Environmental Policy Implementation Programme of JSC OGK-5 for 2007-2009

№	Actions (activities)	Period	Total cost, thou RUB	including:			Targets, environmental efficiency
				2007 thou RUB	2008 thou RUB	2009 thou RUB	
1	2	3	4	5	6	7	8
1.	Approval of the Environmental Policy Implementation Programme of JSC OGK-5 for 2007-2009 by the Board of Directors of JSC OGK-5.	2007	-	-	-	-	
2.	Organisation and holding of an environmental audit.	2007	6,000.0	6,000.0		-	Assessment of the compliance of the company's activities with environmental legislation
3.	Organisation and holding of an internal environmental audit of the company	Annually	3,200.0	-	1,600.0	1,600.0	ISO 14001: 2004
4.	Establishment and approval of the environmental policy and targets.	2007	-		-	-	
5.	Organisation of the environmental management system, including:	2008					
5.1.	Holding of a BoD meeting of the Company to consider adoption of the ISO 14000 Environmental Management Standard.	2008	-	-	-	-	
5.2.	Organisation of the environmental management system in the company:	2008	-	-	-	-	
5.2.1.	Development of the EM system and its introduction into companies on the basis of RAO UES corporate standard.	2008	-	-	-	-	1. Management structure. 2. Division of responsibility (inside the company and at the OGK level). 3. Documents regulating environmental activities (regulations etc.).
5.2.2.	Analysis and adjustment of the company's standards, rules of procedures, regulations, orders etc., to take into account the environmental requirements and EM system. экологического менеджмента.	2008	200.0	200.0	-	-	ISO 14001: 2004
5.3.	Training of environmental personnel.	2007 – 2008	1,100.0	600.0	400.0	100.0	
5.4.	Certification of compliance with the corporate standard.	2008	2,600.0	-	-	2,600.0	

Technical Actions to Improve Environmental Activities of OGK-5's Branches

№ п/п	Action	Year of comple-tion	KGRES thou RUB	NGRES thou RUB	SUGRES thou RUB	RGRES thou RUB	Targets, environmental efficiency
	1. Air protection.						
	Boiler modernisation through introduction of emissions reducing technologies.	2007		134,810.0	+	62,000	Reduction of NOx emissions.
		2008	16,000.0			62,000	
		2009	42,000.0			62,000	
		Total	58,000.0	134,810.0		186,000	
	Implementation of the technology of preparation of water-fuel-oil emulsion	2007					Reduction of NOx emissions during fuel oil burning.
		2008					
		2009	1,000	1,000	1,000		
		Total	1,000	1,000	1,000		
	Development of the feasibility study (TEO) "Implementation of systems for sulfur and nitrogen cleaning of outgoing stack gases"	2007					Reduction of SOx and NOx emissions.
		2008				3,000	
		2009				2,000	
		Total				5,000	
	Replacement of electrostatic precipitators	2007				325,445.0	Reduction of particulate emissions
		2008				350,000.0	
		2009				350,000.0	
		Total				1,025,445.0	
	Introduction of fuel-oil-free ignition systems	2007				3,000	
		2008				10,000	
		2009				10,000	
		Total				23,000	
	Reconstruction of the dust preparation system of the boiler at the 300-MW unit, with the replacement of the existing burners with the low-emission ones.	2007				250,000.0	Reduction of NOx emissions
		2008				250,000.0	
		2009				200,000.0	
		Total				700,000.0	
	Introduction of the system for the conditioning of outgoing gases	2007				7,000.0	Reduction of ash and SO2 emissions
		2008				38,000.0	
		2009					
		Total				45,000.0	
	Organisation of continuous control over NOx, carbon,	2007	2,500.0	1,250.0	4,724.8	200.0	RD 153-34.0-

	sulfur and ash emissions of power generating boilers	2008	2,500.0			5,000.0	02.306-98
		2009	2,500.0		2,500.0		
		Total	7,500.0	1,258.0	7,224.8	5,200.0	
	Systematic periodical control over NOx, COx, sulfur and ash emissions using regular measurements.	2007		70.0	130.0	500.0	RD 153-34.0-02.306-98, RD 153-34.0-02.306-98
		2008			86.0		
		2009			100.0		
		Total		70.0	316.0	500.0	
	One-off control over NOx, carbon, sulfur and ash emissions of power generating boilers after major overhauls, reconstructions and adjustment work	Perma-nently					RD 153-34.0-02.306-98
	Project development and approval, organisation of the sanitary protection zones of the power plants.	2007				500.0	SanPiN 2.2.1/2.1.1.1200-03
		2008	500.0	485.0	485.0	5,000.0	
		2009	3,000.0	1,715.0	1,715.0		
		Total	3,500.0	2,200.0	2,200.0	5,500.0	
	Monitoring of the bottom layer of atmosphere at the border of the sanitary protection zones and within the zones of GRES impact.	2007	10.0	10.0	10.0		RD 52.04.186-89.
		2008	12.0	12.0	12.0	550.0	
		2009	13.0	13.0	13.0	1,500.0	
		Total	35.0	35.0	35.0	2,050.0	
	Certification of the chemical lab for control over air, surface and underground water quality within the zones of GRES impact.	2007					SanPiN 2.1.4.1047-01
		2008					
		2009		103.0	200.0	150.0	
		Total		103.0	200.0	150.0	
	Transition from freon to vorvac driers.	2007	200.0				Give up freon use
		2008	220.0				
		2009	240.0				
		Total	660.0				
	2. Protection and rational use of water:	**Year of comple-tion**	**KGRES** thou RUB	**NGRES** thou RUB	**SUGRES** thou RUB	**RGRES** thou RUB	**Targets, environmental efficiency**
	Reconstruction of the water treatment station using the reverse-osmosis-based demineralization technology	2007					Reduction of wastewater discharge volumes
		2008					
		2009		185,000.0			
		Total		185,000.0			
	Reconstruction of the condensate purification plant	2007	10,000.0				Reduction of wastewater discharge
		2008	200,000.0				
		2009	200,000.0				

		Total	870,000.0				volumes
	Reconstruction of the demineralization station of the water treatment plant	2007	20,000.0				Reduction of wastewater discharge volumes
		2008			29,264.0		
		2009	70,000.0		38,722.0		
		Total	220,000.0		75,986.0		
	Introduction of the water softening scheme for feeding the heat distribution network	2007					Reduction of wastewater discharge volumes
		2008	9,200.0				
		2009	90,000.0				
		Total	150,000.0				
	Modernisation of the effluent neutralization scheme of the demineralization station	2007					No discharge of acid (alkaline) water
		2008					
		2009			1,000.0		
		Total			1,000.0		
	Organisation of sanitary protection zones for artesian wells	2007					SanPiN 2.1.4.1110-02.
		2008	15,000.0				
		2009					
		Total	15,000.0				
	Implementation of the ball cleaning system for the condenser	2007					Maintaining available capacity, increasing the efficiency factor
		2008				15,000.0	
		2009					
		Total	15,000.0			15,000.0	
	Installation of the frequency-regulated drive at circulating pumps	2007	21,090.0				Decrease of cooling water consumption
		2008	23,200.0				
		2009	25,520.0				
		Total	69,810.0				
	Replacement of water-purifying rotary screen at circulating pumps	2007	10,200.0				Reduction of losses for own needs
		2008	11,300.0				
		2009	12,340.0				
		Total	33,840.0				
	Completion and commissioning of drains and pumps for interception of seepage water from ash dumps no. 3 and 4.	2007				10,000.0	Reduction of volumes of seepage water from ash dumps
		2008				10,000.0	
		2009				10,000.0	
		Total				30,000.0	
	Upgrade of various components of the system for the return of clarified water from the ash dumps at GRES	2007				10,000.0	Requirements of the license for the
		2008				10,000.0	

	(dug wells, water conduits).	2009				10,000.0	use of water and surface objects.
		Total				30,000.0	
	Implementation of dry ash removal systems	2007					
		2008				100,000.0	
		2009				2,000,000.0	
		Total				2,100,000.0	
	Determining the reason for the increased content of manganese in the filtered water from the ash dumps and elaboration of measures to eliminate excessive discharge.	2007					Reduction of environmental payments
		2008				200.0	
		2009				500.0	
		Total				700.0	
	Forecasting water consumption	2007					RD 34.02.401-87
		2008					
		2009				500.0	
		Total				500.0	
	Review of individual water consumption and water removal norms.	2007					RD 34.02.401-87
		2008					
		2009				500.0	
		Total				500.0	
	Installation of metering devices for cooling water going to units' condensers.	2007	300.0				Art.105 of the Water Code of RF (167-FZ)
		2008	600.0				
		2009	600.0				
		Total	2,100.0				
	Metering of effluents in discharge channels	2007					Art.105 of the Water Code of RF (167-FZ)
		2008			620.0		
		2009			480.0	700.0	
		Total			1,100.0	700.0	
	Periodic control over the quality of incoming and discharge water	2007					SanPiN 2.1.5.980-00
		2008		25.8			
		2009		50.0			
		Total		75.8			
	Periodic control over surface and subsurface waters near the ash dump and slug dumps	2007			214.4	1,395.2	SanPiN 2.1.7.1322-03.
		2008			400.0	1,503.0	
		2009				1,500.0	
		Total			750.0	4,398.2	
	Development of the project for the sanitary zone	2007				100.0	SanPiN

	around the Zoloto underground water intake source, its coordination and approval. Start of activities for the construction of the sanitary zone.	2008				1,000.0	2.2.1/2.1.1.1200-03
		2009					
		Total				1,100.0	
	Cleaning of ash dump water removal channels	2007				1,500.0	Maintaining the water removal system in good condition
		2008				1,800.0	
		2009				1,800.0	
		Total				5.100.0	
	Maintenance of plantations at the reclamated ash dump no.1. Observance of the status of the plantations at the reclamated ash dump no.1.	2007				1,000.0	167-FZ, Art. 105
		2008				1,000.0	
		2009				1,000.0	
		Total				3,000.0	
	Ash dump bathymetric survey	2007				700.0	Determining the actual volume of the ash dump
		2008				700.0	
		2009				700.0	
		Total				2,100.0	
	Increase of the volume of ash dump no. 2 (topping) with the reconstruction of the wet ash removal system.	2007				40,000.0	Life extension
		2008				30,000.0	
		2009				50,000.0	
		Total				120,000.0	
	Installation of the fish protection system and evaluation of its efficiency.	2007		2,000.0			Water Code (167-FZ) Art. 105
		2008	12,000.0	250.0		2,000.0	
		2009	1,000.0			18,000.0	
		Total	13,000.0	2,250.0		20,000.0	
	Adjustment (revision) of the plan for the elimination of emergency oil discharge (PLARN) and its coordination.	2007		100.0			Water Code (167-FZ) Art. 105
		2008				1,000.0	
		2009					
		Total		100.0		1,000.0	
	Replacement of piping at units' oil coolers.	2007					SanPiN 2.1.5.980-00.
		2008					
		2009		4,000.0			
		Total		16,000.0			
	Installation of compressors with air cooling.	2007					Decrease of water discharge volumes
		2008					
		2009		8,000.0			
		Total		16 000,0			

	Acquisition and installation of automated systems for temperature control of effluents and oil warning	2007		500.0			Water Code (167-FZ) Art. 105, SanPiN 2.1.5.980-00.
		2008		500.0			
		2009		750.0			
		Total		1,750.0			
	Organisation of bacteriological analysis of effluents	2007					SanPiN 2.1.5.980-00
		2008		25.8			
		2009		50.0			
		Total		75.8			
	Periodic control over the condition of ground and surface water in slug dump areas	2007					SanPiN 2.1.7.1322-03
		2008	50.0	50.0	50.0	50.0	
		2009	50.0	50.0	50.0	50.0	
		Total	100.0	100.0	100.0	100.0	
	Periodic control over the condition of ground water in the fuel oil storage area	2007					SanPiN 2.1.7.1322-03.
		2008					
		2009		640.0			
		Total		640.0			
	Bank strengthening actions at hydraulic installations	2007		8,000.0	60.0		Maintaining the water supply system in good condition
		2008		8,500.0	60.0		
		2009		9,000.0	60.0		
		Total		25,500.0	180.0		
	Actions aimed at the reduction of the biocontamination of the Isetskoe water basin using floating biofilters.	2007			450.0		SanPiN 2.1.5.980-00
		2008			300.0		
		2009					
		Total			1,100.0		
	Maintenance of the pontoon biocontamination (floating biofilters) for the reduction of the organic pollution of the Isetskoe water basin.	2007			1,306.0		SanPiN 2.1.5.980-00
		2008			694.0		
		2009					
		Total			3,000.0		
	Cleaning and deepening of the Isetskoe water basin near GRES's water intakes and the water discharge channel.	2007			3,063.5		SanPiN 2.1.5.980-00
		2008			2,934.7		
		2009					
		Total			9,600.0		
	Reconstruction of the effluent dewatering system	2007			3,063.5		Reduction of effluent volumes
		2008					
		2009			620.0		

		Total			620.0		
	3. Protection and rational use of land	**Year of comple-tion**	**KGRES** thou RUB	**NGRES** thou RUB	**SUGRES** thou RUB	**RGRES** thou RUB	**Targets, environmental efficiency**
	Reconstruction of sludge storage facilities ('sludge cards')	2007					Reduction of groundwater pollution risk
		2008	5,000,0				
		2009	5,000.0				
		Total	10,000.0				
	Control over the soil condition in sludge storage areas. Cleaning of sludge cards.	2007					SanPiN 2.1.7.1322-03
		2008	220.0				
		2009		220.0	220.0		
		Total	220.0	220.0	220.0		
	Replacement of heat insulation with asbestos-free materials	2007	3,000	3,000			Elimination of oncogenic impact
		2008			3,000	6,000	
		2009					
		Total	3,000	3,000	3,000	6,000	
	Reconstruction of circulating water conduits.	2007					Maintaining the water supply system in good condition
		2008		300,000.0			
		2009		300,000.0			
		Total		600,000.0			
	Cleaning of the fuel oil discharge jetty	2007					Reduction of environmental impact in case of oil spillage
		2008			1,500.0		
		2009			1,500.0		
		Total			3,000.0		
	Reconstruction of the oil storage facility	2007			10,000.0		Reduction of environmental impact in case of oil spillage
		2008					
		2009					
		Total			11,000.0		
	Evaluation of the environmental risk related to the technology for the collection of vanadium and zinc-containing sediments generated during fuel oil burning; development of the programme for the safe disposal of the given waste.	2007					SanPiN 2.1.7.1322-03
		2008	300.0	300.0	300.0		
		2009	300.0	300.0	300.0		
		Total	600.0	600.0	600.0		
	Development and implementation of the dry ash removal system.	2007					Waste management
		2008				100,000.0	

		2009				2,000,000.0	SanPiN 2.1.7.1322-03
		Всего				2,100,000.0	
	Organisation of separate collection and management of oily rags (disposal or dumping at a special enterprise)	2007					Inspectorate order
		2008	200.0	200.0			
		2009			200.0	200.0	
		Всего	200.0	200.0	200.0	200.0	