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/State emblem of the Republic of Uzbekistan/
**STATE COMMITTEE FOR
NATURE PROTECTION OF
THE REPUBLIC OF UZBEKISTAN**

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Ref. to # 917-006 dated 01.02. 2007

C O N C L U S I O N
of the State Environmental Expertise Committee

Project: EIA of the GPP complex construction and Kandym group of fields development (1 stage of EIA - Draft Environmental Impact Assessment)

Customer: LUOC

Developer: J/V "NE3FTEGAZTEXNOLOGIYA"

To : General Director of LUOC

S.U. NIKIFOROV

Copy: General Director of J/V "Neftegaztexnologiya"

D.K. OKHUNOV

Chairman,

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A.B. NIYAZOV

The first stage of the Environmental Impact Assessment of the construction of the gas-processing plant (GPP) complex and the development of the Kandym Group (Kandym, Akkum, Parsankul, Kuvachi-Alat, Khodji, Western Khodji) located in the territory of the Karakul area of the Bukhara region was presented for the Environment impact assessment.

It is provided for by the project to develop the production wells, multiple well platforms, gathering stations, field pipeline transfers, the construction of the gas-processing plant, gas-main pipelines, and infrastructure facilities, The estimated capacity of the gas production field and the GPP is planned to reach up to 8 milliard m³/year in terms of the natural gas and more than 200 thousand ton / year in terms of gas condensate. 126 production wells are planned to be drilled.

The prospecting works for revelation of the hydrocarbon raw material stocks at the deposits of the Kandym group started in 1960-1963. The total volume of prospected stocks approved by State Reserves Committee constitute 248,788 milliard m³, including those at the deposit of the Kandym – 172,253 milliard m³. The gas gathering system under project will be consisted of the sites of the production wells connected with a multiple well platform which in heir tern will be connected with gathering station. It is supposed that the wells will be equipped with similar-in-configuration equipment including underground (operational packer, reducing taper elbows, couplings, and landing nipples) structures and ground (control head) structures. A 10 meter high fuel spray is envisaged (for periodical well blowing

out 1-2 times a year) to be located at approximately 100 meters from the wellhead. The sulphuric dioxide gas coming from the wells will be restricted by a connecting pipe up to the value of 9 MPa, and with the temperature of 33-34°C fed, through aprons, towards the multiple well platform into the block of entering threads.

To connect the wells with cluster points and gas collecting stations, a number of flow lines are planned to be laid in total of 208 kilometers and connecting gas pipelines from the multiple-well platforms up to the gathering station of more than 146 km. A collector-radial system is envisaged to be arranged in the project to gather gas from the wells. The gas-collecting system of the Kandym block includes five gathering stations which will receive products from 126 wells. All the hydrocarbons, excluding those burned in flares and discharged into the subsurface drainage system, will be unified at the output of the gathering station and fed towards the GPP for processing and stabilization. The initial preparation of the product (mainly moisture separation), will take place at the gathering stations. Then the fluids, through the gas mains, are fed to the GPP which is located at the center of the gathering stations with the distance of 15-20 kilometers from each of them. The GPP is designed to prepare and process the unstripped gas with the purpose of obtaining product (saleable natural gas, stable condensate, liquefied gas, and saleable sulphur). The following process blocks in the framework of the GPP have been provided for in the project: a general receiving module; general structures for condensate stabilization; three process lines for cleaning the gas from acid gases, with a productivity of 8.5 million m³/day for gas; three process lines for drying the gas with a productivity of 8.5 million m³/day; three LTS (low temperature separation) process lines with a productivity of up to 8.5 million m³/day and three lines for sulphur production with a productivity of 195 ton/day for incoming sulphur.

Having reached the GPP, the raw mixture will be divided in a three-phase separator into individual phases: gas, liquid hydrocarbons and water. The condensate and formation water will be separated from the general stream of the liquid gas. The separated sulphur-containing gas will be supplied to the installations where the gas is cleaned from the acid gas. The separated water goes to the formation water processing system. The gases taken out from the upper part of the receiving module will be fed to the receiving separators, the separated liquid – towards the condensate separator. The formation condensate will be mixed with the condensate which after being processed comes from the Pumping/Heating station, as well as from other GPP-located separators. Then the mixed flux will be fed to a condensate stabilizing installation where butane and other more light gases are separated. The gas diverted through the upper part of the gas stabilization and condensate separator column is moving to a compressor via a receiving separator where it is cooled with its pressure reaching the value of 6.55 MPa and then it is fed to an acid component separating unit which removes hydrogen sulphide, carbonic oxide and carbon dioxide by means of chemical absorption. The cleaned gas coming out from the above-mentioned unit will have to meet the requirements of saleable gas specifications in terms of hydrogen sulphide content, that is, not more 0.007 g/m³. The separated acid gases will be fed to an installation where elementary sulphur is produced.

The acid gas processing installation with the production of sulphur includes a section for sulphur separation by using Claus process, a receiving bunker with degasation and a thermal oxidizer (re-heating furnace). The basis of the sulphur production technology is incomplete burning of sulphur with three subsequent stages of catalyzing reaction in the Claus reactor and one reaction stage in the superclaus reactor where a selective oxidation of hydrogen sulphide with sulphur formation takes place. The gas coming out from the reactor goes to a sulphur condenser. In order to provide a maximum concentration of sulphur vapors, the superclaus condenser operates under a low temperature. Liquid sulphur comes from the condenser into the bunker. The sulphur obtained contains hydrogen sulphide the amount of which is supposed to be lowered by degasation in bubble columns with use of air. The degasified sulphur is pumped to the devices of liquid sulphur removal and to a granulation installation. Lump sulphur will be produced at the storehouse when piles of cold sulphur are developed. Motortrucks are supposed to be used for loading sulphur into

gondola cars. Granulated sulphur will be produced from liquid sulphur by a ROTOFORM method on the Sandwick bands, and then it is supplied to customers through a storehouse.

The production and processing of hydrocarbon raw materials involves emissions into the atmosphere, effluent and waste product formation. The main sources of air contamination will be considered to be the process equipment necessary for sulphur production, gas-pumping units, and the gas generators of power station, steam boilers and the low and high pressure flares, and, in perspective, the smokestacks of booster compression station. It is predicted that the total amount of contamination substances thrown out into the atmosphere constitutes 12,509.3 ton/year among which 90.4% are hydrocarbons, carbonic oxide and sulphur oxide. Calculations of maximal concentrations formed by emissions from the sources of the enterprise under design, revealed an excess of established standards (quotas) beyond the industrial territory of the GPP as to nitric oxide (0.57 of the maximum permissible concentration (MPC)) and nitrogen dioxide (0.73 MPC). No excess was revealed with respect to other ingredients. At the sites of the wells, gathering point, GPF and GPP it is planned to install stationary inspection sensors for monitoring the composition of surface air for major ingredients: hydrogen sulphide, sulphur dioxide, mercaptans, nitrogen and carbon oxides, methane. As a source of drinking water supply it is supposed to use the Yamandjar canal from which water will be delivered into the accumulating reservoir with a volume of 120 thousand m³ and further to water treating facilities where filtration, clarification, cleaning and neutralization take place.

As a source of production water supply, it is planned to use a head discharge canal which water, on separate lines of GPP water treating facilities, undergo chemical clearing, coagulation and mechanical filtration. Then one part of the flux is used for production-firefighting needs and the other part is fed to the water/chemical cleaning unit which serves the boiler house. The project is supposed to envisage a circulating water supply at an approximate volume of 85,034.4 thousand m³/year for mainline production and 116 thousand m³/year for accessory needs. Production waste waters are formed from the operation of boiler-houses, condensate facilities, the blowing of heat-recovery boilers and reactor-generators, the drainage tanks of the sulphur cleaning and gas drying units, for equipment wash. An approximate total volume of waste waters will constitute 706.04 thousand m³/year. The waste waters undergo cleaning from suspended particles, oil products and then are fed together with cleared, chemically contaminated effluents (formation water, boiler-house effluents etc.) to an installation for pumping them into the stratum. The household sewage after being completely biologically treated, deeply purified and disinfected, will be fed to the system of production water supply for repeated use.

The major waste of the mining part of the gas production will be detritus which includes the mixture of mechanical impurities, water and gas condensate. Wastes will be formed during the cleaning of the gas pipeline 2 times a year and collected in a special reservoir. It is believed that during GPP operation, the wastes will obtain the form of used activated carbon, molecular sieves, filter-cartons, catalyzes, turbine oil. The detritus is planned to be discharged at the toxic waste polygon to be located at the Khauzak-Shady deposit. The used oil will be delivered to special enterprises for further processing. The way of utilization of the rest wastes has not been determined yet.

The highest ecological hazard at the realization of the project proposal is believed to be at the gas-main pipelines and distribution gas pipelines when liquid sulphur is transported in cisterns.

As a most possible accidental situation a scenario was considered, where the equipment failures the seal with the subsequent fire and explosion. Ecological evaluation of such accidental situation subsequences has not been made. In order to decrease a possibility of emergency losses there was stipulated an automatic regulation, pressure alarm at the major process lines. In case of emergency situation at a gas pipeline, it is stipulated to automatically cut off a part of the pipeline at the nearest tap valves. If an accident takes place at the GPP, an automatic device is supposed to be activated which prevents the supply of gas to the plant.

Measures have been developed in the Project which includes works for engineering and biological recultivation with the purpose of restoring the soil fertility exposed to the detrimental action of building machinery and vehicles. The second part of the recultivation envisages for forestation in two rows. It is supposed to use plants, grasses and bushes of local originality with consideration of their gas resistant ability.

It is also necessary to work out measures for preservation of plants and animals entered into the Red Book.

The ecological expertise has shown that the Project corresponds to the statutory document requirements for the first stage of environmental impact assessment. The organization of the complex for mining and processing of the hydrocarbon raw materials envisages for the rational use of natural resources and the measures for minimization negative ecological impact. Before the facilities of the Project are put in commission, it is required to develop an Environmental Impact Statement (EIS) individually for the production complex and for the processing complex, which should stipulate a presentation of draft ecological guidelines for all types of the environmental impacts; an ecological evaluation of the results of accidents and efficient steps for prevention of their nonreversible aftermaths, as well as a substantiated system of monitoring the state of the environmental components which undergo most detrimental effect of the production under project.

The State Environmental Impact Assessment of the State Committee of Nature Protection of the Republic of Uzbekistan shall co-ordinate the above-mentioned EIS of the construction of the Complex of the Gas Processing Plant (GPP) and the development of the Kandym Group (Kandym, Akkum, Parsankul, Kuvachi-Alat, Khodji, Western Khodji) located in the territory of the Karakul area of the Bukhara region.

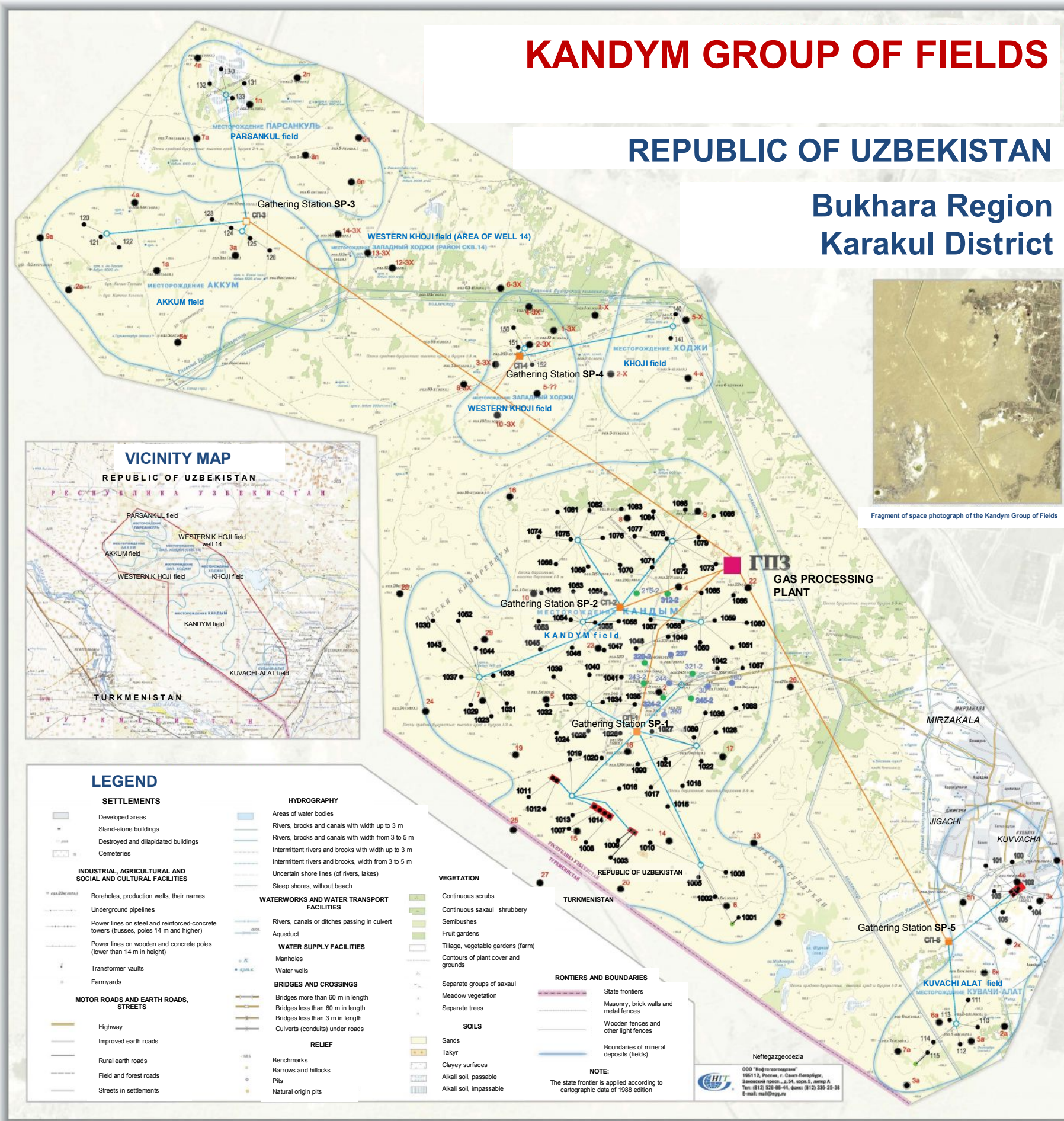
The Bukhara Regional Committee of nature protection should take over its control of the observance of the environmental legislation when the Project of the construction of the Complex of the Gas Processing Plant (GPP) and the development of the Kandym Group (Kandym, Akkum, Parsankul, Kuvachi-Alat, Khodji, and Western Khodji) is realized.

ACTING FIRST DEPUTY CHAIRMAN signature R. KHABIROV
Round seal

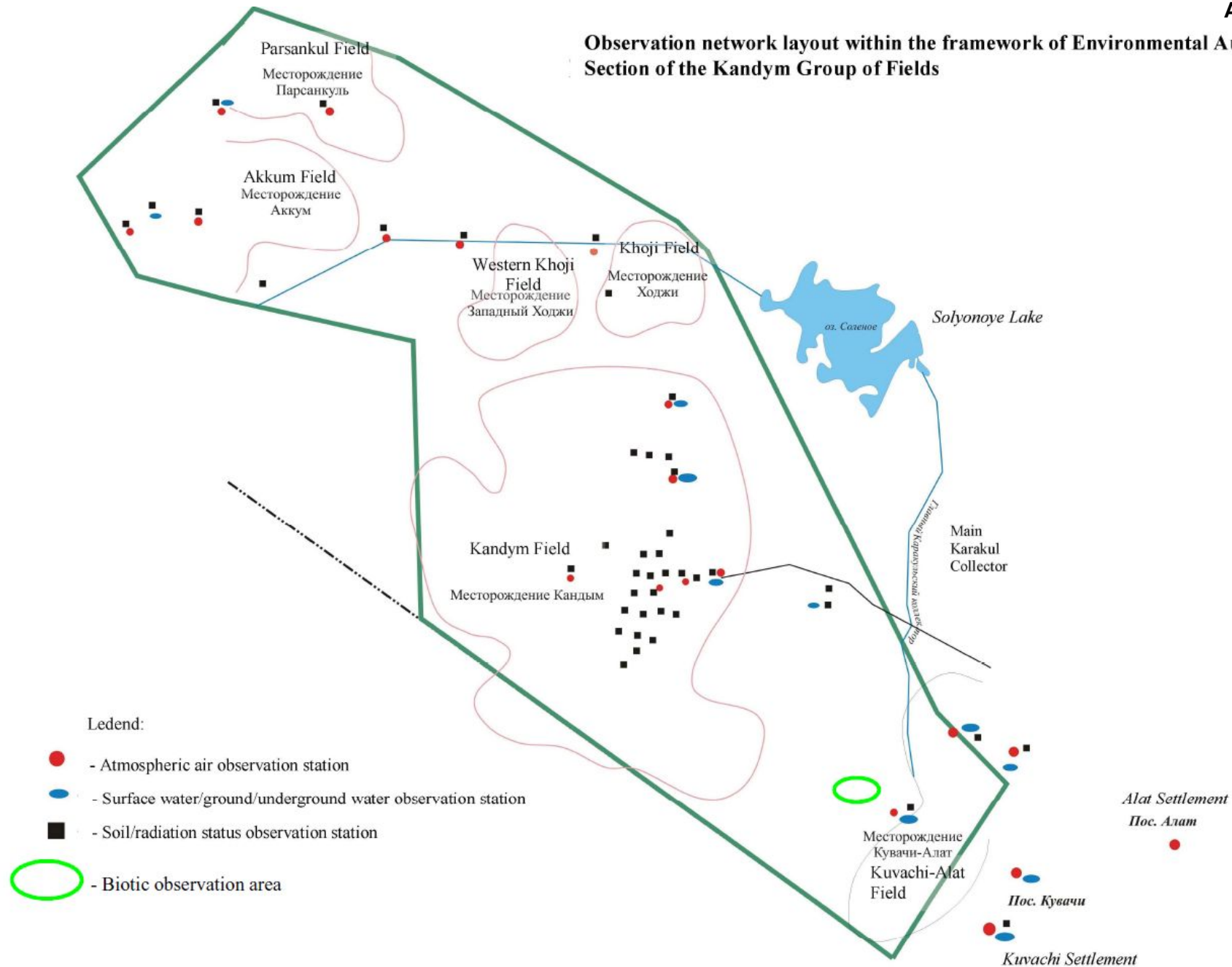
KANDYM GROUP OF FIELDS

REPUBLIC OF UZBEKISTAN

Bukhara Region Karakul District



Observation network layout within the framework of Environmental Audit
Section of the Kandym Group of Fields



Environmental Audit Methodology

The description of the initial baseline environmental condition assessment is based on the assessment results from the Environmental Audit of Contract Area for Kandym Group of Fields carried out from October–December 2004. The primary objective of the baseline environmental condition assessment is to forecast quantitative or qualitative material, chemical, biological and social and economic effects of business activities and revise techniques and technologies intended to maximize positive effects and minimize adverse ones. Environment conditions assessment is based upon:

- Law of the Republic of Uzbekistan “On Protection of Nature” of December 9, 1992 as amended by the Laws of the Republic of Uzbekistan of 05/06/1995, 04/25/1997, 12/25/1998, 05/26/2000 and 08/31/2000.
- Law of the Republic of Uzbekistan “On Protected Natural Areas”
- GOST R ISO 14040 -1999. “Environmental Management System. Lifecycle Assessment
- GOST R ISO 14031-2001. “Environmental Management System. Assessment of Environmental Performance.

The number of sampling stations set up in Kandym Group of Fields during part of the initial environmental baseline assessment involved the use of GPSMAP 76CS, a navigator that enables one to determine one’s location coordinates to the nearest of 7 meters and has an in-built electronic compass, barometer, altimeter and makes it possible automatically plot the route and record one’s traveling ways.

Final List of Surveys Performed in the Course of Initial Baseline Assessment in Kandym Group of Fields

No.	Sampling Act	Parameters Tested	Kandym Group of Fields
1	Air Sampling	Dust, carbon monoxide (CO), sulphur dioxide (SO ₂), Nitrogen Dioxide (NO ₂), Nitric Oxide (NO), Hydrogen Sulfide (H ₂ S), hydrocarbons, phenol (C ₆ H ₅ OH), Benzene (C ₆ H ₆), Tuluol (C ₆ H ₅ (CH ₃)), Xylol (C ₆ H ₄ (CH ₃)) and ammonia (NH ₃).	19
2	Sampling of water from surface water bodies for physicochemical analysis	Hydrogen index (pH), hardness, calcium, magnesium, alkalinity, chlorides, sulfates, ammonium ions, nitrites, nitrates, COD Chemical Oxygen Demand(COD), dissolved oxygen (DO), Biological Oxygen Demand (BOD), Boron (B), Aluminum (Al), Cadmium (Cd),Potassium (K), Nickel (Ni), Sodium (Na), Molybdenum (Mo), Arsenic (As), Mercury (Hg), Lead (Pb), Fluorides (F), Benzene, Methanol, Phenols, Petroleum products, Iron (Fe), Copper (Cu), Magnesium (Mg), Xylol, Tuluol, Chrome, Zinc, Synthetic surfactants, pesticides, sanitary and biological analysis, total bacterial count, coli index, coli titer.	2
3	Sampling for groundwater for physicochemical analysis	Hydrogen index (pH), hardness, calcium, magnesium, alkalinity, chlorides, sulfates, ammonium ions, nitrites, nitrates, COD Chemical Oxygen Demand(COD), dissolved oxygen (DO), Biological Oxygen Demand (BOD), Boron (B), Aluminum (Al), Cadmium (Cd),Potassium (K), Nickel (Ni), Sodium (Na), Molybdenum (Mo), Arsenic (As), Mercury (Hg), Lead (Pb), Fluorides (F), Benzene, Methanol, Phenols, Petroleum products, Iron (Fe), Copper (Cu),	2

No.	Sampling Act	Parameters Tested	Kandym Group of Fields
		Magnesium (Mg), Xylol, Tuluol, Chrome, Zinc, Synthetic surfactants, pesticides, sanitary and biological analysis, total bacterial count, coli index, coli titer.	
4	Sampling of drinking water	Hydrogen index (pH), hardness, calcium, magnesium, alkalinity, chlorides, sulfates, ammonium ions, nitrites, nitrates, COD Chemical Oxygen Demand(COD), dissolved oxygen (DO), Biological Oxygen Demand (BOD), Boron (B), Aluminum (Al), Cadmium (Cd), Potassium (K), Nickel (Ni), Sodium (Na), Molybdenum (Mo), Arsenic (As), Mercury (Hg), Lead (Pb), Fluorides (F), Benzene, Methanol, Phenols, Petroleum products, Iron (Fe), Copper (Cu), Magnesium (Mg), Xylol, Tuluol, Chrome, Zinc, Synthetic surfactants, pesticides, sanitary and biological analysis, total bacterial count, coli index, coli titer.	7
5	Sampling of soil (ground) at the depth of 0.3, 1.0 and 6 m for physicochemical analysis	(i) Detection of humus; (ii) Determination of the cationic-anionic composition of the aqueous extract (chlorides, sulfates potassium, magnesium, carbonates, solid residue, pH); (iii) Detection of Nitrogen; (iv) Detection of gypsum; (v) Determination of phosphorus content; (vi) Determination of the content of potassium and sodium in aqueous extract; (vii) Determination of the petroleum products content; (viii) Determination of the content of chlorinated organic pesticides; (ix) Determination of the content of heavy metals; and (x) Determination of the phenol content.	44
6	Sampling of soil in the immediate proximity to wellheads for physicochemical analysis		21
7	Sampling of bottom sediments for physicochemical analysis		2
8	Sampling of water, soil and bottom sediments for microbiological analysis		25
9	Sampling of soil (ground) to determine the content of radionuclei in it		20
10	Total number of samples taken for various analysis		142
11	Background radiation measurements (number of points)		20

Description of Methods Used to Determine the Presence of Pollutants in Air

Ingredient being determined	Method's general description	Experimental inaccuracy, %
Dust	Dust level is determined by the weight increment occurring after aspiration of air through an aerosol filter. The determination sensitivity is 0.05 mg of dust per sample.	5*

Ingredient being determined	Method's general description	Experimental inaccuracy, %
Carbon monoxide - CO	Portable gas analyzer Palladiy MP-1-CO-100. The basis of the the gas analyzer's operation is the controlled potential amperometry method, which is about measuring the electrochemical oxidation current of the gas being analyzed on the electrochemical cell's main electrode. The range of measured carbon monoxide concentrations is 0-100 mg/cu.m.	10*
Sulphur dioxide - SO ₂	The basis of the method is oxidation of sulfurous gas in the course of its recovery from air with the help of the hydrogen peroxide solution followed by turbidimetrical determination of the sulphate-ion with barium chloride. The determination sensitivity is 0.05 mg per sample being analyzed.	7*
Nitrogen dioxide - NO ₂	The basis of the method is recovery of nitrogen dioxide from air using the potassium iodide solution. The resulting nitrite-ion is determined on a photometric basis by the azo dye resulting from the nitrite-ion's interaction with sulfanilic acid and I-naphthylamine. The determination sensitivity is 0.1 mg per sample being analyzed.	7*
Nitric oxide - NO	Following its oxidation by chrome oxide (YI) and conversion into a dioxide, the nitric oxide is recovered from air using the potassium iodide solution. The resulting nitrite-ion is determined on a photometric basis by its reaction with sulfanilic acid and I-naphthylamine resulting in emergence of red-colored dye. The determination sensitivity is 0.065 mg per sample being analyzed.	6,5*
Hydrogen sulfide – H ₂ S	The basis of the method is the interaction of silver nitrite with sulfosalt that is produced in the course of the consumption of hydrogen sulfide by the sodium arsenate solution. The silver sulfide produced in the course of the above reaction dyes the solution yellow-brownish, and its intensity is used to determine the content of hydrogen sulfide. The determination sensitivity is 1 mg per sample being analyzed.	1,5*
Hydrocarbons: -methane - CH ₄ ; -ethane - C ₂ H ₆ ; -ethylene - C ₂ H ₄ ; -propane - C ₃ H ₈ ; -propylene - C ₃ H ₆ ; -isobutane - iC ₄ H ₁₀ ; -butane - C ₄ H ₁₀ ; -butylene - CH ₄ ; - isopentane - iC ₅ H ₁₂ ; -pentane - C ₅ H ₁₂ ; -hexane - C ₆ H ₁₄ . Gases: -nitrogen -N ₂ ; -oxygen - O ₂ ; -carbon dioxide - CO ₂	These compounds are determined using the gas-chromatographic method and a flame ionization detector. The chromatograph columns must be made of steel and need to be 1.5-3 m long; stationary phases: alumogel, silica gel, coal.	10*
Phenol - C ₆ H ₅ OH	Where phenol interacts with diazotized paranitroaniline the sodium carbonate solution produces a red-colored compound. The phenol concentration is determined based on the intensity of the solution's color. The determination sensitivity is 0.2 mg per sample being analyzed.	1,5*
Benzene - C ₆ H ₆ Toluol - C ₆ H ₅ (CH ₃) Xylol - C ₆ H ₄ (CH ₃) ₂	1. These compounds are determined using the gas-chromatographic method and a flame ionization detector. Concentrations of benzene, toluol and xylol being measured range from 0.02 to 15 mg/cu.m. 2. The photometric determination of benzene, toluol and xylol is based on release of nitric compounds which when placed into an alkaline medium produce colored solutions. The determination sensitivity is 0.5 mg per sample being analyzed.	1,5*
Ammonia - NH ₃	The determination is based on release of yellow-brown compound	1,5*

Ingredient being determined	Method's general description	Experimental inaccuracy, %
	(dimercur-ammonium iodide) when ammonia interacts with Nessler's reagent. The detection limit is 1 mkg per solution volume being analyzed.	

* Inaccuracy values were calculated based on the outcomes of the state inspection of the inaccuracy of the State Specialized Inspectorate for Analytical Control laboratory's equipment.

All of the above methods are on the "List of Certified and Approved Methods to Measure Concentrations of Pollutants Contained in Emissions of Industrial Enterprises and Air", approved by the State Environmental Committee of the Republic of Uzbekistan.



Figure – Gas analyzers to detect and determine the content of carbon monoxide and hydrocarbons



Figure – Analytical balance, photoelectric colorimeter KFK-3 and KFK-2



Figure – Heat chamber KS-5, spectrophotometer SF-46



Figure – Polarograph PU-1

Above Tables and Figures show techniques used to detect pollutants in air and soils, as well as photos of some of the equipment used by the laboratory of the State Specialized Inspectorate for Analytical Control (SSIAC) to analyze water and soil samples.

Description of Methods Used to Determine the Presence of Pollutants in Water

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
Hydrogen index (pH)	The method is based on measurements of potential differences arising on the boundary between the outer surface of the electrode's glass membrane and the solution being analyzed on the one hand, and the membrane's inner surface and the standard solution on the other hand.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	0,5*
Hardness	The complex measurement method is based upon release of a complex compound formed by calcium and magnesium ions with sodium ethylene diamine tetraacetate (trilon B), with pH being 10. Detection involves use of the black chromogen.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	4,5*
Calcium	The complex measurement method is based upon release of a complex of the calcium ion with the anion of the ethylenetetraacetic acid (trilon B) in the presence of the murexide indicator.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	4,5*
Magnesium	Magnesium concentrations shall be determined based on a difference between the overall hardness value and total amount of calcium.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	4,5*
Alkalinity	The method is based upon titration of water with 0.1 normal solution of hydrochloric acid in the presence of 0.05% methylene orange indicator.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	5*
Chlorides	The method is based upon titration precipitation of chlorides resulting from exposure to silver nitrite in the presence of the 5% potassium chromate indicator.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	5*
Sulfates	The photometric method is about causing the sulfate ion to precipitate by applying barium chloride and detecting it as barium sulfate. Glycerol is used here as the suspension stabilizer.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	5*
Ammonium ions	The photometric method is based on release of yellow mercur-ammonium iodide with a mercury (I) alkaline solution.	RD 118.3897485.16-92. Tashkent, 1992	5*
Nitrites	The photometric method is based upon release of intensely colored diazo compounds with sulfanilic acid and alfa-naphthylamine (Griss reagent).	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	4,5*
Nitrates	The photometric method is based upon the reaction between nitrates and phenol disulphonic acid accompanied by release of nitro derivatives phenol, which when interacting with alkalis produce yellow-colored compounds.	RD 118.3897485.12-92. Tashkent, 1992	4,5*
COD (chemical oxygen demand)	The titrimetric method is based upon oxidation of organic and inorganic	Collection of methods to measure pollutants in	4,5*

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
	substances in water, when boiled up with potassium dichromate in a sulfurous medium.	the environment, issue 1, Tashkent, 2001	
Dissolved oxygen	The standard iodometric Winkler method is based upon the capability of magnesium hydroxide (II) to oxidate, when placed in an alkaline medium, to magnesium hydroxide (IV). When placed into a acidic medium magnesium hydroxide (IV) returns to the 2-valent state, and the equivalent amount of iodine becomes bonded with oxygen.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	1,5*
BOD (biological oxygen demand)	It is determined by the amount of oxygen in mg, required for organic substances contained in 1 liter of water to oxydate.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies"	4,5*
Boron	Photometric method. It is based on the boric acid's ability to alter the carmine indicator's colour in concentrated sulfuric acid.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	4*
Aluminum	Photometric method. It is based on the aluminum ion's ability to form with aurintricarboxylic acid an orange-red sparingly soluble complex compound in the presence of ammonium sulphate and with pH being 4.5.	GOST 18165-89	4*
Cadmium	Atomic absorption spectrometry (AAS). The method is based upon absorption of ultraviolet rays by gas atoms.	RD 52.24.377-95. All Russian Research Institute for Water Protection, 1995	4*
Potassium	This calculation method is based upon the fact, that when found in natural waters, the potassium ion is subordinate, which is reflected in such calculation in the form of the potassium ion's mass concentration.	GOST 2874-82. Publishing House of Standards. 1984	4*
Nickel	AAS. The method is based upon absorption of ultraviolet rays by gas atoms.	RD 52.24.377-95. All Russian Research Institute for Water Protection, 1995	1,5*
Sodium	This calculation method is based upon differences between the sum of anions and the overall hardness.	GOST 2874-82. Publishing House of Standards. 1984	4*
Molybdenum	This photometric method is based on release of an orange-red complex compound of 5-valent molybdenum with ammonium thiocyanate.	GOST 2874-82. Publishing House of Standards. 1984	1,5*
Arsenic	AAS. The method is based upon absorption of ultraviolet rays by gas atoms.	GOST 2874-82. Publishing House of Standards. 1984	1,5*
Mercury	AAS. The method is based upon absorption of ultraviolet rays by gas atoms.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	1,5*
Lead	AAS. The method is based upon absorption of ultraviolet rays by gas atoms.	RD 52.24.377-95. All Russian Research Institute for Water	1,5*

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
		Protection, 1995	
Fluorides	The photometric method is based upon emergence of yellow color i.e. release of a complex compound of zirconium (IV) with alizarin - sulfonate in an acidic medium.	Collection of methods to measure pollutants in the environment, issue 1, Tashkent, 2001	1,5*
Benzene	The photometric method is based upon release of a brown reaction product resulting from interaction of the formaldehyde mixture with sulfuric acid.	SEV, unified water quality analysis methods, parts I-II, M., 1987	1,5*
Methanol	A photometric method. Double distillation is used for certain water compositions. Colorless distillate is treated with potassium permanganate in a sulfuric acid medium until formaldehyde is produced. The resulting formaldehyde is detected by applying chromotropic acid.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	1,5*
Phenols	This photometric method is based upon formation of colored compounds with 4-aminoantipyrin in the presence of ferrocyanide (III).	RD 118.3897485.7-95. Tashkent, 1995	1,5*
Petroleum products	The fluorimetric method is based on their extraction from water using a solvent i.e. a 4-carbon chloride. The extract is run through a column filled with a sorbent agent (aluminum oxide). Concentration levels are measured.	RD 118.3897485.13-92. Tashkent, 1992	5*
Iron	The photometric method is based upon its reaction with sodium sulfosalicylate and release of a yellow complex compound.	Guideline 118.3897485.9-92. Tashkent, 1992	1,5*
Copper	AAS. The technique is based upon absorption of ultraviolet rays by gas atoms.	Guideline 52.24.377-95. All Russian Research Institute for Water Protection, 1995	1,5*
Magnesium	The photometric method is based upon quantitative oxidation of magnesium (II) ions to permanganate ions in a nitro-acid medium when exposed to ammonium persulphate.	Collection of methods to measure pollutants in the environment, issue 1, Tashkent, 2001	1,5*
Molybdenum	The photometric method is based upon emergence of carmine-red complex compound in sulfuric acid solutions with thiocyanate ions.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990.	1,5*
Xylol	The gas-chromatographic method is based upon extraction by using tetrachlorethylene with subsequent gas-chromatographic detection in a column filled with colored chrome – 1 coated with polyethylene glycol PEG-20 M (10% of the weight of the carrying agent)	Yu.Yu. Lourier and others. "Hydrochemical materials", 1971	10*
Toluol	The gas-chromatographic method is based upon extraction by using tetrachlorethylene with subsequent gas-chromatographic detection in a column filled with colored chrome – 1 coated with polyethylene glycol PEG-20 M (10% of the weight of the carrying agent)	Yu.Yu. Lourier and others. "Hydrochemical materials", 1971	10*
Chrome	The photometric method is based on	RD 118.3897485.10-92.	1,5*

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
	release of a red-violet soluble compound in the course of interaction with diphenylcarbazide.	Tashkent, 1992	
Zink	The photometric method is based on formation of a complex compound in the presence of xylain orange.	RD 118.3897485.20-95. Tashkent, 1995	1,5*
Synthetic surfactants	The photometric method is based upon formation of methylene blue and complex associates soluble in chloroform and producing blue solutions. The methylene blue does not dissolve in chloroform.	Yu.V. Novikov and others. "Methods to Determine the Quality of Water in Water Bodies", M, 1990	1,5*
Pesticides	The gas-liquid chromatographic method is based upon extraction of pesticides by using a 4:1 hexane:acetone mixture. The extract is dried by using a water-free sodium sulfate and concentrated to 1 ml. The content is measured using an electron capture detector.	RD 52.24.66-88. All Russian Research Institute for Water Protection, 1988	10*
Sanitary and biological analysis		Oz DSt 950:20000 "Drinking Water", Tashkent, 2000	
Total bacterial count	The method is about identifying the overall content of mesophilic and mesotropic aerobes and facultative anaerobes capable of growing in the nutrient agar of such composition at 37 (give or take) 0.5°C during 24 hours.	GOST 18963-73	10*
Coli index	The method is about concentrating bacteria out of a specific volume of water being analyzed onto a membrane filter at 37 (give or take) 0.5°C on the Endo agar.	GOST 18963-73	1,5*
Coli titer	The method is about inoculating certain volumes of water being analyzed at 37 (give or take) 0.5°C of accumulation media with subsequent removal of the bacteria from the media and determination of the most likely bacterial count for 1 liter of water.	GOST 18963-73	1,5*

* Inaccuracy values were calculated based on the outcomes of the state inspection of the inaccuracy of the SSIAC laboratory's equipment.

Description of Methods Used to Determine the Presence of Pollutants in Soil (Ground)

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
Detection of humus	The method is based on oxidation of soil humus with potassium chromate (II) in sulfuric acid with subsequent detection of 3-valent chrome of the equivalent amount of humus in the photoelectric colorimeter.	Tyurin's method. GOST 26213-84	1,5*
Methods used to determine the cationic-anionic composition of the aqueous extract (chlorides, sulfates, potassium, magnesium,	This standard establishes techniques used to determine the composition of aqueous extracts from saline soils with a view to determining the overall concentration of salts in conducting soil, agrochemical and soil-reclamation	GOST 26423-85 GOST 26428-85	5*

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
carbonates, solid residue, pH)	reviews of areas, control over the salt regime of soils and in other surveys and researches. The method is about extracting water soluble salts from the soil using distilled water, with the soil/water ratio being 1:5.		
Detection of nitrogen	The Kjeldahl method of detecting nitrogen is based upon decomposition of organic compounds contained in the soil by exposing it to sulfuric acid, which results in release of amine nitrogen and its retention by sulfuric acid in the form of sulfurous ammonium. The subsequent stage is burning of the organic matter. Ammonia is recovered by using distillation equipment.	E.V. Arinushkina "Guidelines on Chemical Analysis of Soils".	4,5*
Detection of gypsum	Gypsum normally occurs in the soil in the form of dihydrate $\text{Ca SO}_4 \cdot 2\text{H}_2\text{O}$. Due to its poor solubility in water, gypsum is recovered by exposing it to 0.2 hydrochloric acid solution. The content of gypsum sulfate ion is determined by determining the content of SO_4 in the solution and subtracting the amount of aqueous extract sulfate ions from it, and the resulting data is used to determine that amount of $\text{CaSO}_4 \cdot 2 \text{H}_2\text{O}$ in the soil.	E.V. Arinushkina "Guidelines on Chemical Analysis of Soils".	4,5*
Determination of phosphorus content	The method is based on recovery of phosphorus by exposing it to 0.2 HCL solution. The extract absorbs all calcium phosphates and most sesquialteral oxides phosphates, and phosphorous from apatite. The phosphorus content is determined using the colorimetric method.	A.T. Kirsanov's Method. GOST 26207-84	4,5*
Determination of the content of potassium and sodium in aqueous extract.	The method is about determining the radiation intensity of the atoms of elements being detected by using a flame photometer.	GOST 26427-85	1,5*
Determination of the petroleum products content	The method is based upon extraction of petroleum products from the soil by exposing it to 4-carbon chloride with simultaneous treatment of eluates by running them through aluminum oxide in the column. Concentrations of hydrocarbons in samples are determined with the help of fluorimetric methods.	RD 118.3897485.13-92	4,5*
Determination of the content of chlorinated organic pesticides	Mass fractions of organic halogen pesticides are measured by using the gas-liquid chromatography method and electron capture detector with separating phases of different polarities.	RD 52.18.180-89	10*
Determination of the content of heavy metals	This atomic-absorption method is based on the property of metal atoms to extinguish, when in their ground state, the light of certain wave lengths, which they radiate in the excited state. The resonance line required for such extinguishing is most frequently produced	RD 52.18.191-89	1,5*

Ingredient being determined	Method's general description	Method	Experimental inaccuracy, %
	by a hollow-cathode lamp, with such cathode being made of the element being determined.		
Determination of the phenol content	The content of volatile phenols is determined with the help of the colorimetric method based on formation of dyed compounds including phenol and its compounds with 4-aminoantipyrin in the presence of potassium ferrocyanide (III) in an alkaline medium, with pH being 10.0 ± 0.2	RD 118.3897485.7-92	1,5*

* Inaccuracy values were calculated based on the outcomes of the state inspection of the inaccuracy of equipment in the laboratory of the State Specialized Inspectorate for Analytical Control.

Methodology for Microbiological, Pathomorphological and Ecotoxicological Laboratory Analyses OF Living Organisms

Various physiological groups of microorganisms contained in soil, ground and water samples are identified and registered by inoculating 1 ml of limiting dilutions of a bacterial suspension onto culture media three consecutive times. The bacterial suspension from ground or soil forms as a result of preparing a mix (10 g of ground-soil and 90 ml of sterile tap water). Water bacterial suspension is prepared through its immediate dilution.

Oil oxidizing bacteria are identified and registered in a liquid Raymond's medium that has the following ingredients: NH_4NO_3 – 2 g; $\text{MgSO}_4 \times 7\text{H}_2\text{O}$ – 0.2 g; KH_2HPO_4 – 2 g; NaH_2PO_4 – 3 g; $\text{CaCl}_2 \times 6\text{H}_2\text{O}$ – 0.01 g; Na_2CO_3 – 0.1 g; $\text{MnSO}_4 \times 5\text{H}_2\text{O}$ – 2 ml of 1% solution; $\text{FeSO}_4 \times 7\text{H}_2\text{O}$ – 1 ml of 1% solution. The amount of distilled water is 1000 ml. 1% FeSO_4 solution, 1% HCl and 1% MnSO_4 solution are prepared separately and added to the medium immediately before inoculation.



Figure – spectrophotometer Spekol 1100 (density test)



Figure – Infrared spectrophotometer, field pH-meter



Figure – Atomic absorption spectrophotometer “Shimadzu” AA-650IS



Figure – Atomic absorption spectrophotometer AAC-500

Phenol oxidizing bacteria are identified and registered in a liquid Stolbunov's mineral medium that has the following ingredients: $K_2H_2PO_4$ – 1 g; NaCl – 0.1 g; $CaCl_2$ – 0.1 g; Na_2SO_3 – 0.15 g; $(NH_4)_2SO_4$ – 0,3 g; $FeSO_4$ traces; phenol – 0.3 g. Phenol is sterilized separately and added to the medium immediately before inoculation.

The most likely cell count (MLC) per unit of volume in liquid media is calculated using the McCready table based on the analysis of variance. For such purpose one develops a numerical characteristic made up of three numbers that show the number of tubes of the dilutions that manifested growth in all repeated dilutions.



Figure – Chromatograph 3700



Figure – Chromatomass spectrometer ATI UNICOM

Then one uses the table to find the most likely count of microorganisms corresponding to a specific numerical characteristic. Development of microorganisms in liquid media is determined visually: turbidity of the medium; formation of biomass sediment and film on the medium-oil boundary; occurrence of pigments with additional microscopic control in the phase contrast per 2250 power microscopic field. This microbiological analysis method was developed on the basis of how-to books by M.N. Pimenova, S.I. Kuznetsov and T.N. Nazina. The inaccuracy of this method is ± 500 cells per 1 g of matter or 1 ml of water.

Methodology	Description of the Methodology
Determination of the pesticide content of plants tissues	A 1-2 g weighed sample of plant tissues is used to extract the entire weight of pesticides by exposing it to acetone. The solution is evaporated on the watch glass, and the sediment is dissolved in 0.1 ml of acetone. The content of pesticides is determined using Autosystem XL (Perkin Elmer) chromatograph, and the calculations are based upon standard solutions. Conditions of the analysis: evaporator temperature – 300°C; column HP-5, 30 m × 0,25 mm × 1.0 mm (Crosslinked 5% pH ME Siloxane).
Determination of the metal content of plants tissues	A weighed sample of plant tissues is dried until its weight gets stable at 105-110°C. Tissue samples are homogenized using a manual homogenizer or a stainless-steel mixer-homogenizator. The tissues are decomposed with acid. Homogenized samples are weighed out into 250 ml boiler flasks, 10 g per flask. The weight of the damp plant tissue is registered. The sample is dried at 100°C for 12 hours. The dry weight is registered. 30 ml of concentrated nitric acid (BDH Aristar) is added to the samples, the flasks are covered with watch glasses and left to cool down for the night. After that the flasks are heated on the electric stove to 60°C until emergence of brown vapor. The temperature is then increased to 80°C and the volume of the acid is reduced to 5 ml. 20 ml of deionized distilled water is added to the sample, and the sample volume is once again reduced to 5 ml. The remaining part of the boiled sample is placed into a vial with 1% nitric acid solution, with its final volume being 25 ml. Procedural control specimens are subject to treatment alongside with each batch of samples. An atomic absorption spectrometer (AAS) is used for elemental analysis. The concentration of metals is measured using AAC Aanalyst-700 (Perkin Elmer) in the

Methodology	Description of the Methodology
Determination of the content of polyaromatic hydrocarbons in animal tissues	<p>modes that are standard for each metal.</p> <p>For analysis of animal tissues to identify and determine the content of polyaromatic hydrocarbons, animal organs are homogenized using a pestle and a mortar. Homogenized samples are weighted out to round-bottom flasks, 500 ml into each, and a solution that contains amounts of components required by the standard is then added to each sample (using a dosing unit similar to Hamilton's Microlab 1000).</p> <p>It is followed by addition of quicklime granules and 100 ml of potassium hydroxide alcoholic solution (35 g of KOH, dissolved in 10 ml of water with subsequent dilution with methanol to 1 l), after which the mixture is boiled up under reflux for 1 hour. Following its cooling, the mixture is subject to vacuum filtering and the tissue residue is flushed with three 100 ml pentane portions. The filtrate and washings are placed in a one liter separating funnel, and then 100 ml of pentane-washed distilled water is added.</p> <p>The pentane layer is poured into a 500 ml round-bottom flask, and the methanol-water layer is extracted by exposing it to two 50 ml pentane portions. Pentane extracts are evaporated in a rotational evaporator to approximately 2 ml. Polar components (including lipids) are removed in a silica gel column (using Kieselgel 60 silica gel, activated at 200°C).</p> <p>1 ml combined lipids extract is added to the silica gel column that contains 5 g of absorbent and around 1 g of activated powder copper to secure removal of potentially present unbound copper. The sample is eluated: 35 ml of dichloromethane/pentane with the ratio of 1:2. The extracts are concentrated in Kuderna-Danish unit (approximately to 2 ml). The eluated matter is evaporated in a rotational evaporator until its volume equals approximately 2 ml, after which it is divided into two subsamples.</p> <p>One of the portions is reduced to the required volume by running nitrogen through it. Fractionation of the samples takes place in microcolumns with alumina that contain 2 g of adsorbent. The aliphatic fraction is eluated by adding 2.5 ml of pentane to it, and the aromatic one by adding 5 ml of dichloromethane/methanole (98:2 ratio). The aliphatic fraction is reduced to the required volume by running nitrogen through the sample and analyzed using the gas chromatography method. Autosystem XL (Perkin Elmer) chromatograph is used to analyze polycyclic hydrocarbons.</p>
Determination of the metal content of animal tissues.	<p>A 1-2 g. weighed sample is dried until its weight gets stable at 105-110°C. Tissue samples are homogenized using a manual homogenizer or a stainless-steel mixer-homogenizator. The animal tissues are decomposed with acid. Homogenized muscle samples are weighed out into 250 ml boiler flasks, 10 g per flask. The weight of the damp plant tissue is registered. The sample is dried at 100°C during the night. The dry weight is registered. 30 ml of concentrated nitric acid (BDH Aristar) is added to the samples, the flasks are covered with watch glasses and left to cool down. After that the flasks are heated on the electric stove to 60°C until emergence of brown vapor.</p> <p>The temperature is then increased to 80°C and the volume of the acid is reduced to approximately 5 ml. 20 ml of deionized distilled water is added to the sample, and the sample volume is once again reduced to 5 ml. The remaining part of the boiled sample is placed into a vial with 1% nitric acid solution, with its final volume being 25 ml. Procedural control specimens are subject to treatment alongside with each batch of samples.</p>

Methodology	Description of the Methodology
	<p>Gonad and one-piece liver sample are placed into 125 or 250 ml boiler flasks. The further procedures to be followed are identical to those previously described for muscles; however the volume of nitric acid used is 20 ml. An atomic absorption spectrometer (AAS) is used for elemental analysis. The concentration of metals is measured using AAC Aanalyst-700 (Perkin Elmer) in the modes that are standard for each metal.</p>
Pathomorphology	<p>One uses sterile surgical instruments to obtain organ and tissue pieces that are placed into 10% formalin (spinal muscle and liver) or in Bouin's and Surre't's fluids (genital glands). Pieces of gonad tissue are placed into glutaraldehyde to prepare semithin gonad sections.</p> <p>Laboratory treatment of such tissue pieces takes place in accordance with the histological methods (Reumeis, 1953): dehydrated in alcohols, run through celloidin-castor oil, covered with paraffin, serial frontal and longitudinal 5-10 mkm sections are caused to change their color by using Heidenhain's iron hematoxylin (gonads) or eosin-hematoxylin (muscles and liver). To obtain semithin (2000-3000 angstrom thick) sections, gonad pieces are covered with Araldite, sections are prepared using LKB ultratome (Sweden) and caused to change their color using toluidine blue and counter-stained with uranyl acetate, lead citrate.</p> <p>So-prepared histological specimens of tissue and organ sections are examined and analyzed using NIKON E-400 (Japan) light microscope in the phase contrast and fluorescence mode, and also using JEM-100CX electron microscope (Japan) (ultrathin sections of gonads that are 300-400 angstrom thick). NIKON E-400 that has an in-built digital camera DXM-1200 (Japan) is used to photograph sections of organs per 140, 280, and 560 power microscopic field. Another equipment to photograph the sections is JEM-100CX and in this case one uses 1000, 3200 and 5400 power microscopic field.</p> <p>Morphofunctional condition of the liver, genital glands and pathologies of myogenesis are assessed using common methods (A.S. Loginov, B. Reumeis, V.V. Serov, B.G. Eliseev, A.I. Abrikosov and A. Khem).</p>

Figures below show some pictures of equipment in the laboratory of the Complex Exploration Department of the Division for Comprehensive Geological Exploration and Topographical Surveys used to conduct microbiological, ecotoxicological and pathomorphological analyses.



Figure – NIKON DXM-1200x1500, a microscope with a built-in photographic camera



Figure – “Perkin Elmer” gas chromatograph



*Figure – Chromatomass spectrometer
“Perkin Elmer”*



*Figure – Atomic absorption spectrometer
“Perkin Elmer”*

Determination of Radionuclide Content

The gamma-ray spectrometry method was used to determine the radionuclide content of the samples being analyzed. The basic gamma-ray spectrometry equipment includes highly efficient detectors with a good energy resolution level and equipment for multichannel detector pulse-height analysis. The method involved the use of semi-conductor germanium detectors with a relative efficiency of 15 and 20% and 1.7 kiloelectronvolt resolution. The samples weight when measured in a Marinelli-type measurement vessel was about 400-1000 g, and the exposure time totaled 6 hours.

The cutting-edge Genie-2000 software was used to determine the activity of ^{40}K nuclides and those of the thorium and uranium radioactive series ($^{212,214}\text{Pb}$, $^{212,214}\text{Bi}$, ^{226}Ra , ^{208}Tl , ^{228}Ac , ^{234}Th). The data of such measurements were used to determine the average activity of nuclides of the uranium and thorium radioactive series. RDs establish the maximum permissible values of the aggregate specific activity of natural radionuclides (radium-226, thorium-232, potassium-40) contained in construction materials (Sanitary Regulations and Standards No. 0029-94, clause 8.4).

**Handbook
of plants and animals in Khauzak-Shady and Kandym Group of Fields
(Bukhara region)**



The territory of **sites of Khauzak-Shady and Kandym** Group of Fields situated in Alat and Karakul Districts, Bukhara Region, represents mainly semi-stabilized and sand ridges and dunes.



Pic. 1 **The White Haloxylon**

The nature of the soil and its moisture retention degree determine the development of vegetation mantle due to which the sandy territories of these Contract Areas are poor in terms of plant life. Haloxylon (picture 1), several kinds of suzerain and kandym are widely spread on sandy parts with cherkez, sandhill wattle, astragalus added.

The plant life of sites of Khauzak-Shady and Kandym Group of Fields represents 13 endemic and 14 rare and 19 low population plants of which **3 species are entered in the Red Data Book** of the Republic of Uzbekistan:

- > **Calligonum palefzkianum,**
- > **Calligonum molle,**
- > **Calligonum matteianum**

All of them come under the genus Calligonum – Jezgun (Pic. 2).



Pic. 2 **Jezgun**

The animal life of the areas of Khauzak-Shady and Kandym Group of Fields represents 27 species of mammals, 17 species of reptiles, over 160 species of birds.

Out of the listed species: **3 species of mammals (pic. 3), 24 species of birds, 2 species of reptiles and 7 species of arthropods are entered in the Red Data Book** of the Republic of Uzbekistan.



The long-legged hedgehog(bald)



The free-tailed barbastelle



The goitered gazelle

Pic. 3. The mammals entered in the Red Data Book of the Republic of Uzbekistan

It has to be specifically noted that **the goitered gazelle (Gazella subgutturosa)** previously widely inhabited the deserts of the Contract Area. The intensive development of the desert lands and livestock breeding as well as poachers resulted in the situation where the goitered gazelle has become the rare species and been entered in the Red Data Book of the Republic of Uzbekistan.

Some mammals widely inhabiting the Contract Area come under **the low population and rare species** (Pic. 4).



The Liechtenstein jerboa



The comb-toed jerboa



The swamp lynx or chaus

Pic. 4 Low population and rare species

During the migration seasons, the birds entered in **the Red Data Book, the IUCN Red List, in Annexes I and II of Convention on international trade in endangered species of wild flora and fauna (CITES)** are observed in the Denghizkul Lake, of which are:



The European pelican, close to the vulnerable, small population bird of passage entered in the Red Data Book.

The little egret entered in the Red Data Book of the Republic of Uzbekistan.



The Dalmatian pelican, the rare low population species entered in the Red Data Book of the Republic of Uzbekistan and in the CITES Annex I.

The little cormorant, the vulnerable visitant bird, a nesting species entered in the Red Data Book of the Republic of Uzbekistan, and in the IUCN Red List.





The mute swan, the visitant bird entered in the Red Data Book of the Republic of Uzbekistan.

The whooping swan, a visitant species entered in the Red Data Book of the Republic of Uzbekistan.

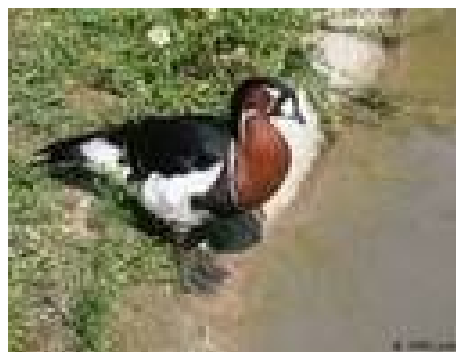


The lesser white-fronted goose, a rare visitant species entered in the Red Data Book of the Republic of Uzbekistan.



The spoonbill, a vulnerable, - decreasing species, entered in the Red Data Book of the Republic of Uzbekistan and in CITES Annex II.

The red-breasted goose, a rare visitant species entered in the Red Data Book of the Republic of Uzbekistan.



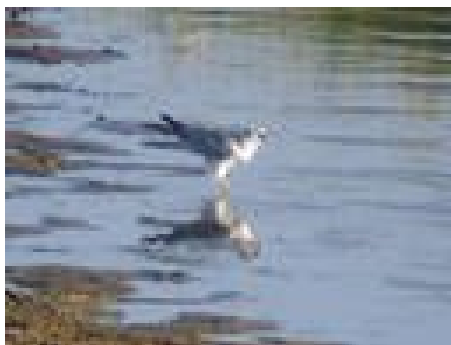


The white-headed duck, an endangered species, entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List, CITES Annex II.

The marbled duck, an endangered visitant species entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List.



The white-tailed eagle, a rare visitant species entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List, in CITES Annex I.



The pale harrier a vulnerable visitant species entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List, in CITES Annex II.

The saker falcon, a vulnerable nesting visitant species entered in CITES Annex II.



Migratory birds are also observed:

- **The white-eyed pochard**, entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List;
- **The Pallas' sea eagle**, an endangered migratory bird entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List, in CITES Annex II;
- **The steppe eagle**, a vulnerable visitant species entered in the Red Data Book of the Republic of Uzbekistan, in CITES Annex II;
- **The imperial eagle**, a vulnerable, visitant bird entered in the Red Data Book and in CITES Annex II;
- **Mac-Queen's bustard**, entered in the Red Data Book of the Republic of Uzbekistan;

and **non-migratory species**:

- **The asiatic white crane**, entered in the Red Data Book of the Republic of Uzbekistan, in the IUCN Red List;
- **The Zarafshan pheasant**, a non-migratory subspecies entered in the Red Data Book of the Republic of Uzbekistan;
- **The pin-tailed sand grouse**, a rare nesting species entered in the Red Data Book. Entered in the **Red Data**

Pic. 5. **The desert monitor**

Book of the Republic of Uzbekistan and the CITES

Annexes are such previously widely spread reptiles as the **Central Asian tortoise, the sand toad agama, the desert monitor** (Pic. 5), **the Central Asia cobra**.



On the territories of the Contract Areas, there is **one environmentally protected site: Denghizkul state wildlife sanctuary**, in which, as per their status, wildlife and their habitat are under protection.

Under the Law of the Republic of Uzbekistan re: "The Protected Wildlife Territories", the state wildlife sanctuaries are protected territories on which **all types of human activities are prohibited**, but



researches, recreation activities, environmental monitoring, as well as farming for the citizens' needs residing in these areas which may cause damage to certain nature sites and complexes.

The Denghizkul Wild Bird Life Sanctuary (Khauzak-Shady Contract Area) has been created to

protect and to provide for breeding of migratory water fowl. On the territory of the sanctuary, every year, hundreds of thousands of water and semi-aquatic fowl, including the species entered in the Red Data Book of the Republic of Uzbekistan take rest, viz.: pelicans, spoonbills, little cormorants, etc. The Denghizkul Lake is the largest wintering site of water fowl in the Republic of Uzbekistan. The main species wintering here are bald-coots and diving-ducks.

Any human activity that may alter the Denghizkul Lake environment and ecosystem and the adjacent territories is prohibited.

The Republic of Uzbekistan has joined a number of international Conventions on protection and rational use of bio-resources, viz.: The Convention on Bio-Diversity, Convention on the Wetlands of International Importance Especially as Wildlife Habitat (Ramsar); Convention on Protection of Migratory Animals (Bonn); Agreement on Protection of Afro-Asian Migratory Wetland Fowl; the Convention on International Trade in Endangered Species of World Fauna and Flora (CITES).

All these documents declare the need to maintain the population and species diversity of animal and plant life for further sustainable development of the planets' ecosystem.

It has to be kept in mind that according to the laws of the Republic of Uzbekistan:

«... the plant and animal life shall be the public assets – the national wealth and subject to rational exploitation and protected by the state ...»;

«... it shall be prohibited to harvest and collect rare and endangered species of plants and animals entered in the Red Data Book of the Republic of Uzbekistan ...»;

«... unlawfully hunted components of the animal life, products made from them, weapons and means of hunting including vehicles shall be subject to seizure or confiscation in the manner stipulated in the laws ... in case it is impossible to recover the unlawfully hunted animals and products made from them, the culprits shall be fined the value in the amounts and in the manner stipulated by the laws ...»;

«... any person found in breach of the laws of nature conservation and exploitation of plant and animal life shall be duly liable. ...»;

«... legal entities and individuals are bound to compensate for the damage caused by violating ... compensation for damage shall not exempt from liability ...»

Remember that we all bear the great responsibility of handing down to our generations the natural heritage as diverse and sustainable ecosystem.

State emblem of Republic of Uzbekistan

**STATE COMMITTEE FOR NATURE PROTECTION
OF THE REPUBLIC OF UZBEKISTAN**

700084, 99, A.Temur str., Tashkent; tel.: 135-18-65; 135-16-65; Fax: 135-07-61

Date: April 21, 2005

Ref. No 18.126z

In reply to Ref. No 62 dtd 08.04.2005

To: A.G.HANLAROV, Director, Baku Branch, LUKOIL-Volgograd-NIPImorneft.

CONCLUSION

of State Environmental Expertise Commission

Project: "Report on Environmental Audit of the Contract Area consisting of: the Kandym Group of Fields, Khauzak-Shady Site and Kungrad Site"

Customer: Baku Branch, LUKOIL-Volgograd-NIPImorneft

A Report on Environmental Assessment of the Contract Area consisting of: the Kandym Group of Fields, Khauzak-Shady sites as well as Kungrad site by the Baku Branch, LUKOIL-Volgograd-NIPImorneft with participation of State specialized inspection of analytical control and the State Biological Monitoring Inspectorate of the State Committee of the Republic of Uzbekistan for Nature Protection, the Special Design Bureau with Experimental Plant of the Institute of Nuclear Physics of the Academy of Sciences of the Republic of Uzbekistan, the Environmental Survey Expedition of Complex Geological Exploration and Survey Department of AzNeft Production Enterprise.

The work has been carried out per EIA Program agreed to by the State Committee of Uzbekistan for Nature Protection (Letter ref. No 18-1025 dated 28.10.2004).

The Contract Area EA Report has been provided in three books.

Book 1 consists of sections:

- the brief background of the gas condensate fields;
- the legal Framework for exploitation of the Contract Area;
- the review of climatic and geologic/geo-physic features;
- the features of the bio-resources;
- the socio-economic conditions;
- performance of field and laboratory surveys of the basic status of the Contract Area.

Book 2 includes sections:

- the environmental background at Khauzak-Shady Site;
- the environmental background at the sites of the Kandym Group of Fields;
- the environmental background at Kungrad site;
- the ecotoxicological and pathomorphologic researches of flora and fauna samples;
- the systemic analysis of the EA laboratory tests;
- the Conclusion. Summaries and recommendations;
- attachments No 1 thru No 5.

Book 3 represents a photo album reflecting the episodes of field surveys, landscape fragments, wellheads of some wells, etc.

The assessment data have been collected by way of study of documents, observations, performance of measurements and their analysis.

The report describes the administrative-territorial locations, the major data for gas and gas condensate fields included in the Contract Area , their reserves, gas content(composition), information about the results of the previously conducted explorations, operational drilling, number of the drilled, abandoned and conserved wells, mapping materials.

The EIA main sections contain:

- The legal framework for exploitation of the Contract Area. This section includes: legislative acts and government resolutions of the Republic of Uzbekistan regarding environment protection and safe execution of work; international conventions joined and ratified by the Government of the Republic of Uzbekistan; the matters included in the PSA, on rational exploitation of natural resources, H&S;
- The review of climatic and geologic/geo-physical features. This review describes the physical/geographic features of each site; climatic and weather conditions; hydro-geologic features(including of the Denghizkul Lake), the interfluvial water reservoir, the Sudochiy lake system); the characteristics of soils and earth; geologic features(including oil/gas bearing); geologic and seismic features;
- The features of the bioresources of the Contract Areas. The section includes: the legislative acts of the Republic of Uzbekistan and international agreements on protection and exploitation of bioresources; man-made impact indicators; the biologic resources of the Contract Areas with illustrations of some fragments of plant life, mammals, animals and birds;
- The socio-economic background of the Contract Area. This section deals with historical and ethnographic features and archeologic information not only about the Contract Area, but also the relevant districts and regions to which these sites belong;
- Performance of field and laboratory researches related to assessment of the basic condition of the Contract Area. The section describes the methods of field researches conducted in the Contract Area as well as of laboratory researches related to: assessment of the physical and chemical composition

of the atmospheric air, water(surface water bodies and groundwater) and soils; study of the microbiological features; performance of the ecotoxicological and pathomorphologic tests on flora and fauna samples collected and caught at the surveyed sites; assessment of the radiation situation;

- The basic environmental background. While surveying the environmental situation, laboratory tests of the physical and chemical composition of the atmospheric air, water and soils were conducted in the State specialized inspection of analytical control laboratories, soil radionuclide concentrations – in the Special Design Bureau of the of the Institute of Nuclear Physics of the Academy of Sciences of the Republic of Uzbekistan, microbiologic assessment tests – in the laboratories of the environmental Survey Expedition of AzNeft Production Enterprise. The basic environmental background – the physical and chemical compositions of atmospheric air, water and soils, the microbiologic and radiation condition at each (Khauzak and Shady, Kandym Group and Kungrad) site of the Contract Area were addressed individually with graphically designed tables and charts attached which characterize the concentrations of the major pollutants in the air, open water bodies, groundwater and in artesian wells; the composition, features and pollution level of soils(earth); background radiation; bed silts of water bodies; the microbiological characteristics of water and soils. Summaries were made for each site;
- The ecotoxicological and pathomorphologic tests on flora and fauna samples. These researches into plants and animal tissues of the collected and caught in the Contract Areas were carried out in the laboratory of the Environmental Research Expedition of AzNeft Production Enterprise;
- The systemic analysis of the laboratory tests results of the environmental assessment. The results of the analysis and summarization of the conclusions on the collected (obtained) materials to some degree found out the factors, causes and regularities of variations of pollutant concentrations in air, water and soils.

In general, the performed environmental assessment of the Contract Area corresponds to the program of its performance and the goals set in it.

The State Environmental Expert Review Commission of the State Committee of the Republic of Uzbekistan for Nature Protection **approves** the Contract Area EA Draft Report that covers: The Kandym group of Fields, Khauzak-Shady Site and Kungrad Site.

The data acquired as a result of execution of the EA may be used as background indicators while maintaining environmental monitoring in the Contract Area sites.

Acting Chairman

signed

B.Alikhanov

AGREED:

Manager, Industrial Safety and Environment Protection Department
 "LUKOIL Overseas Service B.V." Moscow Branch

Signature A.N. Abashin

13 November 2009

APPROVED:

Deputy Director General for Operations
 "LUKOIL Uzbekistan Operating Company" LLC

Signature E.G. Zubarev

18 November 2009

PLAN
 of organizational and engineering actions in HSE
 of "LUKOIL Uzbekistan Operating Company" LLC
 for 2010

as of 10.11.2009

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
1. Environment								
LUOK facilities		754.28	135.00	194.50	242.78	182.00		
Capital expenditures								
1.1	Environmental monitoring, including	95.00	0.00	23.00	48.00	24.00	Kim D.L.	Being implemented according to EMP programme agreed with SCNC
	Kandim group of fields site	70.00	0.00	23.00	23.00	24.00		
	Kungrad site	25.00	0.00	0.00	25.00	0.00		
1.2	EIS materials formulation costs, of which:	139.28	25.00	31.50	62.78	20.00	Kusnuyarova A.F.	
1.2.1	Development and carrying- out of SEER PP EIS for Shadi site facilities development;	21.50	0.00	21.50	0.00	0.00	Kusnuyarova A.F.	
1.2.2	Development and carrying- out of SEER ECS for Shadi site facilities development;	21.50	0.00	0.00	21.50	0.00	Kusnuyarova A.F.	
1.2.3	Development and carrying- out of SEER ECS for drilling wells at Shadi site;	30.00	0.00	0.00	30.00	0.00	Kusnuyarova A.F.	
1.2.4	Development and carrying- out of SEER ECS for construction of LUOK office in Bukhara (Kandym group of fields);	11.28	0.00	0.00	11.28	0.00	Kusnuyarova A.F.	
1.2.5	Development and carrying- out of SEER ECS for construction of shift camp supervision services of operation of Kandim group of fields;	10.00	0.00	10.00	0.00	0.00	Kusnuyarova A.F.	As per requirements of SEER's opinion No E-7-386 dd. 30.09.09 it is necessary to develop ECS
1.2.6	Development and carrying- out of SEER PP EIS for exploration well drilling at Shege-3 at Kungrad site;	20.00	0.00	0.00	0.00	20.00	Kusnuyarova A.F.	
1.2.7	Development and carrying- out of SEER of Regulations of drilling wastes disposal at Shadi site	25.00	25.00	0.00	0.00	0.00	Kusnuyarova A.F.	Regulations are developed for substantiation of drilling waste treatment and disposal on the spot (in sludge pits)

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
1.3	Supply of chemicals for drilling waste treatment of Kandim group of fields area	72.00	9.00	9.00	27.00	27.00	Nuriddinov E.N.	Supply of chemicals and coagulants for drilling waste treatment at Kandym group of fields area
1.4	Drilling waste disposal and sludge pits landfilling at Kandim group of fields area	160.00	20.00	20.00	60.00	60.00	Kim D.L.	Being implemented as per Regulations agreed with SCNC
Total capital expenses		466.28	54.00	83.50	197.78	131.00		
Operating expenses								
1.5	Environmental monitoring at Khauzak-Shadi site	115.00	28.75	28.75	28.75	28.75	Kim D.L.	Being implemented as per EMP program agreed with SCNC. Investment program expenses are transferred to operation expenses due to site transfer to commercial operation
1.6	Supply of chemicals for drilling waste treatment of Khauzak-Shadi site	101.00	37.00	64.00	0.00	0.00	Nuriddinov E.N.	Supply of chemicals and coagulant for waste treatment drilling waste landfill and for drilling waste treatment at Shadi site
1.7	Disposal of solid domestic wastes of Khauzak GPS and shift camp of control service for Kandym group of fields construction	4.00	1.00	1.00	1.00	1.00	Nuriddinov E.N.	
1.8	Disposal of fluorescent lamps of Khauzak GPS	1.00	0.25	0.25	0.25	0.25	Nuriddinov E.N.	
1.9	QC of drinking and waste water of Khauzak GPS	18.00	4.50	4.50	4.50	4.50	Kim D.L.	Monthly water QC by Bukhara SES as per agreed Programs
1.10	Purchase of consumable materials for Khauzak GPS	10.00	2.50	2.50	2.50	2.50	Nuriddinov E.N.	Purchase of consumable materials necessary for continuous operation of existing waste water treatment systems of DWT landfill
1.11	Environmental pollution payments (Bukhara Region and Tashkent city)	8.00	2.00	2.00	2.00	2.00	Kim D.L.	
Total operating expenses		257.00	76.00	103.00	39.00	39.00		
Administration costs								
1.12	Environmental expert-consulting services	8.00	2.00	2.00	2.00	2.00	Kim D.L.	
1.13	Training and advanced training of personnel on environmental protection matters	5.00	0.00	0.00	0.00	5.00	Kusnuyarova A.F.	
1.14	Purchase of regulatory documents, standards of environmental protection sphere	2.00	0.00	1.00	1.00	0.00	Nuriddinov E.N.	
1.15	Production of training and environmental information campaign materials	4.00	0.00	2.00	0.00	2.00	Nuriddinov E.N.	Production of reminders, posters, etc.
1.16	Supply of Tashkent office with environmental materials	12.00	3.00	3.00	3.00	3.00	Nuriddinov E.N.	Service agreements for sewage disposal and solid domestic waste collection from Tashkent office
Total administration costs		31.00	5.00	8.00	6.00	12.00		
Gissar facilities		112.00	21.75	31.75	36.75	21.75		

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
Capital expenses								
1.17	Environmental monitoring, of which:	55.00	7.50	17.50	22.50	7.50	Khudaibergenova A.A.	Being implemented as per EMP programme agreed with SCNC
	South-West Gissar (Adamtash, Djarkuduk and Gumbulak fields);	30.00	7.50	7.50	7.50	7.50		
	Ustyurt site	25.00	0.00	10.00	15.00	0.00		
Total capital expenses		55.00	7.50	17.50	22.50	7.50		
Operating expenses								
1.18	Environmental monitoring at South-West Gissar (South Kizilbairak and Koshkuduk fields)	30.00	7.50	7.50	7.50	7.50	Khudaibergenova A.A.	Being implemented as per EMP programme agreed with SCNC
1.19	QC of drinking and waste water Gissar GOPS	6.00	1.50	1.50	1.50	1.50	Khudaibergenova A.A.	Monthly water QC by Kashkadarya SES as per agreed Programs
1.20	Purchase of consumable materials for Gissar GOPS	10.00	2.50	2.50	2.50	2.50	Khudaibergenova A.A.	Purchase of consumable materials necessary for continuous operation of existing waste water treatment systems
1.21	Environmental pollution payments (Kashkadarya province)	8.00	2.00	2.00	2.00	2.00	Khudaibergenova A.A.	
1.22	Disposal of fluorescent lamps of Gissar GOPS	1.00	0.25	0.25	0.25	0.25	Nuriddinov E.N.	
1.23	Disposal of solid domestic wastes Gissar GOPS	2.00	0.50	0.50	0.50	0.50	Khudaibergenova A.A.	
Total operating expenses		57.00	14.25	14.25	14.25	14.25		
Total for Environment protection section		866.28	156.75	266.25	279.53	203.75		
2. Occupational safety and health								
LUOK facilities		540.00	217.00	55.50	246.50	21.00		
Operating expenses								
2.1	Purchase of working clothes, safert boots and other PPE for Khauzak GPS	180.00	90.00	0.00	90.00	0.00	Kalachev O.K.	
2.2	Car accidents prevention, including pre-trip medical examination of Khauzak GPS drivers	30.00	7.50	7.50	7.50	7.50	Azimov T.S.	Including installation of speed monitoring systems and roll over bars
2.3	PPE testing for Khauzak GPS	3.00	0.00	0.00	3.00	0.00	Kalachev O.K.	Testing of dielectric gloves, fall protection harnesses, etc.
2.4	First- pre-doctor aid training of Khauzak GPS personnel	8.00	0.00	5.00	3.00	0.00	Kalachev O.K.	
2.5	Purchase of warning signs, posters, regulatory technical literature, fabrication of stands, posters, reminders, forms, log-books for Khauzak GPS	5.00	5.00	0.00	0.00	0.00	Djumanov E.G.	
2.6	Khauzak GPS personnel H & S pre-test training. Attestation of Khauzak GPS workplaces	2.00	0.00	0.00	2.00	0.00	Kalachev O.K.	
2.7	Provision of Khauzak GPS with medical aid posts with medicine boxes and medications. Deratization/ disinsection at Khauzak GPS	10.00	2.50	2.50	2.50	2.50	Kalachev O.K.	

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
	facilities.							
2.8	Purchase of work clothes, safety boots and other PPE for staff of Kandim group of fields	200.00	100.00	0.00	100.00	0.00	Ibreev V.V.	
2.9	Purchase of warning signs, posters, regulatory technical literature, fabrication of stands, posters, reminders, forms, log-books for Kandym Group of Fields	25.00	10.00	15.00	0.00	0.00	Ibreev V.V.	
2.10	Car accidents prevention, including pre-trip medical examination of drivers working at Kandim group of fields	10.00	0.00	0.00	10.00	0.00	Ibreev V.V.	
2.11	First pre-doctor aid training of personnel of Kandim group of fields	8.00	0.00	0.00	8.00	0.00	Ibreev V.V.	
2.12	Kandym Group personnel H & S pre-test training.	5.00	0.00	2.50	2.50	0.00	Ibreev V.V.	
2.13	Provision of Kandym group with medical aid posts with medicine boxes and medications. Deratization/ disinsection at Khauzak GPS facilities.	6.00	2.00	2.00	2.00	0.00	Ibreev V.V.	
Total operating expenses		492.00	217.00	34.50	230.50	10.00		
Administration costs								
2.14	First pre-doctor aid training of personnel (LUOK office in Tashkent)	10.00	0.00	10.00	0.00	0.00	Kalachev O.K.	
2.15	Fabrication of H & S information and training materials and equipping H & S office (LUOK office in Tashkent)	25.00	0.00	10.00	15.00	0.00	Kalachev O.K.	
2.16	Purchase of warning signs, posters, regulatory technical literature, fabrication of stands, posters, reminders, forms, log-books for (LUOK office in Tashkent)	10.00	0.00	0.00	0.00	10.00	Djumanov E.G.	
2.17	Provision of with medical aid posts with medicine boxes and medications. (LUOK office in Tashkent). Deratization/ disinsection (LUOK office in Tashkent)	3.00	0.00	1.00	1.00	1.00	Kalachev O.K.	
Total administration costs		48.00	0.00	21.00	16.00	11.00		
Gissar facilitie		143.00	14.50	104.50	13.50	10.50		
Administration costs								
2.18	Purchase of work clothes, safety boots and other PPE for staff of for Gissar GOPS	85.00	0.00	85.00	0.00	0.00	Kalachev O.K.	
2.19	Car accidents prevention, including pre-trip medical examination of Gissar GOPS drivers	15.00	0.00	15.00	0.00	0.00	Azimov T.S.	Including installation of speed monitoring systems and roll over bars
2.20	First pre-doctor aid training of Gissar personnel	10.00	2.00	0.00	8.00	0.00	Kalachev O.K.	

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
2.21	Gissar GOPS personnel pre-test H & S training. Gissar GOPS workplace assessment	10.00	0.00	2.00	0.00	8.00	Kalachev O.K.	
2.22	Organization and holding review competitions in Safety and Environment	3.00	0.00	0.00	3.00	0.00	Mamutov P.M.	
2.23	Fabrication of H & S information and training materials and equipping H & S office (LUOK GOPS office in Gissar	10.00	10.00	0.00	0.00	0.00	Kalachev O.K.	
2.24	Provision of with medical aid posts with medicine boxes and medications. (Gissar GOPS Deratization/disinsection at Gissar GOPS	10.00	2.50	2.50	2.50	2.50	Djumanov E.G.	
Total administration costs		143.00	14.50	104.50	13.50	10.50		
Total for Section Health and Safety		683.00	231.50	160.00	260.00	31.50		
3. Industrial safety								
LUOK facilities		91.00	35.00	51.00	0.00	5.00		
Operating expenses								
3.1	Purchase of gas detectors gas-analysers for Khauzak GPS	46.00	25.00	21.00	0.00	0.00	Djumanov E.G.	
3.2	Purchase of safety items for hazardous operations (replenishment and maintaining emergency adequate stocks) Khauzak GPS	25.00	10.00	10.00	0.00	5.00	Djumanov E.G.	Equipping gas rescues with rescue equipment
3.3	Purchase of gas detectors, gas-analysers for facilities of Kandym group of fields	20.00	0.00	20.00	0.00		Ibreev V.V.	
Total administration costs		91.00	35.00	51.00	0.00	5.00		
Gissar facilities		207.50	85.00	12.50	110.00	0.00		
Operating expenses								
3.4	Purchase of gas detector, gas-analyser for Gissar GOPS	30.00	10.00	10.00	10.00	0.00	Djumanov E.G.	
3.5	Purchase of safety items for hazardous operations (replenishment and maintaining emergency stocks) Gissar GOPS	25.00	25.00	0.00	0.00	0.00	Djumanov E.G.	
3.6	Development and expert assessment of Industrial Safety Declaration of Gissar GOPS	150.00	50.00	0.00	100.00	0.00	Mamutov P.M.	
3.7	Treatment of Gissar GOPS wooden surfaces with fire retardant agent	2.50	0.00	2.50	0.00	0.00	Djumanov E.G.	
Total operating expenses		207.50	85.00	12.50	110.00	0.00		
Total for Section Industrial Safety		298.50	120.00	63.50	110.00	5.00		
4. Prevention of Emergency Situations								
LUOK facilities		804.00	157.75	243.75	241.75	160.75		
Operating expenses								

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
4.1	Maintaining fire safety at Khauzak GPS	96.00	24.00	24.00	24.00	24.00	Djumanov E.G.	Agreement with Fire Safety Division of Bukhara Regional Internal Affairs Department
4.2	Purchase and maintenance of firefighting primary means (foam generator), repair of communication means, repair and charging of fire extinguishers at Khauzak GPS	42.00	10.00	10.00	10.00	12.00	Djumanov E.G.	
4.3	Maintaining blowout and gas safety, including gas dangerous works for Khauzak GPS	470.00	117.50	117.50	117.50	117.5	Djumanov E.G.	Agreement with Uzbekistan Anti-Blowout Control Militarized Unit
4.4	Arrangement and holding exercises of ERP actions, emergency response at Khauzak GPS	4.00	0.00	2.00	0.00	2.00	Azimov T.S.	Expenses for contracting representatives of Emergency Situations Ministry, Main Fire Safety Department under Ministry of Internal Affairs
4.5	Purchase of special tools and equipment for maintaining gas safety at Khauzak GPS	85.00	0.00	40.00	45.00	0.00	Djumanov E.G.	Equipping gas-rescuers and voluntary rescue team members gas-analyzers, self-contained breathing apparatuses, compressors, components, spare parts and tools
4.6	Maintaining fire safety at Kandim group facilities	5.00	1.25	1.25	1.25	1.25	Ibreev V.V.	Agreement with Fire Safety Division of Bukhara Regional Internal Affairs Department
4.7	Purchase and maintenance of firefighting primary means (foam generator), repair of communication means, repair and charging of fire extinguishers at Kandim group facilities	5.00	5.00	0.00	0.00	0.00	Ibreev V.V.	
4.8	Purchase of special tools and equipment for gas dangerous works at Kandim group facilities	35.00	0.00	25.00	10.00	0.00	Ibreev V.V.	Equipping gas rescuers (rescue equipment, spark proof wrenches)
4.9	Purchase of special tools and equipment for maintaining gas safety Kandim group facilities	30.00	0.00	10.00	20.00	0.00	Ibreev V.V.	Equipping gas-rescuers and voluntary rescue team members with RPD
Total operating expenses		772.00	157.75	229.75	227.75	156.75		
Administration costs								
4.10	Purchase and maintaining firefighting primary means (foam generator), repair and charging of fire extinguishers (LUOK office in Tashkent)	12.00	0.00	4.00	4.00	4.00		
4.11	Purchase of gas masks and anti-vandal boxes (LUOK office in Tashkent)	20.00	0.00	10.00	10.00	0.00		
Total administration costs		32.00	0.00	14.00	14.00	4.00		
Gissar facilities		353.00	105.00	113.00	80.00	55.00		
Operating expenses								
4.12	Maintaining fire safety at Gissar GOPS	100.00	25.00	25.00	25.00	25.00	Djumanov E.G.	Establishment of fire-station. Agreement with Fire Safety Division of Kashkadarya Regional Internal Affairs Department

No	Measures	Implementation expenses, total USD ,000	Including by quarters				Responsible person	Remark
			Q 1	Q 2	Q 3	Q 4		
4.13	Purchase and maintaining firefighting primary means (foamgenerator), repair of communication means, repair and charging of fire extinguishers at Gissar GOPS	6.00	0.00	6.00	0.00	0.00	Djumanov E.G.	
4.14	Maintaining of blowout safety at Gissar GOPS	120.00	30.00	30.00	30.00	30.00	Djumanov E.G.	Agreement with Uzbekistan Anti-Blowout Control Militarized Unit
4.15	Arrangement and holding exercises of ERP, emergency response at Gissar GOPS	2.00	0.00	2.00	0.00	0.00	Azimov T.S.	
4.16	Purchase of special tools and equipment for maintaining gas safety Gissar GOPS	125.00	50.00	50.00	25.00	0.00	Djumanov E.G.	Equipping gas-rescuers and voluntary rescue team members gas-analyzers, self-contained breathing apparatuses, compressors, components, spare parts and tools
Total operating expenses		353.00	105.00	113.00	80.00	55.00		
Total for Section Prevention of Emergency Situations		1 157.00	262.75	356.75	321.75	215.75		
GRAND TOTAL		3 004.78	771.00	806.50	971.28	456.00		
<i>Capital expenses</i>		521.28	61.50	101.00	220.28	138.50		
<i>Operating expenses</i>		2 372.50	704.50	662.50	715.00	290.50		
<i>Administration costs</i>		111.00	5.00	43.00	36.00	27.00		

Manager, Environment Department
Lead specialist on operation supervision

signature
signature

A.F. Kusnuyarova
T.S. Azimov

AGREED:

Chairman of Bukhara Regional
Nature Conservation Committee
Signature A.B. Niyazov
9.12 2009

APPROVED:

Deputy Director General for Operations
"LUKOIL Uzbekistan Operating Company" LLC
Signature E.G. Zubarev
03 December 2009
Seal of LUOK

ACTION PLAN
of Environmental Protection and Rational Exploitation of Natural Resources
of "LUKOIL Uzbekistan Operating Company" LLC
for 2010

Bukhara Region (Khauzak-Shadi site and Kandim group of fields)

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)			Planned efficiency (m3/day, t/year, ha)	Remarks	
					For the year**	of which:			For the year**	of which:				
						Q1	1 half year	9 months		Q1	1 half year			9 m
1.	<i>Air protection</i>													
1.1	Development and carrying-out of SEER Pre-project EIS(PP EIS) for Shadi site development	Q2	own funds	-	32 431.89	0.00	32 431.89	32 431.89						
1.2	Development and carrying-out of SEER ECS for Shadi site development	Q3	own funds	-	32 431.89	0.00	0.00	32 431.89						Implemented by own resources of State Specialized Inspectorate for Analytical Monitoring(SIAM) as per Programs agreed with RU State Committee for Nature Conservation(RU SCNC)
1.3	Oil and gas operations environmental monitoring	Within a year	own funds	-	73 160.31	0.00	24 386.77	48 773.54						
1.3.1	at Khauzak-Shadi site	Within a year	own funds	-	42 236.88	0.00	14 078.96	28 157.92						
1.3.2	at Kandim group of fields	Within a year	own funds	-	30 923.43	0.00	10 307.81	20 615.62						
Total for Section 1:					138 024.09	0.00	56 818.66	113 637.32						
2.	<i>Water conservation</i>													
2.1	QC of drinking and waste water of Khauzak GPS	Within a year	own funds	-	27 152.28	6 788.07	13 576.14	20 364.21						Monthly water QC by Bukhara State Center for

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)			Planned efficiency (m3/day, t/year, ha)	Remarks	
					For the year**	of which:			For the year**	of which:				
						Q1	1 half year	9 months		Q1	1 half year			9 m
													Sanitary/Epidemiology Supervision (SES) is carried out as per agreed Programs	
2.2	Oil and gas operations environmental monitoring	Within a year	own funds	-	67 880.70	0.00	22 626.90	45 253.80					Implemented by SIAM as per Programs agreed with RU SCNC	
2.2.1	at Khauzak-Shadi site	Within a year	own funds	-	50 533.41	0.00	16 844.47	33 688.94						
2.2.2	at Kandim group of fields	Within a year	own funds	-	17 347.29	0.00	5 782.43	11 567.86						
2.3	Development and carrying-out of SEER ECS of LUOK office construction in Bukhara (Kandym group of fields)	3 quarter	own funds	-	17 015.43	0.00	0.00	17 015.43						
2.4	Development and carrying-out of SEER ECS of Kandym group of fields construction and operations supervision shift camp	Q 2	own funds	-	15 084.60	0.00	15 084.60	15 084.60					As per opinion of SEER No E-7-3863 dd. 30.09.09 it is necessary to formulate ECS	
Total for Section 2:					127 133.01	6 788.07	51 287.64	97 718.04						
3.	Land and minerals resources conservation													
3.1	Disposal of solid domestic wastes from Khauzak GPS and Kandym group of fields construction and operations supervision shift camp	Within a year (as accumulated)	own funds	400 t/year	6 033.84	1 508.46	3 016.92	4 525.38					Transfer of domestic wastes for disposal under agreement with "Olotoobod". Estimated accumulation volume – 400 t/year	
3.2	Disposal of fluorescent lamps of Khauzak GPS	Within a year (as accumulated)	own funds	400 pc/year	1 508.46	377.12	754.23	1 131.35					Transfer of waste lamps for demercurization to "Sitara" (Bukhara). Estimated volume	

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*			Actual expenses at current prices (UZS ,000)			Planned efficiency (m3/day, t/year, ha)	Remarks	
					For the year**	of which:		For the year**	of which:				
						Q1	1 half year		9 months	Q1			1 half year
												- 400 pc/year	
3.3	Disposal of used engine oils of Khauzak GPS	Within a year (as accumulated)	own funds	1000 l/year	0.00	0.00	0.00	0.00					Disposal of used engine oils in oil treatment system of "Yuzhniy Kizilbayrak" (own resources). Estimated accumulation volume – 1000 t/year
3.4	Development and carrying-out of SEER ECS of Shadi site well drilling	Q 3	own funds	-	45 253.80	0.00	0.00	45 253.80					
3.5	Development and carrying-out of SEER Regulation of drilling wastes disposal at Shadi site	Q 1	own funds	-	37 711.50	37 711.50	37 711.50	37 711.50					Regulations are developed for substantiation of drilling waste treatment and landfilling on the spot (in sludge pits)
3.6	Oil and gas operations environmental monitoring	Within a year	own funds	-	91 261.83	0.00	30 420.61	60 841.22					Implemented by SIAM as per Programs agreed with RU SCNC
3.6.1	at Khauzak-Shadi site	Within a year	own funds	-	58 075.71	0.00	19 358.57	38 717.14					
3.6.2	at Kandim group of fields	Within a year	own funds	-	33 186.12	0.00	11 062.04	22 124.08					
3.7	Supply of chemicals for drilling waste treatment at Kandim group of fields area	Within a year	own funds	Drilling wastes – 4800 m3 (8 wells)	108 609.12	13 576.14	27 152.28	67 880.70					Supply of chemicals and coagulants for drilling waste treatment
3.8	Drilling waste disposal and sludge pits landfilling at Kandim group of fields area	Within a year	own funds	Drilling wastes – 4800 m3 (8 wells)	241 353.60	30 169.20	60 338.40	150 846.00					Being implemented as per Regulations agreed with RU SCNC

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)			Planned efficiency (m3/day, t/year, ha)	Remarks	
					For the year**	of which:			For the year**	of which:				
						Q1	1 half year	9 months		Q1	1 half year			9 m
3.9	Supply of chemicals for drilling waste and oil sludge treatment at Khauzak-Shadi site	Within a year	own funds	Drilling wastes – 2100 m3 (3 wells); H/Ш – 130 m3	152 354.46	55 813.02	152 354.46	152 354.46					Supply of chemicals and coagulant for operation of drilling waste treatment (DWT) landfill and DWT of Shadi site	
Total for Section 3:					684 086.61	139 155.44	311 748.40	520 544.41						
4.	Flora and fauna protection													
4.1	Oil and gas operations environmental monitoring	Within a year	own funds	-	46 762.26	0.00	15 587.42	31 174.84					Implemented by SIAM as per Programs agreed with RU SCNCS	
4.1.1	at Khauzak-Shadi site	Within a year	own funds	-	22 626.90	0.00	7 542.30	15 084.60						
4.1.2	at Kandim group of fields	Within a year	own funds	-	24 135.36	0.00	8 045.12	16 090.24						
4.2	Annual subscription to Environmental Bulletin	Dec. 10	own funds		250.00	0.00	0.00	0.00					Annual subscription for 2011	
Total for Section 4:					47 012.26	0.00	15 587.42	31 174.84						
Grand total for enterprise:					996 255.97	145 943.51	435 442.12	763 074.60						

*Planned costs are indicated at the exchange rate of Central Bank of the Republic of Uzbekistan as of 01.12.09 - 1 USD/1,508.46 soums

** Expenses are indicated on an accrual basis

Manager, Environment Department

signature

A.F. Kusnuyarova
04.12.2009

signature
signature

Mukhamadieva D.
Makhmudov M.
Kuziev K.

APPROVED BY:

Resolutions of Management
Committee for Kandym-Khauzak-
Shady-Kungrad project dated "____"
_____, 2009, Minutes No. ____
for Gissar project dated "____"
_____, 2009, Minutes No. ____
Chairman _____ S. Yu.
Nikiforov

AGREED BY:

Chairman of the State Nature
Preservation Committee of the
Republic of Uzbekistan

Signature Umarov N.M.

January 7, 2010

Official round seal

AGREED BY:

Head of the State Inspection
"Sanoatkontekhnazorat"

Signature Kholmatov I.M.

December 30, 2009

Official round seal

AGREED BY:

Head of Occupational Safety
Department of the Ministry of Labour

Signature Sharapov A.R.

January 14, 2010

Official round seal

HEALTH, SAFETY AND ENVIRONMENT PROGRAM

IN RESPECT OF OIL AND GAS OPERATIONS WITHIN THE CONTRACT AREA

**for projects of Kandym-Khauzak-Shady-Kungrad and Gissar-
Ustyurt**

FOR 2010-2012

1. GENERAL PROVISIONS

- 1.1. Health, safety and environment program in respect of the Oil and Gas operations within the Contract area for 2010-2012 (hereinafter “the Program”) was developed in accordance with:
 - ✓ Production Sharing Agreement concerning the site of Kandym group of fields, Khauzak and Shady fields and Kungrad field dated June 16, 2004 (hereinafter “PSA Kandym-Khauzak-Shady-Kungrad”), concluded between the Republic of Uzbekistan and investors consortium consisting of Open Joint-Stock Venture “LUKOIL” Oil Company (predecessor of LUKOIL Overseas Uzbekistan Ltd.) and National Holding Company “Uzbekneftegaz”;
 - ✓ Production Sharing Agreement concerning the fields on the territories of South-West Gissar and Ustyurt region of the Republic of Uzbekistan dated January 23, 2007 (hereinafter “PSA Gissar”) concluded between the Republic of Uzbekistan and “Soyuzneftegaz Vostok Limited” Company.
- 1.2. This Program was developed based on and in accordance with the requirements of:
 - ✓ Annual operating program for 2010-2012;
 - ✓ Operator’s Budget for 2010-2012;
 - ✓ Health, Safety and Environment Policy;
 - ✓ Program on safety, improvement of conditions and safety of labour, emergency situations prevention and response at OJSC “LUKOIL” and other organizations of “LUKOIL” Group for 2006-2010;
 - ✓ Environmental Safety Program of “LUKOIL Uzbekistan Operating Company” LLC for 2010-2012;
 - ✓ Rules and Procedures of Health, Safety and Environment Sub-committee of Management Committees approved by the Resolutions of Management Committees as of 30.03.2009.
- 1.3. This Program includes key activities in the sphere of health, safety and environment planned for 2010-2012 aimed at prevention of adverse effect to the environment, health of the Operator’s personnel and his contracting organizations as well as the population residing on the territory of Contract area.
- 1.4. Key activities included in the present Program are developed in consideration of substantial industrial risks of the Operator indicated in Substantial Industrial Risks Registry of LUKOIL Uzbekistan Operating Company LLC for the year 2010 (hereinafter “the Registry”) and aimed at decreasing the probability of hazards and/or minimization of consequences.
- 1.5. Operator’s Occupational health and safety Department and Ecology Department shall perform the organization and control over the activities accomplishment under the present Program.
- 1.6. Shall the Annual operating program for 2010-2012 as well as Operator’s Budget for 2010-2012 be changed, the present Program may be amended accordingly.

2. PREVENTIVE MEASURES PROGRAM

- 2.1. The fundamental principle of Operator’s activities in the sphere of health, safety and environment is the observance of the priority of planned and accomplished activities and measures related to prevention of adverse effect to the environment, health of the personnel and population before recovery of consequences of this effect.

2.2. In this relation the most of health, safety and environment activities have the preventive character and may be divided into the following directions:

- Development and execution of regulatory and permissive documentation in the sphere of health, safety and environment;
- Development and coordination with the government authorities of the Republic of Uzbekistan of standards and procedures of the Operator regulating the conduct of Oil and Gas operations in the sphere of health, safety and environment (including ecological monitoring program);
- design and estimate documentation expertise for compliance to the requirements of the legislation of the Republic of Uzbekistan in the sphere of health, safety and environment and Operator's corporate requirements;
- operational control over observance by the contracting organizations of the requirements of the applicable legislation of the Republic of Uzbekistan in the sphere of health, safety and environment;
- organization of continuous ecological monitoring over Oil and Gas operations performed;
- organization and conduct of radiation control on the territory of the objects as well as the manufacturing quality control of drinking and waste water;
- organization and conduct of manufacturing control of harmful production factors;
- compulsory fire safety and gas safety briefing to all persons before allowance to production facilities as well as workplace briefing (initial, periodic, extraordinary and one-time) for working personnel;
- conduct of pre-placement and periodic medical examinations, medical service, insurance and compulsory vaccination of personnel;
- personnel training to basic ecological notions and emergency situation actions, training and certification on occupational safety and health of directors, specialist and working staff, involved to works at hazardous production facilities training of personnel to safety methods and emergency situations actions, first-aid treatment rules;
- implementation of survey and assessment for technical condition of process equipment and pipelines exposed by aggressive media;
- implementation of corrosion protection system and technical supervision of safe operation of process equipment and pipelines;
- assessment and bringing into compliance with the requirements of workplaces on working conditions;
- provision to the personnel individual protective equipment, protective clothing and footwear (including gas analyzers and respiratory protective equipment);
- equipment of production facilities with fire and engineering equipment, emergency firefighting equipment as well as organization of maintenance of fire fighting system, security and fire alarm and alert at production facilities;
- development and implementation of emergency prediction and prevention system, preparation and keep prepared for use of forces and means for prevention and liquidation of emergency situations;
- development of emergency response plan;
- interaction with state regulatory bodies of the Republic of Uzbekistan on issued of health, safety and environment.

- 2.3. In selecting of optimal health, safety and environment actions the technical feasibility, expected risk reduction level as well as expenses for realization thereof shall be taken into account.
- 2.4. Those actions that may have maximum effect in risk reduction with the minimal efforts and expenses shall have the priority.
- 2.5. These are primarily the actions aimed at:
 - ✓ Collection, analysis and update of initial information (regulatory support, design and estimate documentation expertise);
 - ✓ Increase of level of consciousness of each employee regarding to the health, safety and environment (including training, briefing, direct recruitment and motivation);
 - ✓ Continuous monitoring and control over the compliance with the requirements in the sphere of health, safety and environment (assessment of work places, production control of hazardous factors, ecological monitoring).
- 2.6. In Table 1 are given the planning costs of the years 2010-2012 for completion of actions on health, safety and environment (Budget of HSE Department and Operator' Ecology Department).
- 2.7. In Table 2 are given the planned costs of years 2010-2012 for completion of actions on health protection (medical service)and personnel training for years 2010-2012 (Budget of the Operator's HR Department).

Table 1

ACTION PLAN on implementation of “Health, Safety and Environment Program for 2010-2012”

(Budget of HS Department and Ecology Department, thous, USD)

No.	Name of action	2010	2011	2012	Remarks
Environment protection					
1.	Consumption and production wastes disposal, including:	341.0	463.0	518.0	
1.1.	luminescent lamps:	2.0	3.0	3.0	Service Agreement with EC TC «Sitora» (Bukhara for acceptance and demercurization)
1.1.1.	- <i>Khauzak-Shady field;</i>	1.0	1.0	1.0	
1.1.2.	- <i>site of Kandym group of fields;</i>	-	1.0	1.0	
1.1.3.	- <i>Gissar.</i>	1.0	1.0	1.0	
1.2.	SDW:	6.0	6.0	10.0	
1.2.1.	- <i>Khauzak-Shady field;</i>	2.8	2.0	2.0	Service Agreement with “Olotobod” LLC (Alat) for acceptance and recycling
1.2.2.	- <i>site of Kandym group of fields;</i>	1.2	2.0	6.0	
1.2.3.	- <i>Gissar.</i>	2.0	2.0	2.0	Service Agreement with Housing maintenance and utilities board of Dekhkanabad district for acceptance and recycling
1.3.	Chemicals for recycling of drilling wastes, including:	173.0	214.0	265.0	Provision of MHC and coagulants for drilling wastes disposal on the landfill of bracketing plant of Khauzak field and territory of Khauzak group of fields according to the approved Procedure
1.3.1.	- <i>Khauzak-Shady field;</i>	101.0	106.0	157.0	
1.3.2.	- <i>site of Kandym group of fields;</i>	72.0	108.0	108.0	
1.4.	Processing of drilling wastes and liquidation of slurry ponds at the KGF field	160.0	240.0	240.0	
2.	Drinking and wastes water quality control, including:	24.0	30.0	42.0	
2.1.	- <i>Khauzak-Shady field;</i>	18.0	21.0	21.0	Service Agreement with Bukhara State sanitary-epidemiological expertise center shall be performed by the approved Program
2.2.	- <i>site of Kandym group of fields;</i>	-	-	9.0	
2.3.	- <i>Gissar</i>	6.0	9.0	12.0	Service Agreement with Kashkadarya State sanitary-epidemiological expertise center shall be performed by the approved Program
3.	Ecological monitoring, including:	295.0	286.0	301.0	
3.1.	- <i>Khauzak-Shady field;</i>	115.0	120.0	120.0	
3.2.	- <i>site of Kandym group of fields;</i>	70.0	85.0	100.0	
3.3.	- <i>Kungrad field;</i>	25.0	11.0	11.0	
3.4.	- <i>Gissar;</i>	60.0	60.0	60.0	
3.5.	- <i>Ustuyrt.</i>	25.0	10.0	10.0	
4.	Development and SEE of materials on EIS for DED, environmental standards, including:	193.3	98.0	51.0	
4.1.	Development and conduct of SEE of SEI for well drilling at Shady field	30.0	-	-	SEE procedure shall be determined according to the Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 491 dated 31.12.2001 “On approval of Regulations on state environmental expertise in the Republic of Uzbekistan” as amended in accordance with the Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 152 dated 05.06.2009.
4.2.	Development and conduct of SEE of EIS for arrangement of site Western Shady;	21.5	-	-	
4.3.	Development and conduct of SEE of SEI for arrangement of site Western Shady;	21.5	-	-	
4.4.	Development and conduct of SEE of SEI for construction of LUOC office in Bukhara (Kandym group of fields)	11.3	-	-	
4.5.	Development and conduct of SEE of SEI for construction and operation of VP of supervision service for construction of Kandym group of fields	10.0	-	-	
4.6.	Development and conduct of SEE of EIS of Shege-3 exploratory well drilling at Kungrad	20.0	-	-	

No.	Name of action	2010	2011	2012	Remarks
	field				
4.7.	Development and conduct of SEE of drilling wastes disposal procedure at Shady field	25.0	-	-	
4.8.	Development and conduct of SEE of SEI for BCS construction at Khauzak field	-	31.0	-	
4.9.	Development and conduct of SEE of SEI for priority construction (infrastructure) at site of Kandym group of fields	-	51.0	-	
4.10.	Development and conduct of SEE of SEI for construction of Kandym group of fields arrangement facilities (1 st priority)	-	-	51.0	
4.11.	Development and conduct of SEE of SEI for exploration drilling (structures Shurdaryo, Namsis)	-	16.0	-	
5.	Other works, including:	51.0	51.0	77.0	
5.1.	Expert-consulting services on environment protection, including expenses for SEE	8.0	8.0	20.0	
5.2.	Obtaining of regulatory documents, standards in the sphere of environment protection	2.0	2.0	2.0	
5.3	Preparation of informational materials on environment protection of educational and agitation nature (instruction booklets, posters, etc.)	4.0	4.0	8.0	
5.4.	Training, preparation and skill development for personnel on issues of environment protection	5.0	5.0	5.0	
5.5.	Provision of Tashkent city on issues of environment protection	12.0	12.0	12.0	Disposal of consumption wastes, sewerage (office in Tashkent)
5.6.	Procurement of environment protection materials, including:	20.0	20.0	30.0	
5.6.1.	- <i>Khauzak-Shady field;</i>	10.0	10.0	10.0	
5.6.2.	- <i>site of Kandym group of fields;</i>	-	-	10.0	
5.6.3.	- <i>Gissar.</i>	10.0	10.0	10.0	
6.	Compensation payments for environment pollution and wastes disposal, including:	16.0	16.0	24.0	
6.1.	- <i>Khauzak-Shady field;</i>	8.0	8.0	12.0	
6.2.	- <i>Gissar.</i>	8.0	8.0	12.0	
	Total for environment protection, including:	866.3	944.0	1013.0	
	- <i>Khauzak-Shady field;</i>	353.8	299.0	323.0	
	- <i>site of Kandym group of fields;</i>	324.5	487.0	525.0	
	- <i>Kungrad field;</i>	45.0	11.0	11.0	
	- <i>Gissar.</i>	87.0	106.0	97.0	
	- <i>Ustuyrt.</i>	25.0	10.0	10.0	
	- <i>Tashkent (SG&A)</i>	31.0	31.0	47.0	
Industrial safety, safety of labour, civil defense and emergency situations					
1.	Occupational safety and health, including:	683.0	926.0	701.0	
1.1.	Acquiring of PPE:	465.0	700.0	450.0	
1.1.1.	- <i>Khauzak-Shady field;</i>	180.0	150.0	150.0	
1.1.2.	- <i>site of Kandym group of fields;</i>	200.0	450.0	200.0	
1.1.3.	- <i>Gissar.</i>	85.0	100.0	100.0	
1.2.	Prevention of road accidents:	55.0	55.0	60.0	
1.2.1.	- <i>Khauzak-Shady field;</i>	30.0	35.0	35.0	Including installation of speed control systems and roll over bars
1.2.2.	- <i>site of Kandym group of fields;</i>	10.0	10.0	10.0	
1.2.3.	- <i>Gissar.</i>	15.0	10.0	15.0	
1.3.	Testing of protective equipment (insulating gloves, safety harnesses, balloons)	3.0	3.0	3.0	Testing of insulating gloves, safety harnesses, etc.
1.3.1.	- <i>Khauzak-Shady field;</i>	3.0	3.0	3.0	
1.3.2.	- <i>site of Kandym group of fields;</i>	-	-	0.0	
1.4.	Training of newly accepted personnel to first-aid treatment rules:	36.0	43.0	43.0	
1.4.1.	- <i>Khauzak-Shady field;</i>	8.0	10.0	10.0	
1.4.2.	- <i>site of Kandym group of fields;</i>	8.0	15.0	15.0	

No.	Name of action	2010	2011	2012	Remarks
1.4.3.	-Gissar.	10.0	10.0	10.0	
1.4.4.	-Tashkent	10.0	8.0	8.0	
1.5.	Acquisition of safety signs, normative and technical literature, preparation of display stands, placards, instruction booklets, blanks, magazines	40.0	40.0	40.0	
1.5.1	-Khauzak-Shady field;	5.0	15.0	15.0	
1.5.2.	-site of Kandym group of fields;	25.0	25.0	25.0	
1.5.3.	-Tashkent	10.0	-	-	
1.6.	Pre-assessment preparation on health, safety and environment, assessment of work places on working conditions:	17.0	17.0	17.0	
1.6.1	-Khauzak-Shady field;	2.0	2.0	2.0	
1.6.2.	-site of Kandym group of fields;	5.0	5.0	5.0	
1.6.3.	-Gissar.	10.0	10.0	10.0	
1.7.	Maintenance of medical aid posts with medicine chests, deratization/disinfestation	29.0	25.0	25.0	
1.7.1.	-Khauzak-Shady field;	10.0	8.0	8.0	
1.7.2.	-site of Kandym group of fields;	6.0	8.0	8.0	
1.7.3.	-Gissar.	10.0	8.0	8.0	
1.7.4.	-Tashkent	3.0	1.0	1.0	
1.8.	Preparation of informational and training materials, equipment of HSE cabinet	35.0	40.0	60.0	
1.8.1.	-Khauzak-Shady field;	-	-	20.0	
1.8.2.	-site of Kandym group of fields;	-	20.0	20.0	
1.8.3.	-Gissar.	10.0	15.0	15.0	
1.8.4.	-Tashkent	25.0	5.0	5.0	
1.9.	Organization of review competitions on HSE	3.0	3.0	3.0	
2.	Industrial safety, including:	298.5	228.0	253.0	
2.1.	Acquisition of gas detectors, gas analyzers	96.0	35.0	80.0	
2.1.1.	-Khauzak-Shady field;	46.0	10.0	20.0	
2.1.2.	-site of Kandym group of fields;	20.0	20.0	40.0	
2.1.3.	-Gissar.	30.0	5.0	20.0	
2.2.	Acquisition of secure facilities for work performance, including of heightened danger, emergency resupply	50.0	40.0	20.0	Provision of the gas rescue team with emergency rescue equipment
2.1.1.	-Khauzak-Shady field;	25.0	0.0	20.0	
2.2.2.	-site of Kandym group of fields;	0.0	25.0	0.0	
2.2.3.	-Gissar.	25.0	15.0	0.0	
2.3.	Development and expertise of ISD for Gissar OGPS	150.0	150.0	150.0	
2.4.	Wooden covers flame-retardant treatment at Gissar OGPS	2.5	3.0	3.0	
3.	Prevention of emergency situations, including:	1157.0	1286.0	1470.0	
3.1.	Ensuring the fire safety	201.0	380.0	390.0	
3.1.1.	-Khauzak-Shady field;	96.0	110.0	120.0	Service Agreement with Bukhara DIA
3.1.2.	-site of Kandym group of fields;	5.0	150.0	150.0	
3.1.3.	-Gissar.	100.0	120.0	120.0	
3.2.	Acquisition of emergency firefighting, foam formation equipment, repair of communication equipment, repair and recharge of fire extinguishers	65.0	68.0	102.0	
3.2.1.	-Khauzak-Shady field;	42.0	40.0	40.0	
3.2.2.	-site of Kandym group of fields;	5.0	20.0	50.0	
3.2.3.	-Gissar.	6.0	6.0	10.0	
3.3.	Organization of blowout and gas security (agreement with Uz militarized unit), including performance of gas dangerous works	590.0	680.0	700.0	
3.3.1.	-Khauzak-Shady field;	470.0	500.0	520.0	Service Agreement with Uz militarized unit
3.3.2.	-site of Kandym group of fields;	0.0	50.0	50.0	

No.	Name of action	2010	2011	2012	Remarks
3.3.3.	-Gissar.	120.0	130.0	130.0	
3.4.	Organization and conduct of exercises on emergency localization plan, emergency response	6.0	13.0	13.0	Expenses for attraction of representatives of ESM, MSD of the Ministry of Internal Affairs of RUz
3.4.1.	-Khauzak-Shady field;	4.0	4.0	4.0	
3.4.2.	-site of Kandym group of fields;	0.0	5.0	5.0	
4.3.3.	-Gissar.	2.0	4.0	4.0	
3.5.	Acquisition of special tools and equipment for performance of gas dangerous works	275.0	145.0	265.0	Provision of the Gas rescue team and Voluntary gas rescue battalion with gas analysis equipment, self-contained breathing apparatus, compressors, component and spare parts, and instruments.
3.5.1.	-Khauzak-Shady field;	85.0	45.0	70.0	
3.5.2.	-site of Kandym group of fields;	65.0	75.0	135.0	
3.5.3.	-Gissar.	125.0	25.0	60.0	
3.6.	Acquisition of gas masks and vandal-proof cases	20.0	0.0	0.0	
	Total for HSE and ES, including:	2138.5	2440.0	2424.0	
	-Khauzak-Shady field;	1006.0	932.0	1037.0	
	-site of Kandym group of fields;	349.0	878.0	713.0	
	-Gissar.	703.0	614.0	658.0	
	-Tashkent (SG&A)	80.0	16.0	16.0	
	Total for program, including:	3004.8	3384.0	3437.0	
	-Khauzak-Shady field;	1359.8	1231.0	1360.0	
	-site of Kandym group of fields;	673.5	1365.0	1238.0	
	-Kungrad field;	45.0	11.0	11.0	
	-Gissar.	790.5	720.0	755.0	
	-Ustuyrt.	25.0	10.0	10.0	
	-Tashkent (SG&A)	111.0	47.0	63.0	

Head of HS Department *signature*
Head of Ecology Departments *signature*

V.V. Ibreev
A.F. Kusnuyarova

ACTION PLAN
for the realization of Health, Safety and Environment Program for 2010 – 2012

(Budget of Personnel development department, thous, USD)

No.	Measure description	2010	2011	2012	Remark
1	Personnel education about ecological basics	8.0	9.0	10.0	Regularly education of all Operator's employees on issues of safety rules, labour and environmental safety, as well as requirements of ISO 14001 and OHSAS 18001 standards before routine knowledge assessment.
	Education on "Internal auditor of integrated management system" program. ISO 14001:2004 OHSAS 1800:2007.	37.5	10.0	10.0	Training of HSE service employees of GPS "Khauzak" and Gissar OGPS on requirements of ISO 14001 and OHSAS 18001 standards
2	Education, training and personnel development on the safety rules and labor safety issues.	160.0	180.0	200.0	Compulsory training according to the law, including: <ul style="list-style-type: none"> - HSE before routine knowledge assessment; - Safety rules in oil-and-gas industry and preventive firefighting regulations of RUz; - Preparation of Voluntary gas rescue battalion; - blowout and gas security
3	Organization and operation of medical station on Khauzak GPS.	180.0	180.0	185.0	
4	Organization and operation of medical station on Gissar OGPS.	72.0	76.0	80.0	
5	Organization of before trip, preliminary and periodical medical examinations and medical insurance of personnel.	462.0	1 124.0	1 200.0	According to planned staff schedule. Including pre-route medical examination of drivers.
	TOTAL:	919.5	1 579.0	1 685.0	

Head of HE Department

signature

M.N. Skiban

AGREED:

Chairman of Bukhara Regional
Nature Conservation Committee
Signature A.B. Niyazov
28.12 2009

APPROVED:

Deputy Director on General for Operations
"LUKOIL Uzbekistan Operating Company" LLC
Signature E.G. Zubarev
21 December 2009
Seal of LUOK company

**REPORT on Implementation of Action Plan of Environment Protection and Rational Exploitation of Natural Resources
for 12 months of 2009**

Bukhara Regional (Khauzak-Shadi site and Kandim group of fields)

№	Actions	Implementat ion period (beginning, end)	Financin g source	Designe d capacity (m3/day , t/year, ha)	Planned cash funds at current prices (UZS ,000)*			Actual expenses at current prices (UZS ,000)				Planned efficiency (m3/day, t/year, ha)	Remarks	
					For the year**	Of which:		For the year**	Of which					
						Q 1	1 half year		9 months	Q 1	1 half year			9 m
1.	<i>Air protection</i>													
1.1	Development and carrying- out of SEER Pre-poject EIS(PP EIS) for Kandim Group of Fields fields infrastructure facilities	01.05.09-30.09.09	own funds	-	69 425.50	0.00	41 655.30	69 425.50	0.00	0.00	0.00	0.00	-	Carried over to 2011as per AWP approved by managing company
1.2	Development and carrying- out SEER ECS for construction of Kandym Group of Fields infrastructure facilities	20.09.09-30.12.09	own funds	-	41 655.30	0.00	0.00	10 413.83	0.00	0.00	0.00	0.00	-	Carried over to 2011as per SWP approved by managing company
1.3	Oil and gas operations environmental monitoring	Within a year	own funds	-	55 818.10	19 047.83	19 047.83	32 794.08	56 329.27	7 685.22	18 757.33	32 538.75	-	Actual cost of works as per agreement with SIAM. EM was implemented as per Programs agreed with SCNCS
1.3.1	at Khauzak-Shadi site	Within a year	own funds	-	41 238.75	13 746.25	13 746.25	27 492.50	41 098.43	5 795.06	13 424.74	27 206.16	-	
1.3.2	at Kandim group of fields	Within a year	own funds	-	14 579.36	5 301.58	5 301.58	5 301.58	15 230.84	1 890.15	5 332.59	5 332.59	-	
1.4	Compensation payments for	Within a year	own funds	-	400.00	100.00	200.00	300.00	468.15	77.67	468.15	468.15	-	As per calculations + advance payments for

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)				Planned efficiency (m3/day, t/year, ha)	Remarks
					For the year**	Of which:			For the year**	Of which				
						Q 1	1 half year	9 months		Q 1	1 half year	9 m		
	atmospheric emissions													Q 4
1.5	Development of environmental standards (MAC) for Khauzak GPS	01.07.09-30.12.09	own funds	-	0.00	0.00	0.00	0.00	30 742.61	0.00	0.00	14 146.50	-	New task as per 2009 AWP
Total for Section 1:					167 298.90	19 147.83	60 903.13	112 933.41	87 540.03	7 762.89	19 225.49	47 153.41		
2.	<i>Water conservation</i>													
2.1	QC of drinking and waste water	Within the year	own funds	-	18 000.00	5 000.00	9 000.00	14 000.00	11 986.30	2 679.07	4 972.35	9 441.26	-	Agreement with Bukhara SES (monthly monitoring as per approved Programs
2.2	Oil and gas operations environmental monitoring	Within the year	own funds	-	58 317.42	15 273.61	15 273.61	28 742.16	57 506.36	7 379.31	17 827.54	39 068.90	-	Actual cost of works as per agreement with SIAM. EM was
2.2.1	at Khauzak-Shadi site	Within the year	own funds	-	49 430.96	13 468.55	13 468.55	29 937.09	49 181.91	5 927.34	13 731.18	34 972.53	-	implemented as per Programs agreed with SCNC
2.2.2	at Kandim group of fields	Within the year	own funds	-	8 886.46	1 805.06	1 805.06	1 805.06	8 324.45	1 451.97	4 096.37	4 096.37	-	
2.3	Development and SEER PPEIS for project of waste water deep well injection at Khauzak GPS	01.07.09-31.12.09	own funds	-	16 662.12	0.00	13 885.10	16 662.12	0.00	0.00	0.00	0.00	-	Carried over to 2010 because of tender holding
2.4	Annual subscription to Environmental Bulletin	01.12.09-30.12.09	own funds	-	200.00	0.00	0.00	0.00	2 206.17	1 403.78	1 403.78	1 988.78	-	Subscription to Environmental Bulletin of Uzbekistan, purchase of regulatory documents
2.5	Compensation payment for discharge into the fields	01.04.09-30.12.09	own funds	-	0.00	0.00	0.00	0.00	4 348.70	0.00	3 848.70	3 848.70	-	As per calculations + advance payments for Q 4
2.6	Development of environmental standards (MAC) for Khauzak GPS	01.07.09-30.12.09	own funds	-	0.00	0.00	0.00	0.00	17 625.06	0.00	0.00	7 716.27	-	New task according to 2009 AWP

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)				Planned efficiency (m3/day, t/year, ha)	Remarks
					For the year**	Of which:			For the year**	Of which				
						Q 1	1 half year	9 months		Q 1	1 half year	9 m		
Total for Section 2:					93 179.54	20 273.61	38 158.71	59 404.28	93 672.60	11 462.16	28 052.37	62 063.91		
3.	<i>Land and minerals resources conservation</i>													
3.1	Disposal of production and domestic wastes	Within the year	own funds	-	19 439.14	4 165.53	8 331.06	12 496.59	1 569.77	865.12	865.12	925.10	-	
3.1.1	Demercurization of waste fluorescent lamps	Within the year	own funds	-	2 777.02	0.00	0.00	0.00	269.77	65.12	65.12	125.10	350 pcs	Agreement with TC "Sitara" for acceptance
3.1.2	Sending solid domestic wastes for disposal	Within the year	own funds	-	16 662.12	4 165.53	8 331.06	12 496.59	1 300.00	800.00	800.00	800.00	250 tn	Agreement with "Olotoobod" LLC for acceptance
3.2	Development of PP EIS and SEER for construction of office in Bukhara	01.08.09-30.09.09	own funds	-	15 273.61	0.00	0.00	13 885.10	0.00	0.00	0.00	0.00	-	Carried over as per AWP, approved by managing company
3.3	Development of ECS and SEER construction of office in Bukhara	01.10.09-31.12.09	own funds	-	18 050.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	
3.4	Oil and gas operations environmental monitoring	Within the year	own funds	-	71 508.27	24 298.93	24 298.93	43 043.81	72 411.84	9 959.10	24 091.71	42 966.26	-	Actual cost of works as per agreement with SIAM. EM was implemented as per Programs agreed with SCNC
3.4.1	at Khauzak-Shadi site	Within the year	own funds	-	56 234.66	18 744.89	18 744.89	37 489.77	56 286.98	7 936.72	18 386.06	37 260.61	-	
3.4.2	at Kandim group of fields	Within the year	own funds	-	15 273.61	5 554.04	5 554.04	5 554.04	16 124.86	2 022.39	5 705.65	5 705.65	-	
3.5	Supply of landfill with chemicals	Within the year	own funds	-	120 000.00	30 000.00	60 000.00	90 000.00	183 510.0	52 160.00	138 510.00	145 260.00	5760 t of drilling sludge 1075 m3 of DWW	Within a year 360 t of chemicals and 18 t of coagulant were purchased for drilling wastes treatment
3.6	Development and SEER ECS for construction of additional part of condensate line at Khauzak-Shadi site	04.05.09-31.07.09	own funds	-	0.00	0.00	0.00	0.00	14 478.54	0.00	12 259.20	14 478.58	-	New task as per AWP, approved by managing company

№	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*				Actual expenses at current prices (UZS ,000)				Planned efficiency (m3/day, t/year, ha)	Remarks
					For the year**	Of which:			For the year**	Of which				
						Q 1	1 half year	9 months		Q 1	1 half year	9 m		
3.7	Development and SEER ECS for construction of wells at Kandim group of fields	22.06.09-30.09.09	own funds	-	0.00	0.00	0.00	0.00	31 514.74	0.00	4 671.23	31 514.74	-	New task as per 2009 AWP
3.8	Development of environmental standards (maximum allowable volumes) for Khauzak GPS	01.07.09-30.12.09	own funds	-	0.00	0.00	0.00	0.00	22 872.08	0.00	0.00	10 288.37	-	New task as per 2009 AWP
Total for Section 3:					244 271.65	58 464.46	92 629.99	159 425.0	326 356.9	62 984.22	180 397.26	245 433.01		
4	Protection of flora and fauna													
4.1	Oil and gas operations environmental monitoring	Within the year	own funds	-	33 046.54	16 523.27	16 523.27	16 523.27	33 567.25	6 680.85	16 503.91	16 503.91	-	Actual cost of works as per agreement with SIAM. EM was implemented as per Programs agreed with SCNC
4.1.1	at Khauzak-Shadi site	Within the year	own funds	-	21 938.46	10 969.23	10 969.23	10 969.23	21 898.15	4 645.50	10 761.68	10 761.68	-	
4.1.2	at Kandim group of fields	Within the year	own funds	-	11 108.08	5 554.04	5 554.04	5 554.04	11 669.10	2 035.35	5 742.23	5 742.23	-	
Total for Section 4:					33 046.54	16 523.27	16 523.27	16 523.27	33 567.25	6 680.85	16 503.91	16 503.91		
Grand total for enterprise:					537 796.63	114 409.1	208 215.10	348 286.4	541 136.8	88 890.11	244 179.02	371 154.24		

Remark:

*Costs are indicated at the exchange rate of 31.03.09 - 1 USD/UZS 1,432.00

** Expenses are indicated on an accrual basis

*** Expenses are indicated on an accrual basis at the exchange rate of 23.06.09 - 1 USD/UZS 1,480.58

*** Expenses are indicated on an accrual basis at the exchange rate of 22.09.09 - 1 USD/UZS 1,497.98

**** Expenses are indicated on an accrual basis at the exchange rate of 15.12.09 - 1 USD/UZS 1,510.03

Manager, Environment Department

signature

A.F. Kusnuyarova
21.12.2009

Attachment No.10

AGREED:
Chairman of Bukhara Regional
Operations
Nature Conservation Committee
Company" LLC

_____ A.B. Niyazov
" _____ " _____ 2010

APPROVED:
Deputy Director on General for

"LUKOIL Uzbekistan Operating

_____ E.G. Zubarev
" _____ " _____ 2010

**REPORT on Implementation of Action Plan
of Environment Protection and Rational Exploitation of Natural Resources
for 12 months of 2010**

Bukhara Region (Khauzak-Shady site and Kandym group of fields)

No.	Actions	Implementation period (beginning, end)	Financing source	Designed capacity (m3/day, t/year, ha)	Planned cash funds at current prices (UZS ,000)*			Actual expenses at current prices (UZS ,000)			Actual efficiency (m3/day, t/year, ha)	Remarks		
					For the year**	Of which:		For the year**	Of which:					
						Q 1	1 half year		9 months	Q 1			1 half year	9 months
1.	<i>Air protection:</i>													
1.1.	Development and carrying-out SEE of Draft EIS for Shady field facilities construction	Q 2	own funds	-	32 431,89	0,00	32 431,89	32 431,89	51 234,66	0,00	0,00	0,00	1 draft and conclusion of SEE	Draft EIS developed as part of detailed design for field facilities construction
1.2.	Development and carrying-out SEE of ECS for Shady field facilities construction	Q 3	own funds	-	32 431,89	0,00	0,00	32 431,89	0,00	0,00	0,00	0,00	-	Development of ECS carried over to 2011 y. in view of the requirement of SEE on EIS development
1.3.	Oil and gas operations environmental monitoring:	Within a year	own funds	-	59 055,53	0,00	19 685,18	39 370,35	48 278,91	0,00	13 049,85	29 879,80	3 stages	Actual expenses on the Contract with State Specialized Inspection of Analytical Control (GosSIAC). Monitoring is implemented as per Programs agreed with State Nature Management
1.3.1.	at Khauzak-Shady site;	Within a year	own funds	-	34 582,02	0,00	11 527,34	23 054,68	23 477,50	0,00	7 641,79	15 456,68	3 stages	
1.3.2.	at Kandym group of fields.	Within a year	own funds	-	24 473,51	0,00	8 157,84	16 315,67	24 801,41	0,00	5 408,06	14 423,12	3stages	

															Committee.
1.4.	Development and carrying-out SEE of Draft EIS "Booster compression station at Khauzak site of Dengizkul gas-condensate field."	Q 4	own funds	-	0,00	0,00	0,00	0,00	49 024,86	0,00	0,00	0,00	1 draft and conclusion of SEE	New action not stipulated by the plan. Draft EIS is developed as part of Engineering documentation	
Total for Section 1:					123 919,31	0,00	52 117,07	104 234,13	148 538,42	0,00	13 049,85	29 879,80			
2.	Water conservation:														
2.1.	QC of drinking and waste water at Khauzak GPS	Within a year	own funds	-	27 152,28	6 788,07	13 576,14	20 364,21	13 743,42	4 199,56	6 986,17	10 882,81	55 252 m3/12 months	Actual expenses on the Contract with Bukhara SC SEN. Monitoring is implemented as per programs agreed with RUz State Nature Management Committee.	
2.2.	Oil and gas operations environmental monitoring:	Within a year	own funds	-	75 345,15	0,00	25 115,05	50 230,10	55 350,88	0,00	16 649,46	35 463,56	3 stages	Actual expenses on the Contract with State Specialized Inspection of Analytical Control (GosSIAC). Monitoring is implemented as per Programs agreed with State Nature Management Committee.	
2.2. 1.	at Khauzak-Shady site;	Within a year	own funds	-	62 790,56	0,00	20 930,19	41 860,37	42 628,08	0,00	13 875,20	28 064,69	3 stages		
2.2. 2.	at Kandym group of fields.	Within a year	own funds	-	12 554,59	0,00	4 184,86	8 369,73	12 722,80	0,00	2 774,26	7 398,87	3 stages		
2.3.	Development and carrying-out SEE of ECS for construction of LUOC office in Bukhara (Kandym group of fields)	Q 3	own funds	-	17 015,43	0,00	0,00	17 015,43	0,00	0,00	0,00	0,00	-	Development of ECS carried over to 2011 y. in view of determent of office construction works.	

2.4.	Development and carrying-out SEE ECS for construction and operation of shift camp for construction supervisory service at Kandym group of fields	Q 2	own funds	-	15 084,60	0,00	15 084,60	15 084,60	0,00	0,00	0,00	0,00	-	Development of ECS carried over to 2011 y. in view of deterrment of shift camp construction works.
2.5.	Development and carrying-out SEE of Draft EIS "Landfill for utilization of industrial effluents (associated formation water) at Khauzak-Shady sites of Dengizkul gas-condensate field."	Q 4	own funds	-	0,00	0,00	0,00	0,00	81 926,00	0,00	0,00	0,00	1 draft and conclusion of SEER	New action not stipulated by the plan. Draft EIS is developed as part of Engineering documentation
Total for Section 2:					134 597,46	6 788,07	53 775,79	102 694,34	151 020,30	4 199,56	23 635,64	46 346,37		
3.	Land and mineral resources conservation:													
3.1.	Disposal of solid domestic wastes of Khauzak GPS and shift camp for construction supervisory service at Kandym group of fields	Within a year (as accumulated)	own funds	400 t/year	6 033,84	1 508,46	3 016,92	4 525,38	1 600,00	800,00	1 600,00	1 600,00	234,5 t/12 months	Actual expenses on the Contract with Olotobod LLC
3.2.	Disposal of fluorescent lamps of Khauzak GPS	Within a year (as accumulated)	own funds	400 pcs/year	1 508,46	377,12	754,23	1 131,35	140,04	42,02	42,02	76,98	375 pcs/12 months	Actual expenses on the Contract with Sitora TC
3.3.	Disposal of waste engine oils of Khauzak GPS	Within a year (as accumulated)	own funds	1 000 l/year	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1126 l/12 months	No expenses are stipulated. Disposal is carried by own forces to oil processing system of Gizzar Gas/Oil Production Station.
3.4.	Disposal of waste car tires and tubes of Khauzak GPS	Within a year (as accumulated)	own funds	3 t/year	0,00	0,00	0,00	0,00	35,50	0,00	0,00	35,50	1,615 t/12 months	Actual expenses on the Contract with Farna Servis Fayz LLC

3.5.	Development and carrying-out SEE of ECS for drilling of wells at Shady site	Q 3	own funds	-	45 253,80	0,00	0,00	45 253,80	41 439,41	0,00	0,00	5 957,47	1 draft and conclusion of SEER	Actual expenses on development and carrying-out SEE of ECS
3.6.	Development and carrying-out SEE of regulations on disposal of drilling wastes at Shady site	Q 1	own funds	-	37 711,50	37 711,50	37 711,50	37 711,50	38 239,52	38 239,52	38 239,52	38 239,52	1 Regulation	Actual expenses on development and carrying-out SEE of Regulations in 1 quarter 2010y.
3.6. 1.	Oil and gas operations environmental monitoring:	Within a year	own funds	-	81 376,19	0,00	27 125,40	54 250,79	66 595,22	0,00	17 982,18	41 202,46	3 stages	Actual expenses on the Contract with State Specialized
3.6. 2.	at Khauzak-Shady site;	Within a year	own funds	-	47 447,00	0,00	15 815,67	31 631,33	32 211,45	0,00	10 484,64	21 206,77	3 stages	Inspection of Analytical Control (GosSIAK).
3.7.	at Kandym group of fields.	Within a year	own funds	-	33 929,18	0,00	11 309,73	22 619,46	34 383,77	0,00	7 497,53	19 995,69	3 stages	Monitoring is implemented as per Programs agreed with State Nature Management Committee.
3.8.	Supply of additives for utilization of drilling wastes at Kandym group of fields	Within a year	own funds	DW - 4800 m3 (8 wells)	108 609,12	13 576,14	27 152,28	67 880,70	0,00	0,00	0,00	0,00	-	Utilization of drilling wastes at KGF, including procurement of additives, is carried within the Contract on wells construction with "Eriell Corporation s.r.o."
3.9.	Utilization of drilling wastes and liquidation of drilling pit at Kandym group of fields	Within a year	own funds	DW - 4800 m3 (8 wells)	241 353,60	30 169,20	60 338,40	150 846,00	276 925,45	0,00	0,00	137 628,31	2439,5 m3 drilling wastewater /12 months 3115,36 t DW 9 /months	Actual expenses on utilization of drilling wastes and drilling pit under Contract with "Eriell Corporation s.r.o.": Q 3 - wells

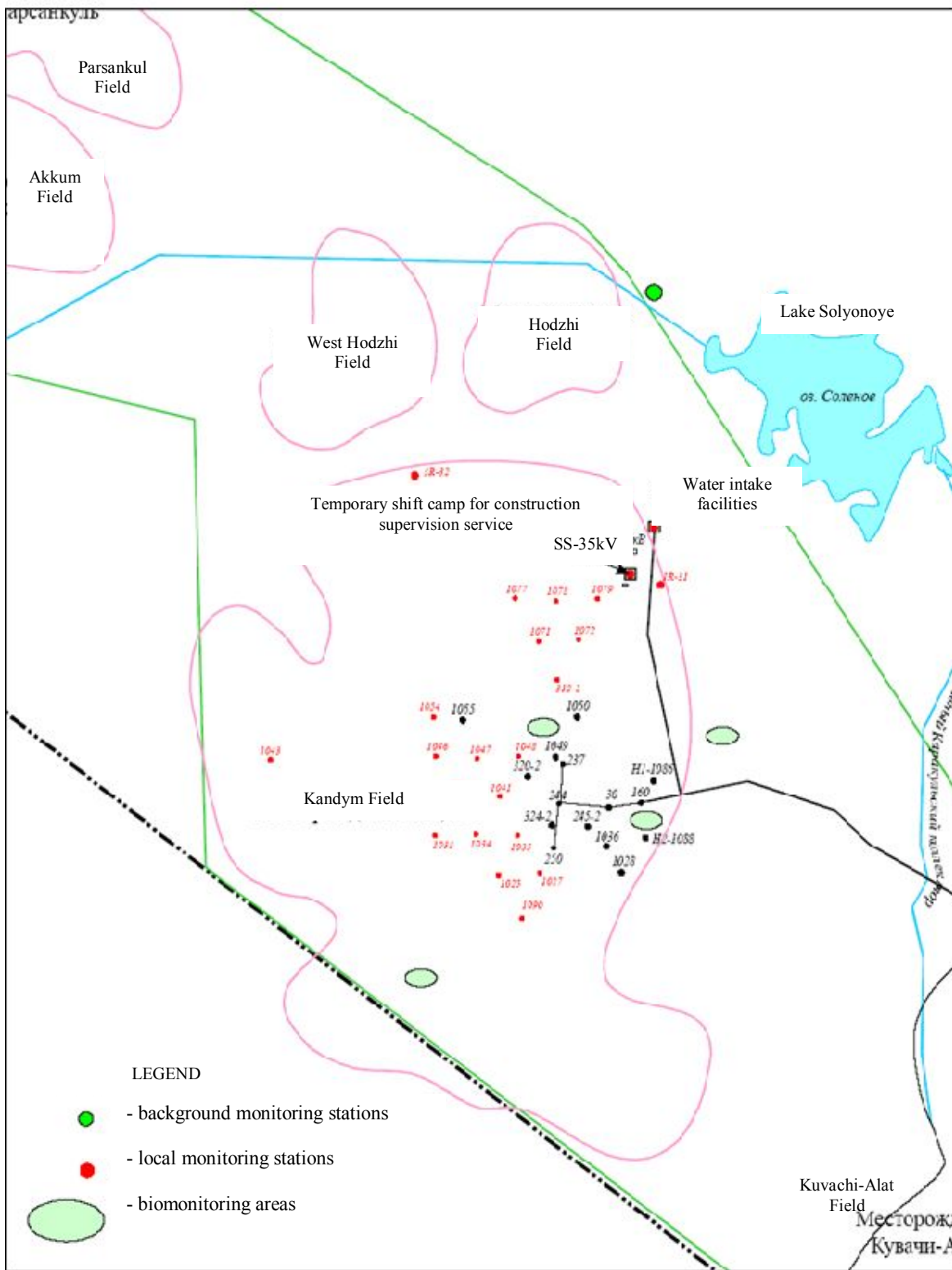
															321/2, 1050, 1055 KGF Q 4. – wells 1086, 1049, 1088 KGF
3.10	Supply of additives for utilization of drilling wastes and oil sludge at Khauzak-Shady site	Within a year	own funds	DW - 2100 m3 (3 wells); oil sludge - 130 m3	152 354,46	55 813,02	152 354,46	152 354,46	138 850,00	101 350,00	101 350,00	101 350,00	1615 m3 DW/9 months 800 m3 drilling wastewater/9 months	Actual expenses on supply of modified hardening agent and coagulator for operation of Landfill for drilling wastes utilization. Starting from the latter part of April, the Landfill undergoes temporary abandonment in view of completion of drilling at Khauzak site.	
3.11	Development and carrying-out SEE of Regulations on disposal of drilling wastes at Kandym group of fields	Q 2	own funds		0,00	0,00	0,00	0,00	26 525,02	0,00	26 525,02	26 525,02		Regulations on utilization of DW at KGF site were put into practice under certain actions in Q 2.	
Total for Section 3:					674 200,97	139 155,44	308 453,19	513 953,98	590 350,14	140 431,54	185 738,73	352 615,25			
4.	Protection of flora and fauna:														
4.1.	Oil and gas operations environmental monitoring:	Within a year	own funds	-	58 258,61	0,00	19 419,54	38 839,07	47 392,35	0,00	12 873,75	29 376,54	3 stages	Actual expenses on the Contract with State Specialized Inspection of Analytical Control (GosSIAC). Monitoring is implemented as per Programs	
4.1. 1.	at Khauzak-Shady site;	Within a year	own funds	-	34 818,07	0,00	11 606,02	23 212,05	23 637,75	0,00	7 693,96	15 562,19	3 stages		
4.1. 2.	at Kandym group of fields.	Within a year	own funds	-	23 440,54	0,00	7 813,51	15 627,02	23 754,60	0,00	5 179,79	13 814,35	3 stages		

														agreed with State Nature Management Committee.
4.2.	Annual subscription to "Environmental Bulletin"	Dec'10	own funds	-	250,00	0,00	0,00	0,00	261,17	0,00	0,00	0,00	2 subscriptions	Actual expenses on subscriptions in 2 issues.
Total for Section 4:					58	0,00	19	38	47	0,00	12	29		
					508,61		419,54	839,07	653,52		873,75	376,54		
Grand total for enterprise::					991	145	433	759	937	144	235	458		
					226,35	943,51	765,58	721,52	562,38	631,09	297,97	217,95		
*Budgeted costs are indicated at the rate of Central Bank of RUz dtd 01.12.09					1 508,46			Soum	- 1 USD					
**Expenses are indicated on an accrual basis														

Ecology Department Head

Kusnuyarova A.F.

Monitoring Stations Layout at Kandym group of fields section, 2011



**Outline and Scope of the Semi-Annual Report
on Environmental, Health and Safety and Social Monitoring by the Operator**

1. Brief Project Description
2. Update on the Status of the Design/Construction Activities of Kandym Project
 - 2.1. Railway
 - 2.2. Wells and Gathering facilities (Kandym field)
 - 2.3. GPP
 - 2.4. Shift camp
 - 2.5. Main gas pipeline
 - 2.6. External power supply
 - 2.7. Water intake and water duct
 - 2.8. Development of Satellite Fields (West Khoji, Khoji, Parsankul and Kuvachi Alat)
 - 2.9. Decommissioning
3. Status of Key Permits and Clearances
 - 3.1. Issuing body
 - 3.2. Date of issue and term of validity
 - 3.3. Terms of permit and renewal requirements
 - 3.4. Other standards and/or certificates (e.g. ISO 14000 Environmental Management Systems and Standards)
 - 3.5. Key developments and any major changes in location and design, if any
 - 3.6. Progress of the Applicable Environmental Studies During the Reporting Period
4. LUOC and Contractors Performance on Environmental, Health and Safety Measures
 - 4.1. Environmental Performance and Compliance with Standards
 - 4.1.1. Air Emission
 - 4.1.2. Water (Ground water and surface water)
 - 4.1.3. Wastewater
 - 4.1.4. Soil
 - 4.1.5. Solid and Hazardous Waste
 - 4.1.6. Flora and Fauna
 - 4.1.7. Noise
 - 4.2. Health and Safety Performance
 - 4.2.1. Training programs carried out
 - 4.2.2. Accidents and Near Misses
 - 4.2.3. Emergency Situations and Response
 - 4.3. Social Performance
 - 4.3.1. Labor and Employment
 - 4.3.1.1. Tracking of PSA Requirements on Recruitment with information on origin of workers (Karakul and Alat District, Bukhara Region and Other Regions) (LUOC and Contractors)
 - 4.3.1.2. Tracking of Recruitment of Women Personnel (LUOC and Contractors)
 - 4.3.2. Compliance with core labor standards (LUOC and Contractors)
 - 4.3.3. Land Acquisition and Involuntary Resettlement
 - 4.3.3.1. Results of Screening of Project Facilities
 - 4.3.3.2. Status of Land Acquisition ¹
 - 4.3.4. Social Support to Local Communities/Corporate Social Responsibility Program
 - 4.3.4.1. Community Programs in Karakul and Alat Towns (if any)
 - 4.3.4.2. Community Programs in Kishlaks inside the Contract Area(if any)
 - 4.3.4.3. Business Opportunities Provided to Women (if any)
 - 4.3.5. Community Engagement (Consultation and Participation)

¹ Prepare summary table same as those prepared for the Social Safeguards Compliance Audit Report

- 4.3.5.1. Details regarding consultation and participation activities (with gender disaggregated data), including, where applicable, local community, women's issues and concerns, NGOs, cultural and social groups, leaseholders, and other stakeholders, including affected groups.
 - 4.3.5.2. Details of approach/methodology on addressing the concerns and issues raised at consultations
- 4.3.6. Implementation of Grievance Mechanism
 - 4.3.6.1. Grievances Recorded in the CCMR
 - 4.3.6.2. Types of Complaints and Status of Resolution
 - 4.3.6.3. Effectiveness of Grievance Mechanism
- 4.4. Environment, Health and Safety and Social Noncompliance
 - 4.4.1. Nature of non-compliance reported and recorded
 - 4.4.2. Environmental standard or specification not complied with
 - 4.4.3. Social Requirements not complied with
 - 4.4.4. Community or media reaction (if any)
 - 4.4.5. Corrective Action Plan (Corrective Actions, Timeline and Budget) (if any)
- 5. Environment and Social Management Capacity
 - 5.1. Environmental Management Capacity
 - 5.1.1. Number and suitability of environmental management personnel
 - 5.1.2. Executed training
 - 5.2. Awareness level of LUOC and Contractors' Field Personnel
 - 5.2.1. Training Conducted on environmental management, health and safety, environmental laws and regulations, emergency response, preventive measures
 - 5.2.2. Number of LUOC and Contractors' staff trained
 - 5.3. Social Management Capacity
 - 5.3.1. Surveying Department – Number and adequacy of staff who undertake land acquisition and implement the resettlement framework
 - 5.3.2. Government Relations and Public Relations Department - Number and adequacy of staff who conduct consultation and participation
 - 5.3.3. Human Resources Department - Number and adequacy of staff to monitor Labor and Working Conditions
 - 5.3.4. Training Conducted, if any
- 6. Findings and Recommendations of ISO 14001 and ISO 18001 Audit
- 7. Problems Encountered and Action Plan for Next Reporting Period
- 8. Other Information and feedback

Please list any information that the Project should be aware of. This may relate to broader environmental matters, community initiatives within your company, positive media, or NGO attention, training activities, management system initiatives or cost savings through process efficiency, environment-friendly processes.

**Public Consultations in Cities of Alat and Karakul
23 March 2011**

A. Highlights of Discussions

On 23 March 2011, the Lukoil team held public consultation meetings for the population of Alat and Karakul districts of Bukhara Province. Representatives of mahallas, farmers, and local government participated in the meetings. LUOC gave a presentation of Lukoil operations; the Kandym project, the findings of the EIA, grievance redress process, project related employment opportunities, preliminary information on construction schedule, among others. The presentation given during the meetings is provided in the Annex. The following summarizes the discussions during the meetings.

№	Date/Place	Participants	Comments, Issues and Concerns
1.	11:00 23.03.2011 Alat city	Total quantity of participants 24 persons (6 women, 18 men). Including: 9 – the managers of farming enterprises; 5 – the heads of local authority (makhalla); 5 – heads of local government (khokimiyat); 4 - NGO representatives; 1 editor of local newspaper.	<ul style="list-style-type: none"> - jobs and possibility for local specialists to work for the project (at staff recruitment the professionalism level, operational experience and personal qualities will be the basic criterion for selection. Selection is made on the basis of the test of knowledge and access to recruitment is equal for all. . The information about recruitment as it has been noted in presentation – will be through mass-media, recruitment agency and LUOC web-site) - environmental pollution from the plant (sulphur emission - the most recent technology will be used to catch 99.9% of sulphur, with additional burning of emission) - health issues concerning to possible contribution to illnesses that are endemic to the region (the monitoring of impact on social situation during the construction phase and operation of Kandym GPP will be carried out on continuous basis). - land use, compensation and return mechanism (all issues relating to use of lands during project realization will be solved within the limits of legislation of Republic of Uzbekistan, thus the Company plans realization of some actions directed on the maximum decrease of impact on lands)
2.	14:00 23.03.2011 Karakul city	Total quantity of participants 25 persons (14 women, 11 men). Including: 9 – the managers of farming enterprises; 9 – the head advisors of local authority (makhalla); 4 – heads of local government (khokimiyat); 2 – directors of the company; 1 editor of local newspaper.	<ul style="list-style-type: none"> - whether additional housing will be constructed for workers (within the limits of the project it is provided the work of experts on a rotational basis, that assumes construction of closed rotational village) - economic programs and possibility for local entrepreneurs, in particular possibility to supply goods and services to Lukoil enterprises in the district (all purchasing of goods and services in the Company are carried out on a competitive basis in this connection any businessman can take part in open tenders) - possible impact and measures in case of the earthquake and its impact on the plant and population (strong earthquake has happened in the past - Gazli earthquake) (all available standards of industrial safety have been considered at designing of plant construction) - jobs and possibility for local specialists to work for the project (at staff recruitment the professionalism level, operational experience and personal qualities will be the basic criterion for selection. Selection is made on the basis of the test of knowledge and access to recruitment is equal for all. The information about recruitment as it has been noted in presentation – will be through mass-media, recruitment agency and LUOC web-site) - Is it possible to provide Karakul oil and gas college with computers? (LUOC was obliged to study the issue on possibility of inclusion of assistance to college at development of the program of actions within the limits of the social program “ORZU” for 2012)

B. List of Participants of the Meetings

1. Consultation Participants in Alat City, 23 March 2011



No	Full name	Organization, position
1.	Khudzhayev I.K.	Khokim (i.e. Governor) of Alat District
2.	Kodyirov S.	First Deputy Khokim of Alat District
3.	Khamrayev R.	Deputy Khokim of Alat District
4.	Nematova N.	Deputy Khokim of Alat District
5.	Sotdikov D.	Head of District Forestry Sector
6.	Gadoyev A.	Chairman of Alat Shirkat (farm)
7.	Kazakov G.	Chairman of Chandir kishlak (i.e. village) citizens gathering
8.	Jurayev S.	Chairman of Denov kishlak citizens gathering
9.	Choriyev R.	Chairman of Kirlishon kishlak citizens gathering
10.	Jumayev J.	Chairman of Davlatboy kishlak citizens gathering
11.	Itolmasov O.	Head of "Obid Azam" farming enterprise
12.	Ollokov Z.	Chairman of Buribek Chandir kishlak citizens gathering
13.	Chulliyev A.	Head of "Charos" farming enterprise
14.	Arabov H.	Head of "O. Otaboyev" farming enterprise
15.	Mamatov G.	Head of "Kamtar Mamatov" farming enterprise
16.	Kayumov O.	Head of "O. Kayumov" farming enterprise
17.	Haydarov B.	Head of "Haydarov B" farming enterprise
18.	Bozorov H.E.	Newspaper "Life of Alat", editor
19.	M. Sherov	Head of "Rinat Sherov" farming enterprise

20.	D.Rakhimov	Head of "S.Rakhimov" farming enterprise
21.	Kayumova D.	Specialist of district khokimiyat
22.	Vafoyeva J.	Specialist of District office of "Makhalla" Fund
23.	Yuvmitova F.	Representative of district department of Red Crescent
24.	Ruzikulova G.	Head of district department of spirituality
25.	Jumayeva M.	Specialist of "Kamolot" Social Movement of Young People of Uzbekistan
26.	Shamshiddinov S.F.	Head of PR & GR, LUOC
27.	Kusnuyarova A.F.	Head of Ecology Department, LUOC
28.	Talipova E.H.	Chief Specialist – Head of group on recruitment and staff records management, LUOC
29.	Nartayev A.O.	Leading Specialist on GR, LUOC
30.	Kurmyshev V.N.	Chief Specialist - heading engineer, LUOC
31.	Jumanov E.G.	Leading Specialist on fire and gas safety, LUOC
32.	Gafurov B.B.	Senior Private Sector Development Officer, URM, ADB
33.	Sakiyev G.S.	Translator

2. Consultation Participants in Karakul city, 23 March 2011



No	Full name of participant	Position
1.	Rakhimov Tolib	Deputy Khokim of Karakul District
2.	Bakhromova Gulnoza	Deputy Khokim of Karakul District
3.	Ashurova Inobat	Chairman's advisor of "Eski kala" kishlak citizens gathering
4.	Arslanova Dilbar	Chairman's advisor of "Chekirchi" kishlak citizens

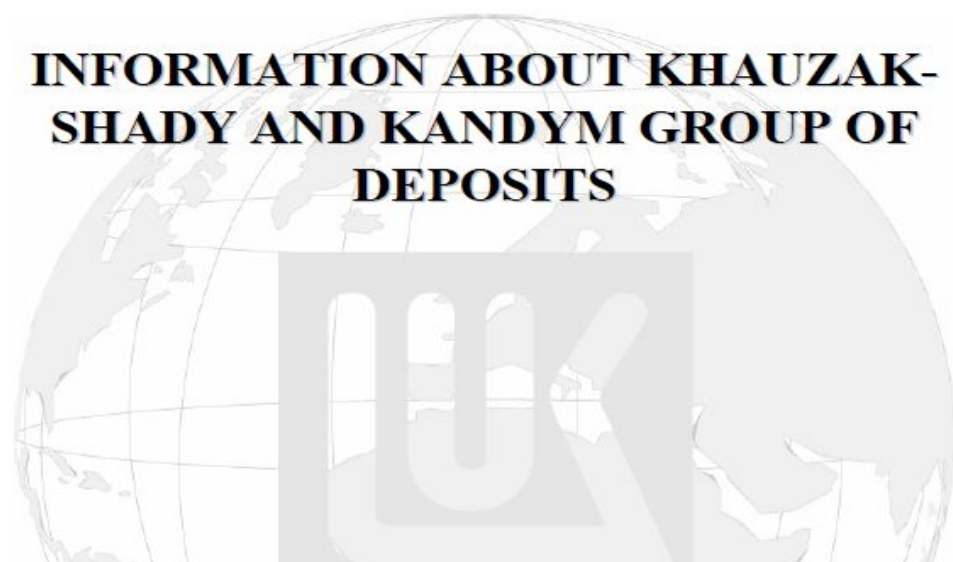
		gathering
5.	Kayitova Kurbongul	Chairman's advisor of "Khujalar" kishlak citizens gathering
6.	Bobokulova Laylo	Chairman's advisor of "Tinchlik" kishlak citizens gathering
7.	Bobokulova Munavvar	Chairman's advisor of "Zarafshon" kishlak citizens gathering
8.	Safarova Mokhigul	Chairman's advisor of "Dustlik" kishlak citizens gathering
9.	Murodova Dilbar	Chairman's advisor of "Pakhtakor" kishlak citizens gathering
10.	Saidova Mukharram	Chairman's advisor of "Tashabbus" kishlak citizens gathering
11.	Nuriddinova Zebo	Chairman's advisor of "Istiklol" kishlak citizens gathering
12.	Abdiyeva Bakhmal	Director of "Nazarbek" company
13.	Suvonova Latofat	Director of "Suluv-2000" company
14.	Mamatova Oysara	Specialist of district khokimiyat (district government office)
15.	Kodyirov Obid	Specialist of district khokimiyat
16.	Nurmatov Khavlon	Head of "Khavlon" farming enterprise
17.	Abdullayev Rakhmatulla	Head of "Abdulla Juma zur chorva" farming enterprise
18.	Khamdamov Sadula	Head of "Karakul" shirkat enterprise
19.	Bozorova Guzal	Head of "Khalim bobo Bozorov" farming enterprise
20.	Яшнщнум Khayrulla	Head of "Khayrulla Shamsi" farming enterprise
21.	Jurayev Obid	Head of "Ergash Jurayev" farming enterprise
22.	Allokov Norkul	Head of "Hudzhamkul Mukhiddin" farming enterprise
23.	Shukurov Rizokul	Head of "Korakul Oltin tolas" farming enterprise
24.	Khodzhiyev Rustam	Head of Karakul Forestry Sector
25.	Kurbanov Gofur	Newspaper "Karakul News", editor
26.	Shamshiddinov S.F.	Head of PR & GR, LUOC
27.	Kusnuyarova A.F.	Head of ecology department, LUOC
28.	Talipova E.H.	Chief Specialist – Head of group on recruitment and staff records management, LUOC
29.	Nartayev A.O.	Leading Specialist on GR, LUOC
30.	Kurmyshev V.N.	Chief Specialist - heading engineer, LUOC
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32.	Gafurov B.B.	Senior Private Sector Development Officer, URM, ADB
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Presentation Provided during the Consultations

LUKOIL
Uzbekistan Operating Company

Khauzak-Shady and Kandym Group of Deposits

INFORMATION ABOUT KHAUZAK-SHADY AND KANDYM GROUP OF DEPOSITS



LUKOIL
Uzbekistan Operating Company

Khauzak-Shady and Kandym Group of Deposits

LUKOIL IN UZBEKISTAN

LUKOIL has begun the activity in Uzbekistan in the spring of 2001 with signing of the Agreement on the general principles of the future Production Sharing Agreement (PSA).

In June 2004 the PSA in relation to Kandym Group of Deposits, Khauzak, Shady and Kugrad between Republic of Uzbekistan and consortium of investors as a part of LUKOIL and National Holding Company "Uzbekneftegaz" was signed. The PSA has entered into force on November 2004. PSA period of validity is 35 years.

The office of the company in Tashkent was opened in 2003. LUKOIL Uzbekistan Operating Company was created in 2004.



Scheme of Kandym Group of Deposits



Schemes of Khauzak and Shady Deposits



Land acquisition procedure for the purpose of land use for construction and recovery of hydrocarbons

The Operator shall conclude an agreement with the contracting organization for performance of work on selection and acquisition of land lots, or on return of land to be used in construction or hydrocarbons recovery operations at licensed lots.

All operations on selection, acquisition and return of land shall be done by contracting organizations within the framework of Regulation №248 of the cabinet of Ministers of the Republic of Uzbekistan dated 27.05.1992.

Based on Decisions of Khokims of province and district a cadastre registration shall be performed at the cadastre department of the district. Base for payments with land users, in case of presence of such, or payments to the State shall be performed under calculations, approved by the same Decisions, attached to the same land management file. Taxes and rent fee for acquired lands are regulated under tax legislation in force as well as Production Sharing Agreement (PSA).

Procedure of selection and acquisition of land lots for non-agricultural purposes

LUKOIL Uzbekistan Operating Company (further referred to as Operator) shall submit an application to the khokim of district regarding provision of required land lot.

Khokim of the district shall forward the application to the permanently acting commission of its region (PSA).

PSA shall prepare documentation regarding land acquisition, estimates land users' losses and forwards for approval to khokim of the district.

Khokim of the district shall approve the documentation regarding land acquisition by his/her ordinance and forwards it for approval by the khokim of the province.

Khokim of the province shall approve the documentation on land acquisition by his/her ordinance and forwards it to the Operator.

The Operator shall reimburse the losses in favor of land users and starts land lot development.

Procedures of land acquisition shall be performed in compliance with "Regulation of order for preparation of materials on land withdrawal and provision of land lots for non-agricultural needs in the Republic of Uzbekistan" (approved Regulation №248 of Cabinet of Ministers of the Republic of Uzbekistan dated 27.05.1992).

Procedure on land return after completion of the site

Upon termination of the period the land was provided, or discontinuation of necessity of the land lot, then the land lots after performance of recultivation work on its territory shall be returned to the respective land owners or land users, from which it was withdrawn.

Land lot, subject to be returned shall be examined by the commission, appointed under ordinance of the commission of Khokim of the district, headed by deputy khokim of the district (head of the commission), representatives of land management department, bodies responsible for environment and water resources protection, enterprises, institutions and organizations, which transfer the land lots, as well as collective farms, forest husbandries and other land owners and land users, overtaking the land lots.

Operators shall submit for consideration of the commission the following documents and information:

- documents, certifying the right to use the land as well as conditions of land acquisition regarding its recultivation;
- recultivation plan of disordered lands;
- drawings of post-construction survey;
- characteristics of agrochemical and water-physical properties of soils and formations;
- characteristics of capacity, agrochemical and water-physical properties of fertile soils and other materials..

Procedure on land return after completion of the site

The commission shall check the corresponding performance of undertaken operations with regards to land recultivation plan, quality of works and provides its conclusion on readiness of the site for acceptance into operation. The results of examination shall be drawn up as an set forth certificate, which states the area of the land lot, the purpose it was acquired for, status of operations on land recultivation and purposes it was meant to be used for.

Termination of the right to use lands by enterprises, institutions and organizations is performed within the order, set forth by legislation of the republic of Uzbekistan.

Return of the land lot is marked out in the cadastre books.

All disputes, arising during return of land lots, shall be settled in accordance with articles 62 and 63 of the Decree of the Republic of Uzbekistan "About Land" and other legislative acts of the Republic of Uzbekistan..

Industrial Safety

With a view to ensure protection of population and territories from failures on gas production shop Khauzak and information of the state bodies, public authorities of citizens and the population about condition of industrial safety, LUKOIL Uzbekistan Operating Company has developed the Declaration of industrial safety of gas production shop Khauzak.

The spent state expertise of gas production shop Khauzak Declaration has shown, that “the Technical decisions accepted in the Project of development of Khauzak with the subsequent realization in the process of construction and operation of the given object correspond to the requirements of the ecological, sanitary-and-hygienic, fire-prevention and other norms acting on the territory of Republic of Uzbekistan and world oil and gas extraction industry, and provide safe for a life and health of people operation of objects at observance of the actions provided by the project”.

Hazards and risks in main production process:

Hazard: Gas, gas condensate, hydrocarbon liquid with content of hydrogen sulfide under pressure

- Risks:**
1. Leakages, generation of toxic cloud;
 2. Flame, fire;
 3. Explosion;
 4. Spill.

Reasons:

1. Mechanical damage, violation of equipment integrity;
2. Corrosion environment, corrosion of process equipment;
3. Emergency situation, failure of process equipment;
4. Noncompliance with rules of industrial safety and labour safety;
5. Emergency situations of natural character.

Consequences:

1. Injuries of different severity including:
 - burns;
 - intoxications;
 - fatal case.
2. Environmental damage.
3. Destruction and loss of property.

Warning actions: Inhibition, cathodic protection of equipment; control over speed of corrosion, control of technological processes; surveys and equipment scheduled preventive maintenance. Training and regulated admission of the personnel to works of the raised danger, providing of PPE to personnel. Introduction and maintenance in working status the procedures of emergency response, organization of operative health services.



Operator operating principles – observance of requirements of the legislation of Republic of Uzbekistan in the field of industrial and ecological safety; prevention of damage to local population; minimization of negative impact on surrounding environment.

ISO 14001:2004 in ecology
prevention and decrease of negative impact on environment from the activity of the company



OHSAS 18001-2007 professional health and safety
protection of health and safety of staff in the process of production activity

High-value targets:

- provision of safe working conditions of workers;
- protection of health of the personnel and the population living on the territory of the Agreement area;
- preservation of a favorable surrounding environment.

Principal obligations:

- conformity to legislation of Republic of Uzbekistan and to the international requirements;
- involvement of the personnel into maintenance of high level of industrial and ecological safety;
- prevention and minimization of negative consequences;
- priority of mitigation (preventive) actions;
- application of high technologies;
- finick to contractors;
- information of the public.

**ПОЛИТИКА В ОБЛАСТИ
ПРОМЫШЛЕННОЙ БЕЗОПАСНОСТИ,
ОХРАНЫ ТРУДА И ОКРУЖАЮЩЕЙ СРЕДЫ**

HEALTH, SAFETY AND ENVIRONMENTAL POLICY

**САНОАТ ХАВФСИЗЛИГИ, МЕҲНАТ ВА
АТРОФ-МУҲИТ МУҲОФАΖАСИ СОҲАСИДАГИ
СИЁСАТ**

工业安全、劳动保护和环保方面的政策

Gas production shop Khauzak

Located in Alat district of Bukhara region (near to the border with Turkmenistan), in desert area.

Production objects:

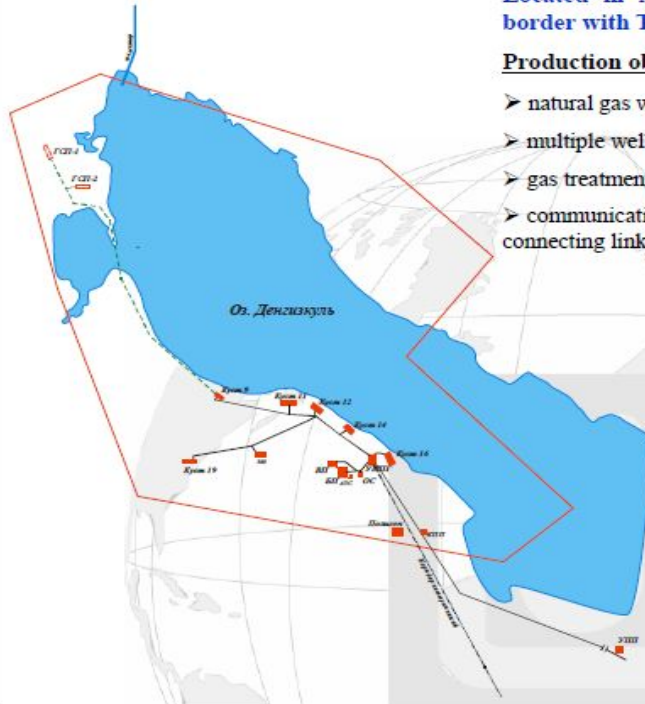
- natural gas wells;
- multiple well platforms and gas-gathering stations (MWP, GGS);
- gas treatment facilities (GTF);
- communications corridor (pipelines, motorway, transmission lines, connecting link).

Auxiliary objects:

- deposit base (DB), with water supply wells and water treatment plants;
- rotational village (RV);
- gasoline service station (GSS).

Objects of ecological application:

- sewage treatment plant (STP);
- polygon of temporary storage and utilization of drilling wastes (PUDW);
- network of monitoring stations for condition of underground water.



Gas production shop Khauzak

Sewage treatment plants

Modern complex of sewage treatment plants including:

- industrial wastes cleaning system;
- utility fluids cleaning system (physical, mechanical and biological cleaning);
- moisture-proof evaporation ponds;
- utility fluids supply system for watering of planted lands (recirculation of water resources).



In the near future it is planned the construction of polygon of utilization of industrial wastes by the method of their preparation and injection into underground horizons.

Drilling wastes utilization polygon

Modern complex on collection, temporary storage and utilization of drilling wastes and oil slurry, including:

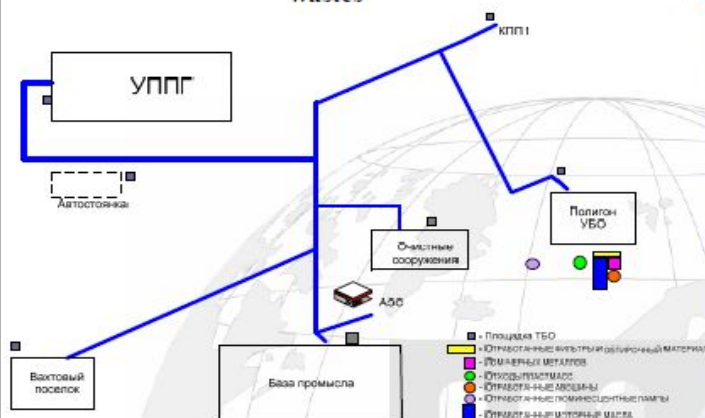
- clay pits (according to type of drilling wastes);
- coagulation and flocculation block for cleaning drilling wastewater (decolorizing);
- waste drilling fluid cleaning block;
- drilling mud returns (solidified) utilization block;
- moisture-proof evaporation ponds;
- network of observation wells.

Actual capacity of the drilling wastes utilization polygon as of the end of 2010 made more than 25,5 thousand tons of drilling wastes.

The production of drilling wastes utilization polygon is used by the Operator of recultivation of slurry pits and strengthening of transmission lines bases and road surfaces .



Layout of areas for temporary storage of wastes



Besides own wastes the Operator with a view to ensure favourable environmental situation on the territory of its activity realizes **centralized scheme of collection and disposal of wastes for utilization or treatment of production and consumption wastes which is generated at contractor's organizations** which carry out works on gas production shop Khauzak and Kandym Deposits.

All production and consumption wastes of GPS Khauzak are totally disposed:

- scrap of iron and non-ferrous metal - removal and disposal for reprocessing to the specialized companies "Vtorchermet" and "Vtorstvetmet" of Bukhara region;
- plastics scrap – removal and disposal for reprocessing to the cooperative society "Vtorma";
- solid household wastes, food wastes – removal and disposal for utilization to "Alatabad" LLC (Alat city);
- used luminescent lamps – disposal for demercurization to TK "Sitara" according to the agreement;
- used motor oils – disposal for utilization to Gissar oil&gas production shop (with own forces);
- cleaning waste – collection and utilization at development of wells as the ignition material (with own forces).



Located in Karakul district of Bukhara region (near to the border with Turkmenistan), in desert area.

Production objects:

- development wells (in temporary storage);
- water supply wells;
- power substation and HV line 110 kV;
- temporary inhabited area for builders (on stage of construction).



Only the drilling of development wells is carried out for the present moment (with the subsequent temporary storage). Works are carried out by Eriell Corporation s.r.o. (Czechia).

The Operator carried out the EIA procedure of development of Kandym Group of Deposits (including KGPP), the positive conclusion was obtained from the State Environmental Expertise Committee of the State Committee on Nature Protection of Republic of Uzbekistan.

Potential environmental aspects during Kandym Project realization:

- total emissions of pollutants to atmosphere, including at wells construction will make approximately 16,0 thousand tons per year;
- total water consumption (technical, for drilling needs and house-potable) will make approximately 2,2 million cubic m/year;
- total formation of waste water, including drilling waste water, will make 0,75 million cubic m/year;
- total quantity of formation of production and consumption wastes, including drilling wastes will make approximately 10,1 thousand tons per year;
- total volume of withdrawal of lands will make approximately 4,5 thousand hectares, including 0,85 thousand hectares on constant using and 3,65 thousand hectares - on temporary using;
- Taking into account geographical features of location (remoteness from settlements, and deserted district), noise influence - is minimum.

Potential social consequences from Kandym Project realization:

- creation of new working places, as in Operator, as well in contractor and service organizations;
- development of infrastructure in district (construction of motorways and railways, transmission lines);
- creation of comfortable conditions for work and accommodation of service personnel;
- increasing standards of knowledge (training and preparation of service personnel);
- provision of stability in supply of natural gas and liquid hydrocarbons for Republic of Uzbekistan.

Planned environmental measures (main):

1. Maximum sealing of the process equipment and automation of technological processes with duplicating systems of protection and switching-off of dangerous sites at emergencies.
2. Organization of turnaround and repeated water supply, implementation of industrial and house wastewater treatment systems, waste water injection systems to underground horizons.
3. Organization of the centralized system of gathering, temporary storage and disposal of solid production and consumption wastes for utilization by the specialized organizations.
4. Sand fixing works, development and planting of production areas.
5. 100% utilization of drilling wastes and on-time recultivation of destroyed lands.
6. Monitoring over the condition of surrounding environment, including quality assurance of atmospheric air, surface and underground water, soils and grounds, radiation environment, flora and fauna condition.

Conclusion:

Realization of Kandym Project at provision of technological discipline, trouble-free operation, observance of safety precautions and realization of the provided nature protection actions will not render long-term negative impact on environment. Influence on environment from realization of Kandym Project will have local character, thus will cause essential benefits in the social and economic life both for local population and for Republic of Uzbekistan as a whole.



The regular environmental monitoring of objects of environment is made together with the State Committee on Nature Protection and its specialized laboratories (ANIDI), including quality assurance of :

- ✓ atmosphere air;
- ✓ surface and underground water;
- ✓ soils and ground;
- ✓ radiation environment;
- ✓ flora and fauna objects.



There were no any incidents/failures with ecological consequences for all the period of activity of the Operator (2005-2010).

Actions for preservation of the environment and rational use of natural resources are carried out in strict conformity with requirements of the actual nature protection legislation of Republic of Uzbekistan, what can be proved with absence of claims to activity of the Operator from the state inspection bodies.



The requirement for staff recruitment and qualification requirements are defined according to the assigned tasks.

At search and staff recruitment we use:

- own database of curriculum vitae,
- give announcements to mass-media (including TV and Internet),
- work with recruitment agencies, and employment centers.

In the course of selection of the personnel the main principle is quality of the selected personnel, knowledge and experience of which should correspond as much as possible to requirements of LUKOIL Uzbekistan Operating Company. For maintenance of such conformity we keep the following principles:

- **The principle of competitive selection: the decision on employment of this or that candidate is accepted only after consideration of several candidates on vacant position. The candidate who is better corresponds to requirements is employed**
- **Observance of guarantees of hiring of the local personnel is established in PSA.**
- **Maintenance of justice and objectivity at hiring due to:**
 1. **Multilevel approach to personnel selection (multistage interviews, testing).**
 2. **Revealing of conformity of operational experience and qualification of candidates.**

For highly qualified specialists (engineers and technicians):

- availability of subject education
- experience in subject direction of activity not less than 3 years.
- absence of medical contra-indications

For highly qualified operation personnel:

- availability of high or secondary technical (special) education;
- certificate of competence about profession;
- experience **more than** 2 years on profession
- absence of medical contra-indications

For low qualified operation personnel:

- availability of high / secondary technical (special) education;
- absence of medical contra-indications

For young specialists, graduates:

- graduate of high or secondary technical (special) education institutions
- absence of medical contra-indications



Main functional directions of activity in which the personnel is required:

- gas extraction and processing
- repair of oil&gas equipment
- energetics, electrics, heat and water supply
- instrumentation, automatic process control system, metrology

According to the plan of realization for Kandym Project LUKOIL Uzbekistan Operating Company (hereinafter referred to as LUOC) plans to employ approximately 2000 people, including: 200 people – foreign personnel.

Quantity of KGPP - the citizens of Republic of Uzbekistan*	2014-2015	2016	2017	2018-2019
Total	760	1300	1939	1999
<i>Foreign highly qualified staff</i>	100	150	190	199
<i>Qualified staff (citizens of Republic of Uzbekistan)</i>	500	800	1100	1100
<i>Young specialists (citizens of Republic of Uzbekistan)</i>	80	200	300	300
<i>Low qualified staff (citizens of Republic of Uzbekistan)</i>	80	150	325	376
<i>Not qualified staff /not technical staff (citizens of Republic of Uzbekistan)</i>	0	0	24	24

* Possible the change of quantity to less

According to plans of preparation of the personnel for realization of Kandym Project the program of training is considered in LUKOIL Uzbekistan Operating Company which will help to raise qualification of workers.

A lot of attention is given to material stimulation of workers, thereby increase of level of their interest in achievement of high industrial indicators.

The payment of LUOC personnel - citizens of Uzbekistan consists of two parts - constant and variable payment.

The constant part - salary, is established on the basis of grade system of Hay Group and qualification technique - for engineering workers and on the basis of the Uniform wage rate book - for workers.

Annual, quarter and single awarding which depend on performance of basic industrial indicators of LUOC and individual indicators of workers make a **variable part**.

On a number of everyday situations there is a *material aid* for workers. Besides all our workers without fail receive the *medical insurance and insurance upon accidents*.

Annual reviews of the market of wages in Uzbekistan spent by the consulting organizations show that cumulative compensation of our workers exceeds compensation paid by other organizations in areas of presence of LUOC on the average on **15 % - 30 %**.

Naturally it has affected growth of incomes of the population in areas where our workers live since they spend the most part of the compensation there.

Information sources on realized projects

Within the limits of realization of Kandym project carrying out of quarterly meetings - consultations with local population during 3 years is provided.

The information on the most significant events during project realization will be on website of the Operator: <http://lukoil.temphostspace.com/press/news/> and in mass-media.

So for example, for 2010 40 reports of information about projects of LUKOIL Uzbekistan Operating Company have been prepared and published. Materials are published in following editions:

- Information agencies "Turkiston-press", IA "Prime-TASS", IA Infoline;
- Internet websites: 12UZ, Uforum.uz, Gazeta uz, Uzbekistan Daily, Kattakurgan Info, Equiptorg, Trend Capital, Oil and Capital, Industrial portal, Rosinvestkom, etc.;
- Newspapers: Oil sheets, Truth of the East, Private property, Evening Tashkent, News of Uzbekistan, Business partner of Uzbekistan, "Mulkdor";
- Radio Oriat FM;
- Magazines: "The Ecological Bulletin", "Oil of Russia", "V&M REPORT".

Process of consideration of complaints, applications and proposals

At carrying out operations on the territory of Uzbekistan the operator completely corresponds to requirements of legislative and statutory acts accepted by the state bodies. In this connection, all incoming documents are considered in full conformity with the Law № 1064-XII of Republic of Uzbekistan: "About applications of citizens", and also according to the corporate requirements accepted by the Operator.

According to Article 18 №1064-XII, all applications of citizens go in writing form with stipulation of data of the applicant and should be considered till one month from the date of receipt, except for those applications which demand additional studying about which the applicant is informed in ten-day term. Anonymous applications are not considered.

All received applications from physical or legal bodies are processed in office-work department then the application goes to the head of the Company who gives the instruction on execution and defines the responsible person.

Applications and complaints are resolved within a month from the date of reception by the Operator. Applications and complaints which do not demand additional consideration and check are considered in terms of no more than 15 days.

If consideration of application or complaint demands check, with provision of the additional information or acceptance of other measures, terms of processing of applications or complaints can be prolonged only in the exception order by the general director of the Operator, but no more than for a month. The applicant should be informed about it.

What is made and what is planned

Social policy and the charitable help

Social policy is based on following base principles: addressing of the given help, system of methodology, transparency in acceptance and execution of decisions, and also reporting about target use of means

The following charitable actions were held:

- purchasing of medical equipment for hospital in Gazli city;
- construction of 5 equipped children areas in Tashkent and Bukhara;
- purchasing of medical and sport equipment and toys for hostels of Bukhara;
- purchasing of computers for Bukhara college of oil and gas industry;
- organization of summer rest for the children of Bukhara;
- donation to the Ministry of Public Health of Uzbekistan 14 mobile photofluorographic rooms on chassis of KamAZ for work in remote districts;
- help to schools in Kashkadarya region (purchasing of books, carrying out of holiday actions, repair of buildings, transfer of office equipment, organization of free breakfasts and summer holiday for the children);
- provision of children homes and boarding schools of the Kashkadarya and Bukhara regions with spring bottled potable water;
- transfer of the sport equipment, stock and uniform, and also carrying out of celebratory action to boarding schools of Bukhara;
- supply training programs in the form of audiobooks to all specialized boarding schools for visually impaired children;
- celebratory actions in boarding schools of Bukhara devoted to holidays Navruz, New Year and Independence Day are carried out.

Contact details

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**THANK YOU FOR YOUR
ATTENTION**