugol has an 89 billion ruble debt. We have asked the government for 80 billion rubles.
- The government forces us to ship/deliver coal without being paid for it, saying people will freeze if we don't.
- 6 coal mines in the region haven't paid wages for October and it's the middle of December.

DEC 10 Had a meeting at Karagandagiproshakht with the deputy director Valeri Stratov. He presented me with a list of several questions that arose from observers at my recent lecture there. I'm invited back to to use their facilities and do more presentations. These guys are the real engineers of the region.

News report. Mamontov was arrested today in Moscow for attempting to transfer funds to the West.