ENVIRONMENT AND SUSTAINABILITY REPORT **2014**

ABOUT KUMTOR MINE

Kumtor Mine is the largest western-operated gold mine in Central Asia and has been operating since 1997, having produced approximately 9.9 million ounces of gold by the end of 2014. Kumtor Gold Company (KGC) is the license holder for the Kumtor deposit.

The Kumtor open pit mine is located approximately 350 kilometers southeast of the capital Bishkek and 60 kilometers north of the border with the People's Republic of China. It is at an altitude of 4,000 meters above sea level in a partially glaciated permafrost zone in the Central Tian Shan Mountains. 2014 marked the eighteenth year of the Kumtor Mine operation in the Kyrgyz Republic, and the eleventh year under the parent company Centerra Gold Inc. (Centerra). The estimated end of the life of the Kumtor mine is 2026.

About Centerra

Centerra Gold Inc. is the parent company, which owns 100 percent of Kumtor Gold Company. Centerra is a publicly listed, Canadian-based gold mining company engaged in operating, developing, acquiring, and exploring gold properties in Asia, Canada and other emerging markets worldwide. The Company is the largest Western-based gold producer in Central Asia. Centerra has two producing gold mines, one in the Kyrgyz Republic and the other in Mongolia. Centerra also owns 100 percent of the Gatsuurt development project in Mongolia and Öksüt Gold Project in Turkey, a 50 percent interest in the in the Greenstone Gold Property (formerly the Trans-Canada Property) which includes the Hardrock Gold Project in northwestern Ontario, Canada and has interests in exploration properties in Canada, Mongolia, Portugal and Turkey. Kyrgyzaltyn Open-End Joint Stock Company, a state owned entity, is Centerra's largest shareholder, owning 77,401,766 common shares, representing 32.72 percent of the outstanding shares. Additional information on Centerra is available at SEDAR (**www.sedar.com**) and on the company website (**www.centerragold.com**).

About this Report

This document is the Kumtor Annual Environment and Sustainability Report (AESR) for the 2014 financial year (ending December 31, 2014). This report is focused on the Kumtor Mine in the Kyrgyz Republic. Kumtor's performance data include only Kumtor's own operations, unless noted otherwise, although the policies of Centerra and Kumtor apply to both employees and contractors. Financial amounts are reported in US dollars (USD) unless otherwise stated.

This report follows the format of the Global Reporting Initiative (GRI), third generation (G3) Sustainability Reporting Guidelines and GRI Mining and Metals Sector Supplement (see **www.globalreporting.org**).

This is in addition to addressing the key reporting requirements contained in Kumtor's Environmental Management Action Plan.

In determining the scope, content, and boundaries of this report, we considered a materiality assessment process described in the Governance and Risk Management Section of this report. We self-declare this report at GRI G3 B-level. A GRI Standard Disclosure Index is available on our website, **www.kumtor.kg**. Please see our Cautionary Note Regarding Forward-Looking Statement also on the inside back cover. This report will also be available in the Russian and Kyrgyz languages.

As we continue to further improve our systems and approaches, we welcome your comments and suggestions on how we can further improve our annual environmental and social reporting and practices. You can find contact details on the back cover of this report.

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MESSAGE FROM THE PRESIDENT

2014 was a busy year for Kumtor and our key activities, accomplishments and challenges are described in this report. Our forecast gold production range was successfully achieved and we have constructed an in-pit retaining buttress to prevent movement of the Davydov glacier and ensure safe open-pit operations in future.

We also began scheduled operations to relocate the mine's infrastructure and we partially overhauled our heavy-duty fleet. We continue to work in close cooperation with the Government of the Kyrgyz Republic to amicably settle environmental and technological claims, and negotiations are in progress to revise some of operational and financial agreements.

Contribution to the Kyrgyz Economy

Kumtor continues to contribute significantly to the economy of the Kyrgyz Republic. In 2014, our production accounted for 23.1 percent of Kyrgyzstan's overall industrial output and 7.4 percent of GDP. In 2014, payments made within the Kyrgyz Republic totaled $283 million making a total of $2.7 billion since 1994.

Largest Private Sector Employer

Our company is the largest taxpayer and the largest employer in Kyrgyzstan's private sector. By the end of 2014, we employed 2,550 Kyrgyz citizens - 96 percent of the full time workforce. Payments made within the Kyrgyz Republic in 2014 include more than $118 million in employee and contractor wages and benefits.

“We expect to continue to generate substantial and sustainable benefits for all our stakeholders.”

Increasing Local Procurement

We believe that the strategic approach to local procurement issues will not only benefit our company but also contribute to the development of local communities by creating more jobs and boosting the economy across the Issyk-Kul region. We continue to promote and support local business and in 2014, our company spent almost $80 million on local procurement — approximately $8 million more than in 2013.

Stakeholder Engagement

The company seeks to intensify its cooperation with all stakeholders. Our cooperation with local communities is being carried out through three regional information centers. These centers are located in the Jety-Oguz and Ton districts as well as in the city of Balykchy. The immediate purpose of these centers is to provide information relating to Kumtor, including details about employment procedures, human resources policies and vacancies. Regional liaison employees visit local social events, monitor Kumtor-sponsored development projects and serve as a link connecting the company with local communities.

In addition to the above structured activities, local communities are where other cooperation, formal or informal, takes place through various stakeholders, such as community leaders, local authorities as well as representatives of small business and private farms.

Many of the projects described in this report have brought together communities, other partners, international aid communities and government officials. We continue to make additional efforts to mobilize and promote local entrepreneurs and business in the region.

Community Investments

Given that Kumtor is a key employer, taxpayer and consumer of local goods and services in Kyrgyzstan, the eventual closure of the mine is predicted to have negative effects on the Issyk-Kul region and national economy. To minimize such detrimental effects, our local community investment strategy is built on the promotion and development of a diversified economy that would not be heavily dependent on Kumtor alone. This approach is thought to help minimize negative effects of the Kumtor mine's decommissioning. It is important for us that the various local companies which currently supply goods to Kumtor, become sustainable businesses after the closure of the mine.

We have launched a number of programs aimed at the integrated development of the Issyk-Kul province. These are centered on the following four components: development of the agricultural sector; promotion of small and medium-sized business growth and diversity; collaboration with young people; and promotion of educational and environmental initiatives. In 2014, we contributed voluntarily a further $5.1 million in sponsorships and community development programs. This report describes some of the programs we have voluntarily initiated and results we have achieved. Moreover, the company has been contributing 1 percent of its gross revenue to the Issyk-Kul Region Development Fund since 2009. In 2014, our contribution was $7.4 million making a total of $40.3 million since these payments commenced.

Geotechnical Safety

The Kumtor mine ore body and related infrastructure are situated under moving glaciers or subject to their impact. Since the approval of the Kumtor project in 1994, plans to remove glacial ice (necessary for the safe operation of the mine), have been an integral part of the annual mining plans that are subject to approval by relevant Kyrgyz regulatory authorities. As described in this report, we have retained leading local and international experts and have employed advanced technologies to monitor and appraise the mine's geotechnical safety, and implemented programs designed to maintain proper safety standards at all facilities.

Health and Safety

We maintain our policy that no job is so important that it cannot be done safely. In 2014, we spent more than 51,700 hours or 6,458 working days on the promotion of health and safety training programs. Our statistics, such as reportable injury frequency rate, which was 0.23 in 2014, reflect the importance we attach to health and safety measures that also include awareness and training programs designed to improve our performance. Our statistics demonstrate typically better safety performance than other mines operating in some of the industrialized countries.

Unfortunately, despite our focus and efforts on health and safety, and our positive historical safety performance, our Alpinist support supplier, I.T.O. Alpinists, had an accident whilst climbing to service a Kumtor high altitude communications repeater, which resulted in the death of one of their staff, and serious injury to another.

As a result, we have undertaken an investigation and review of the accident, existing controls, procedures and service requirements with international alpine specialists. The highlight outcomes of this investigation are to utilize internationally certified specialists for all future access to this repeater and remove the requirement to service or operate this repeater once alternate communication construction is complete.

Environment and Biodiversity

We consider responsible environmental management an important part of our business, and in 2014 we spent approximately $7.5 million on environmental assessment and management. This includes maintaining a department of over 26 dedicated full time environmental staff, and on-site and regional monitoring of water, air, biodiversity, soils and sediments, radiation, and waste.

The Company attaches great importance to conservation of the region's biodiversity and has worked with stakeholders concerned about nature conservation since the start of operations, including contributing to the creation of the Sarychat-Eertash Nature Reserve (SCER), established in 1995. Most recently, we partnered with Fauna & Flora International – the world's longest established international conservation body - to support biodiversity conservation projects within the SCER. Kumtor is proud of its support in this area, and since mining started, regional wildlife numbers of key species such as the snow leopard and Marco Polo sheep have increased.

Environmental Claims

In addition to the claims described in previous Annual Environment and Sustainability Reports, in 2014 two further claims of over $9 million were received from the State Inspectorate for Environmental and Technical Safety under the Government of the Kyrgyz Republic (SIETS). These claims relate to compensation for the loss of agricultural lands and lost profit as well as for alleged losses caused to land resources at the Kumtor mine. As previously disclosed, we dispute the allegations made in these claims and consider them to be exaggerated and without merit.

Life of Mine

As of December 31, 2014, Kumtor's proven and probable gold reserves total 68,509,000 tonnes. The most recent life-of-mine plan is for open-pit mining to end in 2023 and milling operations to conclude in 2026.

Looking forward

It is important for Kumtor that we continue to meet our production targets in a way that is safe, and environmentally and socially responsible. Relatively steady production is expected throughout 2015 as compared to prior years when the majority of production occurred in the fourth quarter. The Kumtor mine is expected to produce between 470,000 and 520,000 ounces, or 14.6 and 16.2 tonnes of gold in 2015.

Our long-term vision is to continue to adapt and evolve both our mining operation and our environmental and sustainability programs in an ethical and responsible way. We expect to continue to generate substantial and sustainable project benefits for all of our stakeholders.

We welcome feedback on this report and encourage comments on how we can further improve our environmental and social performance in future.

Daniel Desjardins,
President,
Kumtor Gold Company

ENVIRONMENTAL AND SUSTAINABILITY SNAPSHOT

Pillar	2014 Targets	Target outcome	2014 Comment on Targets	2015 Targets
Project Benefits	■ Maintain steady gold production ■ Continue to increase Local Procurement	■ ■	■ More than $79 million spent on Local procurement ■ Products purchased locally – 58%	■ Maximize gold production during lower grade period of LOM ■ Reduce all-in costs to $900/ per ounce sold
Health & Safety	■ No lost time injuries ■ Recordable injury frequency rate of 0.36 or lower	□ ■	■ Fatal incident because of avalanche on the Sary-Moinok pass ■ Recordable injury frequency rate was 0.23	■ No lost time injuries ■ Recordable injury frequency rate of 0.32 or lower
Environment	■ Finalize and implement Waste management strategy ■ Finalize 2013 Conceptual Closure Plan ■ Complete installation of Petrov Lake outburst early warning system	⬓ ■ ⬓	■ Constructed new landfill in accordance with international standards ■ Increased recycling of office and paper waste ■ Conceptual Closure Plan finalized ■ Installed majority of monitoring equipment required for early warning system	■ Address the environmental audit recommendations identified during Kumtor Project Restructuring ■ Improve compliance management and reporting ■ Improve communication of environment issues to key stakeholders
Community	■ Continue to improve transparency and openness in our funding programs and how we choose to allocate funding ■ Continue to address grievances as amicable as possible ■ Complete economic impact assessment	⬓ ⬓ ■	■ Continued to work closely with Transparency International ■ Grievance procedure developed and disseminated ■ Economic impact assessment completed	■ Improve reputational management through more effective and meaningful engagement to better inform affected and influential stakeholders and address community perceptions ■ Implementation of all approved CSR projects within budget and on schedule including full Monitoring and Evaluation (M&E) programme, and improved management of donations ■ Strive for greater employee ownership and involvement in CSR (create Kumtor Ambassadors)
Governance and Risk Management	■ Work towards Cyanide Code Certification for our operations (to add to transport/storage certification)	⬓	■ Kumtor's Cyanide Transportation Processes haves been certified as fully compliant with the International Cyanide Management Code (Cyanide Code). Continued working towards certification of the operations.	■ Ensure proactive mitigation for 2015 production top risks ■ Complete Environmental Risk Register for all departments

□ Not achieved ⬓ Partially achieved ■ Achieved

1 GOVERNANCE & RISK MANAGEMENT

Risk management at Kumtor

Kumtor Gold Company operates under the governance and standards set by Centerra, whose board of directors and management believe that sound and effective corporate governance is essential to our performance.

To control risks associated with our mining operation and ensure measures are implemented to mitigate them, KGC has implemented a formal Risk Management Process. This process is based on the ISO 31000 standard and is aligned with the Corporate Enterprise and Operational Risk Management framework, which is systematic process of understanding, evaluating and addressing these risks to maximize the chances of objectives being achieved.

We identify and assess risks involving the leadership of functional groups and major projects, and then prioritize them based on estimated risk severity (a combination of the probability of an event and its consequence). In addition, monitoring of industry, local and global events and emerging trends is considered during assessment of risks. Appropriate mitigation actions are developed for all material risks and are regularly monitored to ensure they are implemented on schedule.

KGC Risk Management processes are currently being integrated with the general management of the organization to be a part of decision-making process. Consequently, during the regular report on critical risks, the mitigation actions, and potential changes in the risk severity are regularly discussed by the Risk Management Committee and further communicated to the Centerra Board.

Our risks are recorded in a Risk Register and include political, operational, safety, environment and other risks. Some of the key risks, which require ongoing monitoring and management, are listed below:

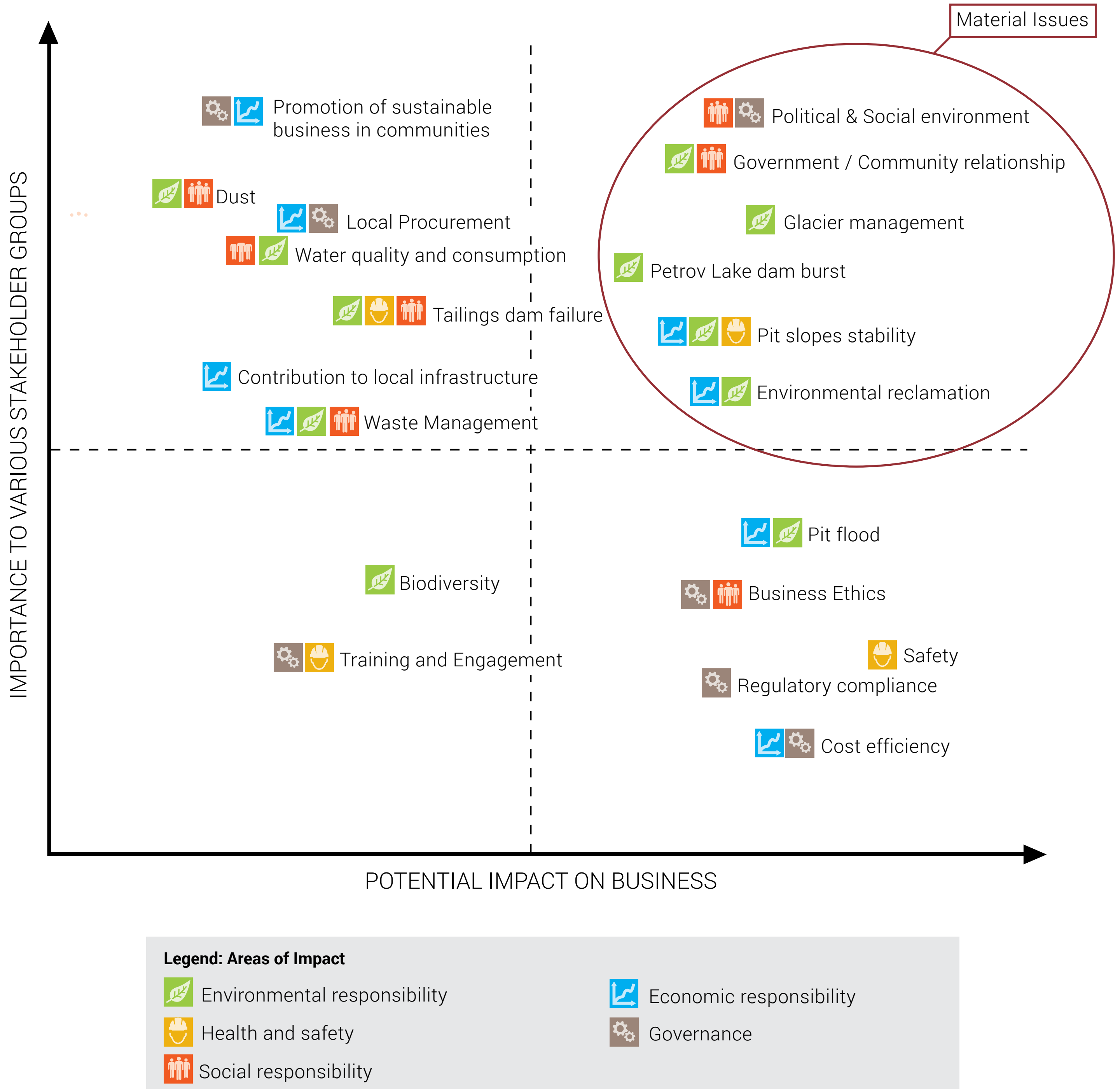
- Sovereign Risk – our activities may be affected by political instability, government regulations relating to mining regimes, changes of laws, contributions to infrastructure and social support systems. There can be no assurance that the legal agreements we have with the government will be always in force. In recent years our Project has been threatened with nationalization, and a number of claims have been made for violations of environmental, mining and geological and subsoil legislation.
- Community activism – Kumtor has experienced a number of roadblocks in the past resulting from the discontent of various community groups. KGC conducts intensive communication and development program with communities through a number of projects on youth, agriculture and environment.
- Geotechnical risks – the complex geotechnical characteristics of the Kumtor mine always present the risk of ground movement. The ongoing extensive efforts employed to anticipate and be able to adjust to changes to optimally achieve the mining objectives including advanced drilling, application of the newest monitoring technologies, dewatering, and others.
- Recovery – the characteristics of the ore change with pit development and it is not always possible to predict the precise metallurgical parameters of the ore. To minimize this natural effect, KGC conducts continuous metallurgical analysis and utilizes advanced methods to maximize the gold recovery.

These risks as well as many others included in our risk register are prioritized based on the potential impact to our business in the event that a particular risk is experienced and the probability/likelihood that it will occur. The risks are then managed so the preventive actions not only reduce the likelihood of an event occurring, but also reduce the magnitude of its potential impact. We use the outcome of risk assessment processes in planning, budgeting and cost control to ensure we focus on proactive rather than reactive management strategies.

Materiality Assessment

As part of this reporting process, KGC has developed a materiality matrix (Figure 1.1) based on analysis of stakeholder issues and comparison with the business and operational risks described above. This matrix enables KGC to identify the connection between business activities/risks and stakeholders concerns about economic, environmental, social impacts. This helps to prioritize the social responsibility initiatives and improve transparency in communications with stakeholders. Stakeholders include groups who may affect, or be affected by KGC's actions including community members, local employees, government officials, NGOs, etc. Material issues are those considered most important by several stakeholder groups, have the

Fig. 1.1 Kumtor Materiality Matrix



ability to significantly affect our business performance, and can be influenced by our actions.

We used three complementary approaches to identify these material issues. First, we considered the reporting requirements under our legally required Environmental Management Action Plan (EMAP), and the content of our previous Annual Environmental and Sustainability Reports. Second, we continued to listen to our key stakeholders about issues and concerns they expressed in the Social Responsibility section of this report. Third, we benefited from Centerra's corporate membership in, and support of, industry and multi-sectoral initiatives. These included the World Gold Council and the Extractive Industries Transparency Initiative. We also participate in a variety of local and international events and conferences. These activities inform our judgment and allow us to remain abreast of emerging trends and standards.

KGC's commitment to International Business conduct and Code of Ethics

The anti-corruption laws have received a significant amount of international and local attention in recent years, and there are several high profile cases involving mining companies in the media related to this issue.

According to Transparency International Corruption Perception Index, Kyrgyzstan is among the countries most prone to corruption. Our company has always been committed to fair and transparent operation and in 2013 we introduced an interactive training on International Business Conduct and Code of Ethics Policy for relevant employees. These employees provide their formal acknowledgment that they have received this training, as this subject is an important component of our commitment to conduct business in an ethical and lawful manner.

These Policies regulate our business conduct with Government Officials, interactions with others and include important concepts such as Protecting Confidential Information and Preventing Conflicts of Interest between parties of the company including engaging in improper activities with suppliers and others that do business with the Company.

Our IBC Policy is largely based on the US Foreign Corrupt Practices Act. While one may think why a US law would apply to our Company, it is important to note that these concepts are universal and in fact, the US regulatory authorities are increasingly aggressive in exercising jurisdiction over potential corrupt activities that occur outside of the US but have some connection to the US. For example, companies without operations or offices in the US have been fined under the US FCPA because wire transfers of money (involved in corrupt practices) were transmitted through the US.

The IBC Policy is important for everyone who works at Kumtor. Whether the person works in the office or at the mine site, in finance, procurement, government relations, operations, the mechanic shop, security or legal, he/she needs to know how to spot "corrupt payment" issues and respond appropriately. We rely on all of our employees to help us meet our objectives of conducting business in an ethical and lawful manner and everybody has a role to play in this, as they may be involved in one or more of the following activities:

- Interactions with Government Officials;
- Authority to sign or approve transactions within the Company (and therefore bind the Company);
- Oversight over inventory, equipment, supplies;
- Responsibility for permits/licenses;
- Hiring of contractors, third parties or agents;
- Processing of transactions, including petty cash management;
- Hiring decisions;
- Procurement decisions.

Generally speaking, Company employees are prohibited from demanding or accepting a commission, payments, gifts, entertainment, travel expenses and anything which may influence an official act or decision in order to obtain an improper advantage, reward or benefit of any kind (directly or indirectly) from any person having dealings with the Company.

We are also responsible for the actions that third parties take on our behalf, whether we have actual knowledge of those activities or not. Thus, it is critical that we learn as much as we can about all agents, consultants, brokers, advisors and others with whom we deal, so we always conduct a background check and have a written contract with every agent that includes anti-corruption provisions, and commitment that the agent will comply with all applicable anti-corruption laws and conventions. We must know with whom we are doing business and what he or she is doing to earn a fee.

The Company has established financial and other controls to help us (a) prevent corrupt payments from being made, (b) detect any such payments that are made, and (c) defend our actions if challenged by enforcement authorities. Therefore, we require accurate documentation from all of our partners. We must maintain records that accurately reflect all transactions — payments, expense reimbursements, gifts, business entertainment, disbursements, commission payments, fees and other dealings with prospective customers, agents, subsidiaries and other affiliates.

Any valid case can be reported to the Confidential Complaint Hotline – available in English/Russian at **www.clearviewconnects.com**.

The Hotline is confidential and available 24 hours a day and is operated by a third party provider.

Environmental management systems

To understand, evaluate, and manage our environmental footprint, we take a systematic "plan-act-monitor-improve" approach, which is aligned with the International Organization for Standardization's ISO 14001 and Occupational Health & Safety Advisory Services' OHSAS 18000 models. This approach began with an environmental impact assessment at the early planning stage of the Kumtor Project, continues with the implementation of our environmental management program, and also incorporates mine closure planning for the future. We follow an Environmental Management Action Plan (EMAP) designed to address the effects of operations on the environment and to monitor material compliance with permits and other requirements. The system provides for scheduled monitoring, engineering controls, performance requirements in line with good international mining practice and local regulations, and reporting. The system and its key elements are also subject to corporate and external audits and approval by relevant Kyrgyz authorities.

We also maintain a ledger tracking system of corrective and preventive actions. This allows the safety and environmental departments to enter corrective action items and responsibilities. It also allows responsible departments to address and close out required activities.

The EMAP, originally developed as part of the multilateral project financing for the Kumtor Project, also defines reporting requirements to lenders such as the European Bank for Reconstruction and Development. These reporting requirements cover the following:

- Monitoring results as a monthly average on a station-by-station basis;
- Material exceedences and non-compliance with an explanation of corrective action;
- Details of reportable spills and corrective actions;
- Changes to monitoring protocols or stations;
- Status of the closure plan and costs;
- Update on data related to acid-rock drainage, waste rock dumps, and glaciers;
- Yearly estimates of fresh-water usage, tailings storage, and discharges;
- Studies related to the site's environmental affairs;
- Outline of the activities, studies and surveys planned for the next reporting period;
- Worker health protection and safety initiatives.

Aspects covered by the Environmental Management Action Plan (EMAP):

- Handling of hazardous materials and emergency response;
- Environment protection, including wildlife conservation;
- Containment, control, and elimination of seepage and spills;
- Policies, programs, training, regulating documents, and reporting procedures;
- Mine closure requirements.

Summary of Kumtor's Health, Safety, and Environmental Policy

Kumtor recognizes the protection of the health and safety of its employees, contractors, and the public along with responsible environmental management as being its highest corporate priority. During all stages of our activities - exploration, operations, and decommissioning - we are committed to the safety motto that **"No job is so important that we cannot take the time to do it safely."**

Key commitments in our policy include:

- Compliance with applicable laws and regulations of the jurisdictions in which we operate, and generally accepted international industry practices;
- Providing employees and contractors with a working environment free of uncontrolled hazards;
- Identifying and eliminating or controlling potential risks to health and safety of employees, contractors, and the public to levels as low as reasonably achievable, taking social and economic factors into account;
- Preventing environmental impacts and minimizing possible negative exposures to the environment due to company operations;
- Achieving continual awareness of and improvement to our overall Health, Safety, and Environment (HSE) performance.

In support of the aforementioned commitments, Kumtor will implement the following tasks:

- Provide adequate resources and training, implement and maintain a formally approved HSE management system, set objectives and targets so as to improve continually, and conduct regular audits to assess and ensure conformance to this policy;
- Identify significant health and safety hazards and risks, potential for accidents and emergency situations, and develop, maintain, and test emergency response plans;
- Undertake constructive dialogue with the communities located near Kumtor's operations to help them understand the importance of Kumtor's activities related to the health and safety of local communities;
- Manage and control industrial waste by applying reduce, reuse, and recycling concepts to minimize pollution;
- Engage in constructive communication of this policy with all employees, relevant contractors, and suppliers so they are aware of, and able to comply with their HSE responsibilities in a manner appropriate to their role in the organization, and to encourage them to make contributions to Kumtor's HSE management.

The complete Environmental Policy is posted on Kumtor's website.

THE CYANIDE CODE

Centerra Gold is a signatory to the International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of Gold, better known as the Cyanide Code.

The International Cyanide Management Code (Cyanide Code) is a standard of best practice for the manufacture, transport and use of cyanide in gold production. According to the International Cyanide Management Institute (ICMI), which administers the Cyanide Code, 62 percent of the world's commercial production of gold is produced at Cyanide Code-certified operations

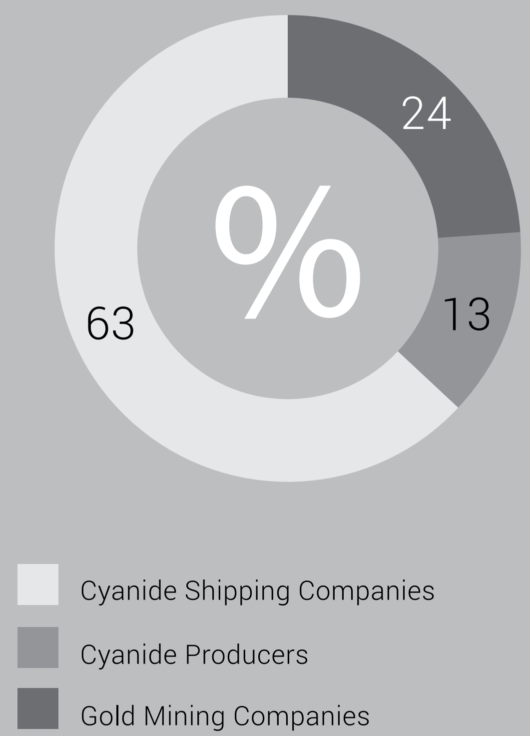
By the end of 2014, the Cyanide Code had approximately 172 signatories (members). This includes Centerra Gold among the 41 signatory gold mining companies.

KUMTOR'S CN CODE CERTIFICATION

By becoming a signatory to the Cyanide Code, Centerra committed to follow and implement certain principles and standards of practice in relation to the management of cyanide. In April 2012, the International Cyanide Management Institute (ICMI) announced that Kumtor's Cyanide Transportation Operation in the Kyrgyz Republic had been certified as fully compliant with the Cyanide Code.

Kumtor is also deemed to be "substantially compliant" with the range of operational requirements of the Cyanide Code including: production, handling and storage, operations, decommissioning, worker safety, emergency response, training, and communication with stakeholders. Read more about the Company's achievements in CN certification in the Environment Monitoring section of this report.

Fig 1.2 Cyanide Code Signatories by Industry



The Kumtor Cyanide Transportation Operation in the Kyrgyz Republic has been certified as fully compliant with the International Cyanide Management Code

2 ECONOMIC ASPECTS

2.1 | ECONOMIC RESPONSIBILITY

Kumtor continues to have a significant positive impact on the Kyrgyz economy, in 2014 contributing 7.4 percent to GDP and 23.1 percent to national industrial output.

Payments made within the Kyrgyz Republic in 2014 were $283 million. Total payments within the Kyrgyz Republic since 1994 have now reached $2.70 billion. Our strategic community investment programs in 2014, described in the Social Responsibility section, were $5.1 million.

We continue to contribute 1 percent of gross revenue to the Issyk-Kul Development Fund for support of social and community projects. In 2014 we paid $7.4 million to the Fund. The Fund is government-controlled with local oversight, which aim is to develop social infrastructure such as schools, clinics and kindergartens in Issyk-Kul Oblast. In addition, the Kyrgyz government, through the state owned mining company Kyrgyzaltyn OJSC, remains the largest single shareholder of Centerra Gold, owner of Kumtor Gold.

By the end of 2014, Kumtor employed 3,249 people, including contractors, with Kyrgyz nationals making up more than 96 percent of full time staff, which is detailed further in the section on Commitment to People.

Fig. 2.1 Kumtor's share of GDP (%)

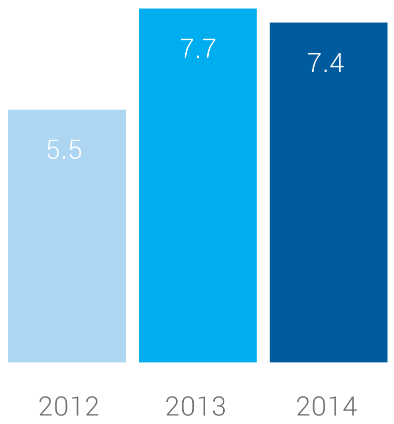
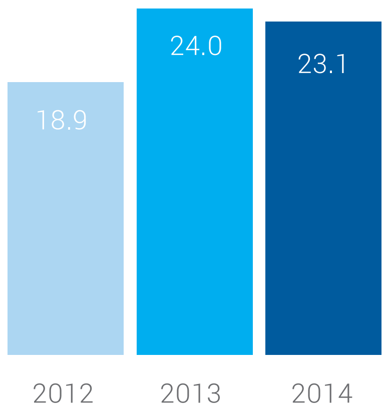


Fig 2.2 Kumtor's share of total industrial output (%)



Kumtor's macroeconomic impact in the Kyrgyz Republic
SOURCE | Kyrgyz Republic National Statistics Committee

> "Gold production over 560,000 oz.;
>
> Total 2014 payments within Kyrgyz Republic exceeded $283 million;
>
> In 2014, Kumtor's activities represented 7.4% of the country's GDP."

Consumption of materials

Mining operations are large consumers of supplies and materials for both the operations and the working community. Efficient use of materials is essential for both economic and environmental reasons.

The major raw materials consumed include diesel fuel, cement and lime, reagents and chemicals (including cyanide) used in the milling and leaching processes, and grinding balls to crush the ore. We also consume substantial quantities of other non-renewable materials such as fuel, lubricants, grease and explosives. Gold mining operations do not provide many opportunities for using recycled materials, although we seek to maximize recycling of waste streams where feasible. For example, we deliver scrap metal for use in local production of metal grinding balls. We are also reviewing how to prolong the life of industrial tires by re-treading, and converting scrap tires to fuel. In 2014, we sent a trial batch of used tires to a recycling plant in Balykchy. This partnership is discussed in details in the Local Procurement section.

The mine camp, accommodating approximately 1,600 people at any one time, is six hours' drive from the capital Bishkek, and far from any large towns, and therefore, operates as a self-contained community, with all the facilities and services it requires. This includes supplying and preparing all food, living accommodation, leisure facilities, medical care, cleaning and washing services, and office facilities.

A significant and highly visible component of consumption is associated with our transportation. People and supplies are transported to and from site every day, with around 25 supply trucks and 6 buses traveling daily. We also maintain around 20 on-site service vehicles, in addition to more than 166 heavy-duty

TIME IS A VALUABLE RESOURCE!

In June 2014, the Company introduced electronic timesheet system for employees. This will allow the company to save on over 48,000 sheets of A4-size paper annually. Effect from the investment into electronic timesheets is a direct saving of time required to fill out timesheets, get approvals and collect signatures. This project enabled the company to promptly obtain necessary analytical information on accounting of work time and, therefore, increase efficiency of management decisions in the area of labor cost controls.

> "1% of gross revenue is paid directly to the Issyk-Kul Development Fund."

Fig. 2.3 **Direct Economic Value Generated and Distributed[a] (USD)**

Indicator	2012	2013	2014
Revenues from gold sales	533,553,407	810,943,801	694,590,808
Other income	274,040	1,060,620	2,134,531
Operating costs (goods and services) [b] [c] [d]	212,653,080	293,540,903	288,327,187
Corporate administration costs	-	-	0
Exploration costs	11,772,443	6,111,584	0
Capital expenditure [e]	217,238,279	88,826,803	88,847,144
Other operating costs	29,138,251	2,868,852	1,845,042
Employee and contractor wages and benefits	104,476,687	115,142,726	118,579,207
Payments to providers of funds	-	200,000,000	0
Taxes and royalties	74,697,477	113,532,132	97,242,713
Community donations and investments	23,954,691	6,240,535	5,114,257
Economic value retained	140,103,461	14,259,114	96,769,787

Notes:

a) *Data has been prepared on an accrual basis and non-cash costs have been ignored.*

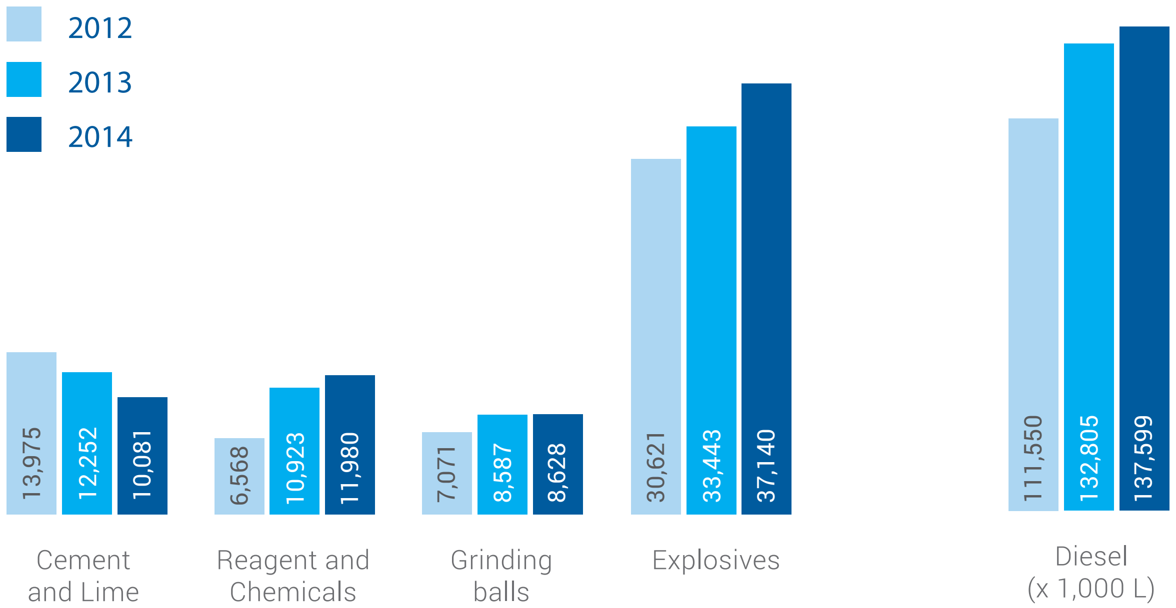
b) *The 2012 comparative period was restated as a result of the adoption of IFRIC 20.*

c) *Other income includes income from financial investments, sale of assets, and other services.*

d) *Includes capitalized overburden stripping costs.*

e) *Excludes capitalized overburden stripping costs.*

Fig 2.4 Major Consumables (tonnes)



vehicles, including 103 large haulage trucks, drills, cranes and bulldozers, and other vehicles.

We regularly review our vehicle-related consumption to improve efficiency. For example:

- In 2013, we started replacing our large delivery trucks with more fuel efficient automatic transmission versions, replacing initially 7 of 51 trucks.
- We reduced the running of engines on parked vehicles to reduce pollution and extend the life of the engines and associated consumables. In very cold conditions, it is common to keep engines running when parked to maintain cabin and engine warmth. We have addressed this through communicating to drivers to 'switch off,' installing electric cabin heaters and establishing electric points for engine heaters in designated parking areas.

The haulage truck tires are a significant and costly consumable. In 2014, we continued to introduce a new Tire Management System, which is designed to further extend tire life through improving and maintaining road surfaces, and driving style training. We are also successfully continuing to implement an advanced satellite-based remote tire monitoring system on 10 percent of haulage trucks. Linked to sensors on every tire, this tells us when pressures are too low and correction is required. The truck can then immediately be called in for maintenance.

We invested $250,000 on building a modern laboratory to analyse engine oils (on both mobile and stationary machinery) to enable us to optimise when we replace oil, thus prolonging its usable lifetime and reducing waste.

2.2 | LOCAL PROCUREMENT

One of Kumtor's priorities is to procure goods locally. However, it is very important that our local suppliers meet certain criteria and we consider sustainability, quality, and price when we procure goods and services.

To improve on local procurement we combined efforts with international experts to develop our local procurement development strategy. We also engaged various institutes to explore opportunities for development of the local market. In addition, we implemented a number of measures, which include, for example: advertising our requirements in local newspapers and on our website; procurement presentations; and identifying items currently procured internationally for possible local procurement.

KGC's Local Procurement Strategy will create substantial economic benefits for Kyrgyzstan on local, regional, and national levels. Local procurement leads to creation of new employment opportunities and income sources, acquisition of new skills and technologies, and helps to establish vital local business networks. Therefore, local procurement provides immediate opportunities for creation of common benefits – benefits for both KGC and the communities in which we operate. More information about our local procurement strategy is available on our corporate website in the Procurement and Logistics section.

Some of our stakeholders may be surprised to learn that nearly 600 Kyrgyz enterprises supply our operations with almost 11,000 items needed for our day-to-day operations. We will provide more details about our partners, suppliers of dairy products and jams further in this report.

Throughout the calendar year, Kumtor continuously provides work places for 250 to 400 contracted personnel of various trades and qualifications. Various jobs are intermittently contracted to approximately 15 long-term partners and alternating organizations, which in turn retain about 1,200 employees. The survey showed that the contracted labor predominantly (about 92 percent) originates from the Issyk-Kul province (this year statistics remains approximately the same). Thus, this includes the major contributions of 43 percent from the Jety-Oguz district, 16 percent from Karakol, 9 percent from Ton district, 7 percent from Balykchy and 17 percent from Ak-Suu, Tup and Issyk-Kul districts, and Cholpon-Ata. In view of the relatively constant seasonal work scopes for currently contracted organizations, and the well-established labor and equipment sourcing processes from nearby towns and villages, then potential new providers of the same services must be well equipped, very experienced, and competitive.

Building on this base, we continue our efforts to further expand the number of local suppliers. We proactively inform and communicate our requirements, and advise potential suppliers what they need to achieve to have the best chance of becoming a Kumtor supplier. Throughout 2014, our procurement team held on-site presentations to inform all interested potential suppliers about procurement processes and requirements of the Company for locally produced goods.

In 2014, we switched more than 28 goods and services from international to local suppliers, including a range of tools, personal protection equipment, consumables, and transportation services.

In 2014, we invited two consultants from 'Engineers Without Borders,' an international NGO, to assist in the identification of further opportunities and improvement in local procurement and sustainable development.

Like most international mining companies operating in regions with a limited history of large scale or modern mining practices, we face a number of barriers to sourcing more goods and services locally. These include Kyrgyz suppliers not being familiar with standard procurement processes, not initially meeting the high quality standards the industry demands, and a lack of financial resources or support to develop and sustain the quality and volumes of goods and services required for a major and long-term industrial operation. The level of interest from local suppliers seeking to deal with Kumtor is on the increase. However, many suppliers copy successful ideas of other suppliers, and in doing so, try to displace them.

> "Nearly 600 Kyrgyz enterprises supply almost 11,000 items for our operations."

> "Local procurement spending approximately $80 million in 2014;
> Our timely payment and ethical conduct help make Kumtor a preferred purchaser."

We support existing and potential local suppliers to help them overcome these barriers. We encourage local businesses and entrepreneurs to think 'outside the box' and come up with new ideas, products, and services. In doing so, their business will be more sustainable and will create jobs and opportunities for the local community. Understanding their need for working capital, we pay suppliers quickly, often within days, and provide advance payment in appropriate cases involving long-lead items. Local procurement brings significant benefits to KGC. It is one of the most effective ways for KGC to maintain its social license to operate, strengthen its relationship within the Kyrgyz Republic, and improve the supply chain efficiency.

Fig 2.5 **Local Procurement in Context**

	Units	2012	2013	2014
Total Payments for Goods and Services#	M USD	457.4	413.5	377.8
Local Payments for Goods and Services#	M USD	69.1	71.5	79.8
Local Payments for Goods and Services as % or Total	Percent	15%	17%	21%
Local Payments for Goods and Services as % of Adjusted Gross*	Percent	51%	59%	58%

 # These figures include the fees paid to the Kyrgyzaltyn Refinery

** Excluding original equipment manufacturer (OEM) capital equipment and parts, major consumables, and reagents that are not available for purchase in the Kyrgyz Republic and fuel import from Russia. This is slightly different to the figures included in the Direct Economic Value Generated and Distributed Table, because it is based on actual invoices paid (including advance payments) and does not differentiate between operating costs and capital expenditure.*

Top priority of our procurement team is to increase the quantity and range of goods and services procured locally by KGC in order to create shared value for the company and the Kyrgyz Republic. We also aim to increase positive economic impact of the Kumtor Mine in the Kyrgyz Republic and in so doing, leave a positive legacy, which will further drive the development of the Mining sector and related industries.

We continue to cooperate with the EBRD, on a cost-sharing basis, to offer its Turn Around Management (TAM) and Business Advisory Services (BAS) programs to existing and prospective local suppliers.

Despite our continuous efforts for improvement, there remains a significant part of our procurement needs, which are not produced or readily available in the Kyrgyz Republic. Examples include specialized mining goods and services, such as heavy mining trucks, original equipment manufacturer (OEM) parts, tires, and major consumables and reagents. Also, as a large consumer of diesel fuel, we have to import a large portion of our fuel.

Our total expenditures on goods and services in 2014 was nearly $380 million. This included approximately $80 million procurement within the Kyrgyz Republic. When adjusted to exclude goods with no potential for local procurement, and fuel imported from Russia as mentioned above, over 58 percent of procurement expenditures remained within the Kyrgyz Republic in 2014.

We carried out an economic impact assessment of our business in 2014. This provided more detail on the impact Kumtor Gold has on the Kyrgyz economy, and helped us further determine where we could improve in this area.

Leaving a positive legacy

The current projected lifetime of the Kumtor Gold mine is until 2026. We want our positive impact on the Kyrgyz economy to continue long after this time. Therefore, we encourage our suppliers to not be over-dependent on our business, but to use it as a catalyst to diversify their product and customer base. Many of our suppliers highlight that a contract to supply Kumtor is a mark of quality making their products more attractive to other potential customers.

Case studies

In our case studies, we describe two examples of local entrepreneurial companies – dairy products supplier and a natural jam producer – that have become successful and valued suppliers to Kumtor.

The major infrastructure relocation and camp construction project commenced at the Mine site in 2014. The Project focused on local procurement of goods and services. One of the successful examples was procurement of furniture for the new camp from a national supplier.

Two local companies were contracted for maintenance and repair of light vehicles, which was formerly done by the company.

> “We aim to increase positive economic impact of the Kumtor Mine in the Kyrgyz Republic.”

Support of the “One Village – One Product” Project

By operating in the Issyk-Kul province, Kumtor Gold Company supports local manufacturers and suppliers offering high quality delicious and organic products. One of our time-proven partners is the “One Village – One Product” Association. Kumtor has been purchasing various quantities of jam (200 to 1,400 jars) from local producers for three years.

This unique project, which aims to increase incomes of rural residents and promote products from the Issyk-Kul province, was launched in the Jety-Oguz District in 2011 with technical support of JICA. Within the regional support program, so called ‘jamaats’ consisting of local residents were created. By the end of 2014 there were 142 of these groups, which deal with food manufacturing and souvenir sale, both in the province and abroad. Local and Japanese consultants train project participants on how to promote finished products and how to develop small businesses.

“Our goods are famous for their excellent taste, benefits and uniqueness,” says the Association’s representative Nargiza Erkinbaeva. *“We produce jelly and jam, juices, garlic paste, honey, and dried fruits from local, organic materials. Everything is natural! No additives and preservatives. The sweets are produced in small quantities at homes and whole families get involved in the process. Large orders are made in equipped facilities opened with the support of Kumtor at vocational schools in Karakol and Bokonbaevo village. All goods are certified.”*

BALYKCHY MARSHALLING YARD

Balykchy Marshalling Yard (BMY) is the central transportation hub for all materials arriving by rail. Materials are dispatched to the Kumtor mine using mostly MACK (KGC) trucks and contracted transport (when necessary).

- An average of 300 rail cars are received per month;
- BMY dispatches an average 25 truckloads of goods and products to the mine site per day. These typically consist of 13 trucks of fuel, 5 trucks of ammonium nitrate, 3 trucks of lime, and others containing ceramic grinding balls and consolidated containers containing equipment and reagents;
- Our self-owned fleet of trucks consists of 55 trucks, and we use an average of 4 contracted trucks per day;
- The distance from BMY to the mine site is 250 km, which means distances of 450,000 km are travelled monthly, transporting an average 14,000 tonnes of goods.

BMY consists of a fuel farm with a filling station. The fuel farm accommodates 6 tanks with capacity of 12,000 tonnes, each weighing 2 tonnes. There are also two 100,000 tonne tanks for fueling trucks with diesel fuel, and one 200 tonne tank for gasoline. Other infrastructure includes warehouses, mechanical workshops, administration facilities and 5 guest houses, including 2 for senior management. 240 people are employed at BMY and the strategy is to employ people from local communities in and around Balykchy. We also make use of suppliers in Balykchy for material and product purchases, and maintenance work required for the day-to-day operational needs for BMY and its guesthouses.

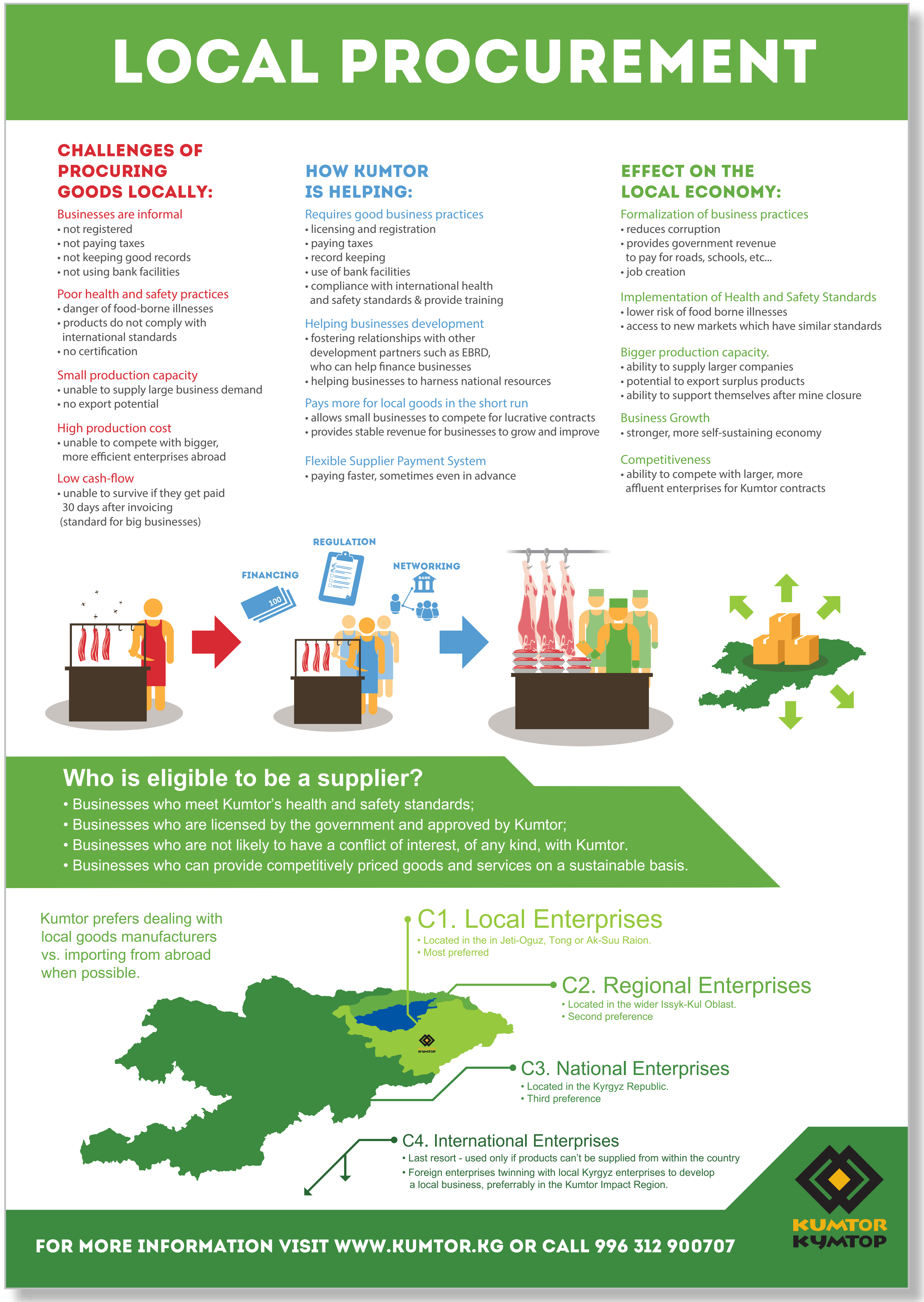
Ak-Jalga conquers the market with quality

Kumtor's weekly purchases consist of 100 kg of cheese, 100 kg of butter, 200 kg of kefir, 150 kg of cream all totaling approximately 120,000 som or $2,200.

In the end of 2014, the diary processing plant became the first ISO 22000 certified company in Kyrgyzstan.

Plant Production Supervisor Sharipa Janybaeva, tells us how they struggled for the right to be named one of the best and most reliable producers.

"In the environment of growing competition, we had to expand our variety of cheeses. Today we produce a great variety of cheeses, including 'Dutch', 'Sovietsky', 'Kostromskoi', 'Lambert', 'Duplet', 'Chechil'," explains Mrs. Janybaeva. *"We pay a great deal of attention to sanitary regulations. Requirements are very strict. Due to increased work quantities in the summer season, we hire additional workers, who are trained and briefed before commencing work. In June 2013, we fully upgraded the plant and installed European equipment: milk and cream pasteurizer, 2 ten-tonne tanks for raw milk, self-cleaning separator-normalizer, and 5 milk pumps; the equipment line was connected to CIP system. None of this would be possible without the support of our partners, including Kumtor."*



Focus on future

As a socially responsible company, one of the top priorities for Kumtor is waste management. One of the largest waste flows generated is used heavy-duty equipment tires. We undertook a comprehensive search for partners who had the ability to recycle tires used at the Mine and found a small tire recycling plant in Balykchy. Our negotiations with the plant lasted throughout 2014 and by the end of the reporting period, the plant was able to recycle a trial batch of tires.

Local Economic Development

One of the challenges Kumtor faces is our desire to support SME development in Issyk-Kul region, but not to create dependencies on Kumtor. Looking ahead to 2026 and mine closure, we need to ensure that we do not cause greater socio-economic difficulties by having large numbers of suppliers suddenly closing once Kumtor stops operating. Therefore, we place an emphasis on helping businesses grow without relying on Kumtor as a sole customer.

3 PEOPLE

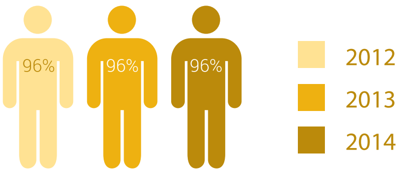
3.1 | COMMITMENT TO PEOPLE

At Kumtor, we maintain a high level of care and responsibility for our workforce, including contractors. We train and equip our workforce to operate safely to protect themselves and fellow employees. We provide healthy food and care to monitor and protect their health, and train them to work with respect for the natural environment around them.

Labor and local hiring

We continue to maintain a high percentage of Kyrgyz nationals among our full time employees, rising from 95 percent in 2011 to more than 96 percent in recent years.

Fig. 3.1 Percentage of Kyrgyz citizens employed by the company*



* % full-time employees

Worker compensation

We believe the biggest contribution we make to the well-being of local communities is through creation of long-term, well-paid employment opportunities. This helps not only the employee and their family, but also through a filter down effect provides wider economic benefits to their communities. Our pay rates are far above the Kyrgyz average, with the entry-level wage in 2014 fourteen times higher than the national minimum wage. The satisfaction of Kyrgyz employees is reflected in the fact that many remain working for us long term.

Fig. 3.2 Kumtor Mine Staffing

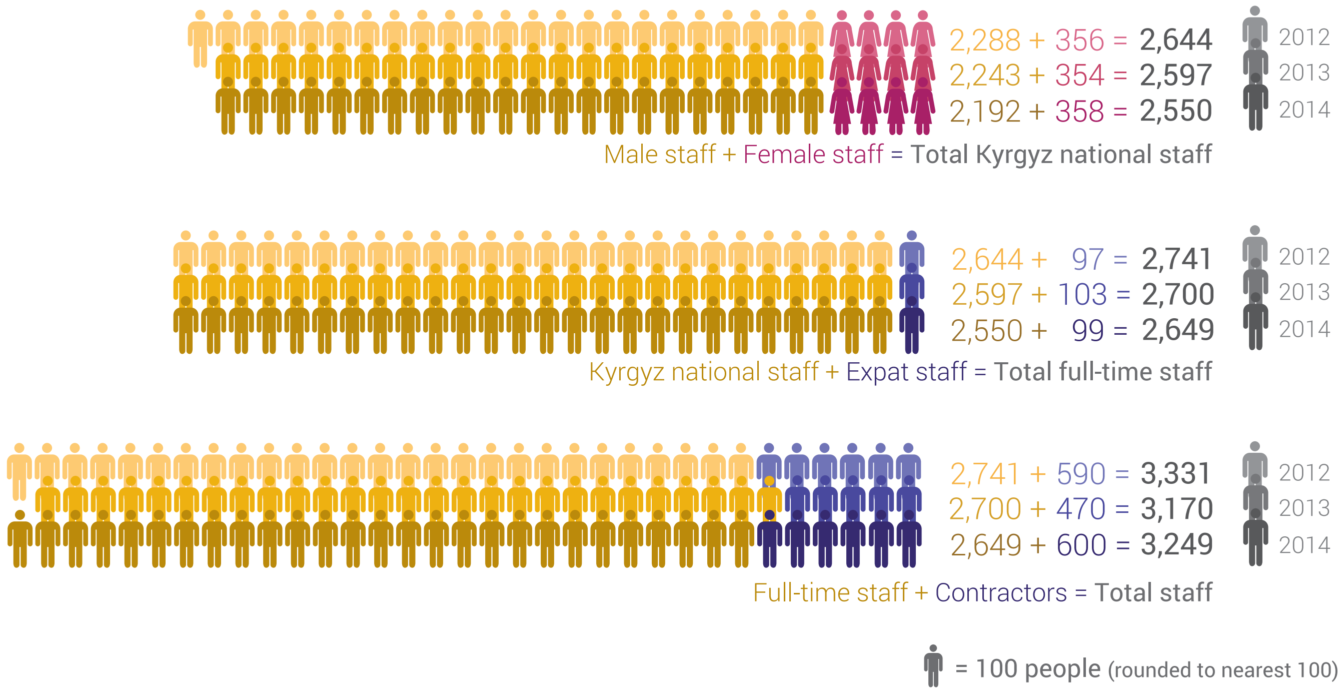


Fig. 3.3 **Comparison of Kumtor entry-level wage to Kyrgyz minimum wage**

	2012	2013	2014
Kyrgyz minimum wage per hour	4.55	5.18	5.40
Kumtor entry-level wage per hour	60.36	70.43	73.34
Kumtor entry-level to Kyrgyz minimum wage	13 : 1	14 : 1	14:1

Employee benefits

The benefits we provide to our full time employees include:

- Cash awards for significant work anniversaries, births, and child adoptions;
- Home improvement loans;
- Vacation and rest allowances;
- Sick pay for temporary incapacity from work related injury or illness;
- Funeral allowances and many other benefits.

Collective bargaining

Freedom of association is a human right defined by international declarations and conventions, and support of the principles of collective bargaining is part of a framework of responsible management at Kumtor. Collective Contract signed between three trade unions (that currently exist in the Company) and Kumtor administration (effective from January 1, 2015, to December 31, 2016), covers 96 percent of employees.

This Contract covers a wide range of issues, including labor compensation, inflation increase, probation, work schedule, health and safety, benefits for employees and their families, as well as labor dispute resolution. It also includes a notice period of one month for significant operational changes. The staff committed to perform their job duties safely and with good quality, adhere to labor discipline, not to hold illegal strikes, etc. In general, Collective Contract stabilizes and guarantees labor relations at the largest gold mining company in Kyrgyzstan for the next two years.

Recruitment process

Kumtor has a policy to ensure its recruitment process is open, transparent and fair, as defined in the Policy and Procedure documents on 'National Employment' and 'Recruitment and Selection.' We have clear criteria on defining who is eligible for consideration, and we operate a clear and open recruitment process.

As it is standard for employment in an advanced industrial operation, we have minimum eligibility requirements. With relevance to the position applied for, candidates must meet minimum education and qualification requirements and pass appropriate medical examinations to demonstrate fitness and good health given the high altitude conditions at the mine site. Some positions require specialized state-issued certificates, for example, for drilling and blasting work.

> “Pay and benefits totaled $118 million in 2014.”

> "Our entry-level pay rate is 14 times the national minimum;
>
> As a favoured employer, we receive many applications."

Our recruitment process is as follows:

- Positions are first notified internally via 'Job Opportunity' announcements on notice boards. Existing company employees are preferred candidates for vacant positions provided that they meet the qualification requirements. The Company facilitates professional development and career advancement through implementation of training and internship programs;
- In the absence of suitable internal candidates, an external recruitment campaign is initiated;
- Relevant positions are publicly advertised via our website, in newspapers and via local communities where we maintain information centers;
- Anyone with relevant qualifications can apply for externally advertised positions;
- Preference is given to applications from communities located in the administrative regions where the Company operates;
- Family or personal connections provide no bias or benefit in the selection process;
- Positions are awarded on the basis of qualification, experience and suitability for the job;
- Recommendations are made by a selection committee and final approval is given by senior management.

KUMTOR HIRING PROCEDURE

Kumtor is regularly on the lookout for people with specific skills, initiative, and good character to help take the company forward.

To find these people we have strict procedures in place:

FIND INTERNAL CANDIDATES

We give current employees, who are interested, the chance to apply for an open position first.

WHEN QUALIFIED INTERNAL CANDIDATES CANNOT BE IDENTIFIED, A FORMAL REQRUITMENT CAMPAIGN IN HELD.

EMPOYMENT OPPORTUNITY ANNOUNCEMENT

Advertising for an open position is done through all media (newspaper, TV, web). The community relations department uses all possible channels to notify the local community.

APPLICATION

Application forms are provided by the local administration and are also available at all company offices - located in Bishkek, Karakol, Volna, and Balykchy.

Applicants must have all the required qualifications, skills, and experience to be considered.

INTERVIEW

The top candidates whose skills, education, and experience best fits the position will get interviewed and take a written evalutation.

SELECTION

The candidate whose experience and evaluation results best meet the requirements will be selected. Where possible, we try to select candidates from a wide range of communities.

THE FINAL HIRING DECISION IS MADE BY THE COMPANY ADMINISTRATION.

ATTENTION!

Employment at Kumtor is not for sale.

You should not have to pay anyone.

Please contact 0800 223-23-23 or 0312 90-07-07 if you are approached with a job for money offer. Such offers are **illegal** and go against Kumtor policy.

FOR MORE INFORMATION VISIT WWW.KUMTOR.KG OR CALL 0800 223-23-23 OR 0312 90-07-07

KUMTOR
КУМТОР

“Sessions for new employees, students and contract partner employees - 20,085 hours;

Annual Refresher sessions - 21,102 hours;

Red Crescent First Aid Certification Training - 10,472 hours.”

Employee Training

Kumtor has a large-scale program of training on how to perform maintenance on equipment used at the Mine site. In 2014, the Company invested close to $370,000 in training programs focusing on HD equipment and light vehicle repairs.

All new KGC employees, students and contract partner employees receive Safety Induction and Initial Health, Safety and Environment Instruction, First Aid Training along with regular annual refresher training. Training covers safety orientation, first aid, firefighting, emergency response, workplace hazards, materials safety, transportation of dangerous goods, defensive driving, forklift truck operation, work permits, radiation hazards, vessels under pressure, working in confined spaces, handling cyanide and other chemicals, hearing protection, ultraviolet radiation, frost bite and hypothermia. During 2014, we invested approximately 1.2 million dollars and 2,070 person-days for training employees, students and contractors.

Mandatory and Compliance Safety training totaled 51,659 hours for the year 2014. This consisted of training sessions for new KGC employees, students and KGC contract partner employees, annual refresher training sessions for existing employees, students and contractors including Red Crescent First Certification for more than 1,300 employees, students and contractors.

To process of optimization in 2014 KGC established training facilities in 3 locations, Karakol, Balykchy and Bishkek allowing KGC employees, students and contract partner employees the opportunity to attend any required training during their off-duty time in a location close to their place of residence.

For compliance with the legislation of the Kyrgyz Republic, applicable to hazardous operations, persons in charge, engineers and technicians, as well as regular workers receive training in specialized training centers and pass certification in authorized government agencies.

Currently we are working closely on a project with Software supplier to implement a Training Management System that will provide for more efficient scheduling of training sessions, centralize the collection of quality training data and enable enhanced reporting capability.

Apart from investing in the education of current employees, KGC has programs designed for the younger generation – our potential future workers. Since 2006, we have implemented a Graduate Development Program for recent graduates and from 2000 the Regional Scholarship Program, intended for students completing high school and wishing to pursue a vocational career. More information about the Scholarship program is available in the Social Responsibility Section of the Report.

GRADUATE DEVELOPMENT PROGRAM

KGC introduced the Graduate Development program in 2006, with the intention of attracting high caliber post-secondary graduate students whose areas of study are closely related to the mineral extraction industry.

Recent graduates are eligible to apply for the 2-year program that allows them the opportunity to gain practical experience by applying their theoretical knowledge and expertise in the workplace.

Graduates are on an established program schedule, working primarily in their area of expertise, but also provided opportunity to become familiar with the structure of KGC and Centerra Gold Inc. and the interaction of departments within the organizations.

This Graduate Development Program has been instrumental in KGC’s ability to recruit, develop and retain many talented graduates that have after completion of the program chosen to become employed with the company.

3.2 | OCCUPATIONAL HEALTH AND SAFETY

When mining at the high altitude of 4,000 meters, the major challenges are living and working with the cold climate and reduced oxygen levels. Average annual temperature is minus 8°C with a minimum as low as minus 38°C.

Our employees receive regular health checks and support, are provided with high quality safety clothing, and receive health and safety training to protect themselves and co-workers. We record and analyse incidents and near misses, and maintain an emergency response team that performs regular training exercises. Our motto is "No job is so important we cannot take time to do it safely."

Medical screening and wellness

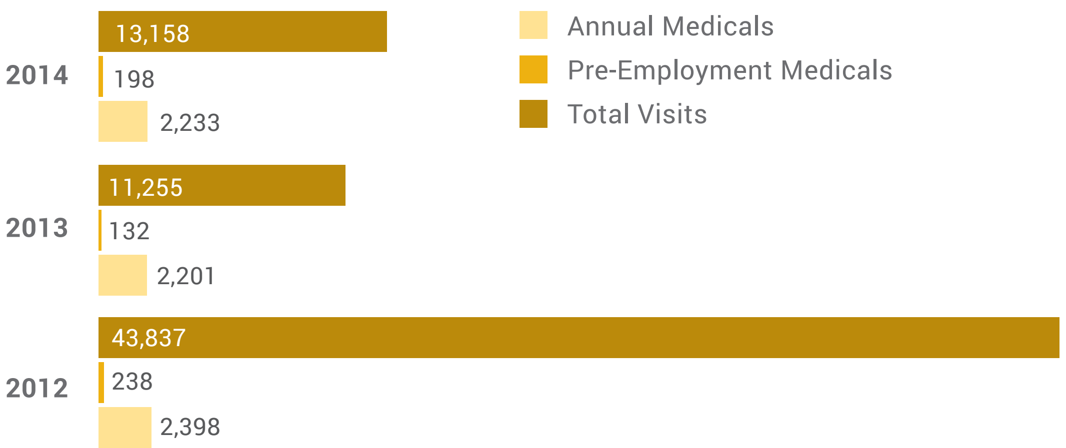
Our employees receive regular health checks, in particular with respect to ensuring they are fit to travel to, and work at the high altitude reduced oxygen conditions at the mine site.

Kumtor maintains medical clinics and staff in Bishkek, at the Balykchy Marshalling Yard and at the mine site, with trained staff including doctors, paramedics, nurses and first aid instructors. All employees first receive a medical check at the Bishkek or Balykchy Marshalling Yard clinic to verify fitness to travel to the mine site. On arrival at the mine, they receive a further check, and if necessary, are monitored or given treatment should any symptoms of altitude sickness arise. A barometric chamber is available on site to help with more gradual acclimatization if needed.

We have pro-active programs to protect our employees and improve their general health and well-being. We conduct an annual influenza immunization program, which reached 580 people during the 2013/14 season. Our monitoring shows that upper respiratory tract infections remain the principal cause of work absence. We have been running a smoking cessation program since 2002 consisting of a number of parallel initiatives including individual counselling, medication (such as nicotine patches) and limiting locations where smoking is permitted. This latter action is particularly important for reducing the risks of passive smoking.

We have been conducting a nutrition-monitoring program since 2010, which includes individual counselling of employees and reviewing the nutritional balance of food, provided at the mine camp. For every meal, a wide choice of high quality, freshly prepared food is available, providing for personal and cultural preferences, and 100 percent sourced from companies within the Kyrgyz Republic.

Fig 3.4 Medical screening and visits



> "No job is so important that we cannot take the time to do it safely."

Accident reporting

We run a program to identify, record, assess and control accidents and hazards. When any employee observes or identifies a hazard in an operational area, they are required to complete an industrial hazards form and submit it to the Safety Coordinator. The Coordinator then evaluates the risk and according to risk classification, implements appropriate measures to remove the hazard and reduce future risk.

Our key health and safety statistics are shown in the table below. Unfortunately, despite our focus and efforts on health and safety, and our positive historical safety performance, our Alpinist support supplier, ITO Alpinists, had an accident in September 2014 whilst climbing to service a Kumtor high altitude communications repeater – which resulted in the death of one of their staff, and serious injury to another.

As a result we have undertaken an investigation and review of the accident, existing controls, procedures and service requirements with international alpine specialists. The highlight outcomes of this investigation are to utilize internationally certified specialists for all future access to this repeater and remove the requirement to service or operate this repeater once alternate communication construction is complete.

Fig. 3.5 **Key Health and Safety Statistics**

	Units	2012	2013	2014
Hours worked	Hours	5,990,024	5,925,671	5,981,799
Lost Time Injuries (LTI's)	Number	1	5	4
Medical aid	Number	5	1	3
First aid	Number	16	24	16
Days lost to injury	Days	23	82	6,093*
LTI frequency rate	No. of LTI's per 200,000 hours worked	0.17	0.77	0.13
LTI severity rate	Lost time days per 200,000 hours worked	0.77	2.77	203*
Reportable Injury Frequency Rate (RIF)	No. of Reportable Injuries per 200,000 hours worked	0.20	0.20	0.23
Incidents with Property damage	Number	66	77	38

Note: *See Glossary for definitions of key terms*

**The large variance in this table for days lost to injury and the 2014 LTI severity rate is due to the fatality and lost time injury that occurred when our subcontractor was climbing to service a Kumtor high altitude communications repeater. Based on international standards, an automatic 6,000 lost work days is counted for the fatality and 21 lost work days for the LTI.*

Kumtor's safety statistics in comparison with the Ontario Gold Mining Industry is shown in the graph below. This demonstrates that Kumtor is safer than comparable gold mining operations in North America.

Fig 3.6 Reportable Injury Frequency Rate

(Injuries per 200,000 man-hours)

> We remain vigilant and constantly communicate awareness to our employees.

Reducing vehicle incidents

A special focus for employee awareness remained, as for previous years, on vehicle incidents with collisions and over-turning vehicles in the mine pit considered the most significant risks. Our program has been successful in reducing vehicle accidents by half compared to 2011. The table below shows the key vehicle accident statistics for the past few years, which we post on information boards around the mine site alongside photographs of recent incidents as a regular reminder of the constant need for care when driving. We also continue to improve driver skill and awareness through job assessments and training.

Fig. 3.7 **Vehicle incident reduction program (total number of incidents)**

	2012	2013	2014
Overall vehicle accidents	30	17	17
High-potential injury risk - light vehicle accidents	4	1	4
In-pit heavy versus light vehicle collisions	3	1	4
Injuries due to vehicle accidents	0	1	2

> We invested 51,700 hours or 6,458 staff-days in health and safety training;
>
> We achieved a commendable reportable injury frequency rate of 0.23;
>
> We maintained flu vaccinations, stop-smoking and nutrition counselling programs.

Cyanide transport and handling

Cyanide is an essential chemical for gold extraction, which must therefore be transported to site. In 1998, there was a cyanide spillage incident during transportation from the Balykchy Marshalling Yard to the mine site. An independent International Scientific Commission review was carried out shortly afterwards. The report concluded there were no serious or lasting environmental impacts, including no short or long-term damage to Lake Issyk-Kul, and there were no reported deaths that could be attributed to cyanide exposure. The full report can be downloaded from the Kumtor website **www.kumtor.kg**.

Since April 2012, Kumtor is certified by the International Cyanide Management Institute (ICMI) for transportation of cyanide from the Balykchy Marshalling Yard to the mine site in accordance with the International Cyanide Management Code.

Emergency prevention and response

We maintain a 24-hour emergency response team with a medical doctor, ambulance and extensive emergency response equipment at the mine site.

We review and update our emergency response plans annually, provide training and conduct periodic drills.

Mock training exercises and an annual competition involving the Company's team and others (such as Ministry of Emergency Situations and Kyrgyzaltyn) contribute to our preparedness and emergency response capabilities.

Our training is in accordance with the Kyrgyz State Inspectorate for Environmental and Technical Safety. Our emergency response training is aligned with international practices. If significant events occur we analyze and learn from them, review our emergency procedures and improve them as appropriate. An important example is our response to a cyanide spill incident as detailed in the Cyanide Code section (p.15).

COMMAND POST EXERCISES TOOK PLACE IN AK-TEREK VILLAGE

Command post exercises of the civil protection authorities in the event of threats and emergencies because of earthquake took place in July, in Ak-Terek village, Jeti-Oguz District of Issyk-Kul region. A total of 480 representatives from various departments and disciplines, including ambulance, firefighters, police, district power plant employees, epidemiological, veterinary services, as well as Kumtor mine site's rescue team, participated in the exercise, which was organized by the Ministry of Emergency Situations of the Kyrgyz Republic.

According to the proposed scenario, participants practiced their skills to overcome various emergencies that might occur during earthquakes - such as fire, carbon monoxide poisoning, traffic accidents, broken power lines and others emergencies. Teams also demonstrated their ability to assist more than 400 refugees from areas affected by natural disasters by checking for radiation contamination; recording data, performing physical examinations, and providing necessary support. Later they accommodated people in facilities specially constructed for this type of event.

All services that participated in the prevention of the effects of an earthquake succeeded in their tasks. The exercises helped to reveal shortcomings and outline plans for improved cooperation between different services and businesses, as well as to evaluate the Ministry's level of activities aimed at civilian protection. Similar exercises are held at the district level every three years.

4 GEOTECHNICAL

4.1 | TAILINGS MANAGEMENT

Tailings refer to the water and solid materials (together called slurry) that remain after recoverable metals and minerals of economic value are removed from the crushed rock ore by milling and processing.

Kumtor's tailings are carried via 6.5 kilometres of pipeline from the mill to the tailings management facility (TMF) where they are deposited, settled, and contained. The liquid component is treated before discharge and the solid component retained until eventual reclamation and mine closure activities. The Kumtor TMF includes a set of twin tailings pipelines, a tailings dam, an effluent treatment plant, and two diversion ditches to direct surface water around the TMF.

In addition to general tailings management, two important issues we monitor and control include (i) cyanide containing solutions, which are securely contained within the TMF, and (ii) dam stability. These are discussed further below.

Cyanide residue management

The concentration of cyanide in the TMF is routinely monitored. In the tailings pond, there is some natural breakdown through chemical reaction and the effect of the sun's ultraviolet light.

The liquid component is further treated by the effluent treatment plant (ETP) to reduce cyanide and metals for safe discharge to the environment. More discussion of the cyanide concentrations in the external environment is provided in the Water Quality and Compliance section.

The effluent treatment plant was relocated to a higher elevation and re-commissioned in 2013. This allowed for an increase of the TMF area, which can now accept additional volume of tailings.

Fig. 4.1 **Tailings dam monitoring instrumentation (number of instruments)**

Type	Purpose	2012	2013	2014
Inclinometers	Measure horizontal displacement	49	48	50
Settling plates	Identify dam base settlement	28	28	28
Piezometers	Measure water levels in dam body and base	32	31	32
Thermistors	Dam body and base temperature	45	44	48

“The tailings management facility (TMF) is regularly surveyed for safety by tailings engineers and technicians, external experts, as well as through year-round monitoring of the tailings dam and other tailings management facilities;

TMF structures confirmed to be in good condition and safe;

Effluents discharged from TMF are treated to meet designated quality criteria.”

Geotechnical monitoring and stabilisation

The dam is constructed and managed to safely retain tailings. It is 3,050 meters long with a maximum section height of 39 meters and crest elevation of 3,667 meters. The dam is constructed primarily of compacted granular fill, sourced locally. The dam surface is covered with an HDPE liner (a strong impermeable synthetic material) from the upstream slope to the toe of the dam, and then 100 meters into the tailings pond. This liner extends into the permafrost to minimize seepage through the dam. The height of the dam is increased over time to ensure sufficient volume for tailings storage, with the last raise in 2013. Along with the dam raise, the existing buttress was also extended on the downstream side of the dam, which helps increase the dam's strength and stability. During 2014, we raised the dam body from the downstream toe to the elevation of 3,655 m.

Some movement of the Kumtor dam was first observed in 1999, since then, Kyrgyz specialist organizations and international engineering experts have been consulted on management and mitigation. In response, a shear key and buttress were constructed along the downstream toe to reduce, and eventually eliminate, the movement of the dam.

An extensive network of sensitive instrumentation is in place to detect and record any movements of the dam structure.

Tailings balance

Accurate knowledge of what enters and leaves the TMF, and the volumes of liquid and solids it contains, are an important part of safe management. We survey the extent and depth of the pond, and we track the volume of tailings entering the TMF and volume of water leaving it, via the ETP and by evaporation from the pond surface. Tailings slurry, of which 49 percent is solids, is continuously added to the TMF throughout mill operations (most of the year). Water treatment and removal (via the ETP) occurs only during summer months when the pond and Kumtor River is not frozen - usually May to November. Therefore, TMF water volume peaks in spring and reaches its lowest level at the start of winter.

Fig 4.2 **Key characteristics of Kumtor's Tailings Management Facility (TMF)**

	Units	2012	2013	2014
Tailings discharged to Tailings Pond	M m^3	6.49	8.20	8.01
Net tailings remaining in Tailings Pond per year	M m^3	2.56	5.92	3.16
Total cumulative tailings in Tailings Pond at year end	M m^3	59.66	65.58	68.74
Total free water in Tailings Pond at year end	M m^3	2.70	4.89	4.16
Elevation of Tailings Dam Wall crest	masl	3,664.0	3,667.0	3,667.0
Peak water level in Tailings Pond during year	masl	3,659.12	3,659.96	3,661.03
Minimum water freeboard (dam crest level - peak water level)	m	4.88	7.04	5.97

Note: *masl = meters above mean sea level*

CONCLUSIONS OF EXTERNAL EXPERTS

Geotechnical monitoring data are analysed by the Institute of Rock Mechanics of the Kyrgyz National Academy of Sciences. In Quarter IV 2014 report , they concluded: "The inclinometers have indicated consistent reduction of displacement rates from the crest to the shear key. Displacement rates have practically reduced to zero values at the very end of the shear key"; and "Overall tailings dam condition is assessed as suitable for operation."

The international engineering company, Golder Associates, carries out annual inspections of the condition and safety of the TMF dam, providing recommendations for changes and improvement where appropriate.

Their December 2014 report concluded:

- The visual inspections of the dams and appurtenances of the Kumtor site indicated that the structures were in good condition and were functioning as required. Some maintenance work is recommended along with continued monitoring.
- Kumtor is doing an effective job of carrying out routine inspections, preparing monitoring records, reading instrumentation, and implementing the necessary procedures or changes to operate the facility in a safe manner.

Fig 4.3 **Water Balance in TMF (m^3)**

	2012	2013	2014
Free water at start of year (January 1)	3,307,023	2,695,825	4,889,461
Water added in tailings	4,959,799	6,239,760	5,960,703
Net precipitation/runoff less evaporation	569,500	677,859	425,139
Water remaining in tailings voids	-1,417,316	-1,667,683	-1,740,208
Water discharged from Tailings Pond to Effluent Treatment Plant	-5,058,181	-3,056,301	-4,920,891
Adjustment based on bathymetric survey	335,000	0	-454,070
Free water at the end of year (December 31)	2,695,825	4,889,461	4,160,134

4.2 | WASTE ROCK AND ICE

As typical for most open pit mining projects, Kumtor must remove a large volume of waste rock and other materials in order to safely access the ore. The waste rock is deposited in agreed designated locations and is routinely monitored.

Waste disposal and glaciers

Kumtor's high altitude mining operation is in close proximity to active glaciers, with part of the ore deposit and associated infrastructure extending beneath or affected by moving glaciers. With Kyrgyz regulatory approval, our mining operation has included removal of ice and related materials since the Kumtor project started in 1994. The purpose of ice removal is to provide safe access to ore, and safeguards the open pit and workers from inundation of ice. In response to stakeholder concerns and emerging legislation seeking a ban of glacial ice removal in the Kyrgyz Republic, we describe relevant information on our practices in this section and put our impacts in the context of regional and global trends.

Special glaciological studies have been undertaken to assess the impact of mining on glaciers and to predict behaviour of glaciers during operation of the pit. Such studies continued throughout 2014.

Glacier monitoring and studies

Parts of five active glaciers are present within the Kumtor concession area. Ice is also present in extensive ice fields in the southern and eastern part of the area, giving an estimated total ice cover of about 45 percent, or 118 km², of the concession area.

Movement of the Davidov and Lysyi glaciers in the Kumtor mine vicinity has been monitored since 1995, before mining started, with Sarytor glacier included in recent years. Glacier flow rates follow a seasonal pattern, being faster in warmer months and slower in winter.

In June 2013, independent experts conducted glaciological studies to determine the impact of KGC operations on glaciers of the Ak-Shyirak massif. Upon results of the studies, it was concluded that impact of KGC operations on glaciers in the region was insignificant.

In 2014, we commenced a multi-year (long-term) (2014-2018) glacier and hydro-meteorological monitoring program covering KGC concession area and basins of Arabel and Uchkol rivers. The studies are conducted by the Institute of Water Problems and Hydropower under KR NAS with involvement of experts from MGU (Moscow State University, Russia).

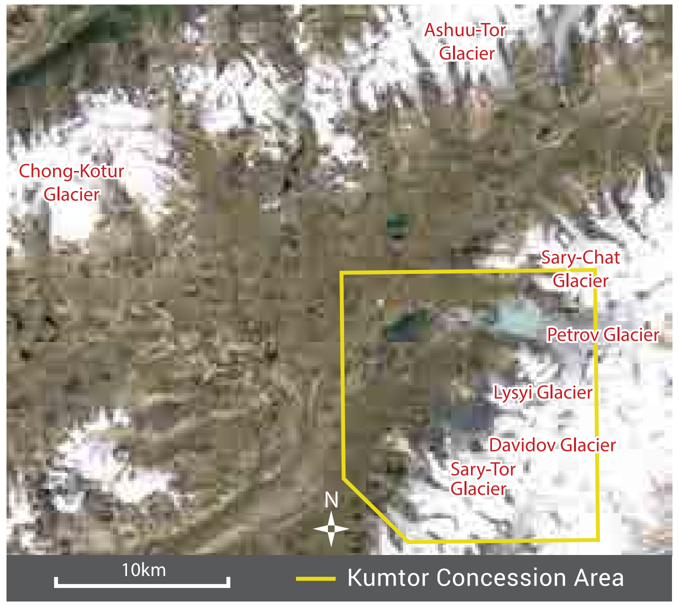
The project of monitoring glaciers and meteorological conditions within the concession area of CJSC "Kumtor Gold Company" (KGC) in the basins of Arabel and Uchkol rivers was developed in collaboration with KR Government and was supported by relevant agreements between the Institute of Water Problems and Hydropower of KR NAS (IVP & GE KR NAS) and KGC.

The monitoring program aims to assess the status of glaciers and trace the dynamics of their change (movement rate, linear retreat, and surface depression) and reflective properties of their surfaces (albedo) within the area of immediate anthropogenic impact by KGC and comparison of obtained data with similar observations undertaken on glaciers located at significant distances from the mine.

The planned monitoring utilizes the concept of Academician I. P. Gerasimov that all elements of natural environment are closely connected. Therefore, a comprehensive monitoring should involve complex studies: glaciological, hydrological, and meteorological. Among these, glaciological monitoring plays a significant role. This is related to the fact that of all natural elements, glaciers are most sensitive to changes in the environment caused by both natural and anthropogenic factors. Glaciological monitoring includes observation of glaciers, perennial snow fields, and seasonal snows.

> "Glacier ice removal is an approved part of mining since 1994;
> Ice removal is required for ore access and safe working conditions;
> Ice removed is small compared to natural losses."

Glaciological monitoring focuses on Sarytor, Lysyi, Sary-Chat, Ashuu-Tor, and Chon-Kotur glaciers.



***Note:** Sary-Chat glacier derives its conditional name from the Sarychat-Eertash Nature Reserve in which it is located. Ashuu-Tor and Chon-Kotur glaciers were named after the valleys in which they are located.*

Additionally, monitoring will be undertaken to track retreat of the Petrov Glacier tongue and movement rates on the Davydov Glacier.

On-site glacier observations are being planned as the primary method of glacier monitoring. Remote monitoring is planned to include ongoing interpretation of satellite imagery from different time periods.

From July to September of 2014, Institute of Water Problems and Hydropower of KR NAS (IWP & HP KR NAS) completed the following works:

- 6 ablation stakes at a height range of 50 m were placed on each Sarytor, Lysyi, Sarychat, Ashuu-Tor and Chon-Kotur glaciers at elevations 3860 to 4110;
- At the end of the ablation season (September) ablation indicators were recorded for each stake;
- GPS was used to delineate front lines of glacier tongues. Repeated annual measurements will allow to determine the rate of their linear (along longitudinal axis) retreat;
- Linear retreat was determined graphically. Although the Petrov glacier is not among monitored glaciers, the opportunity was used to delineate its front line as well.

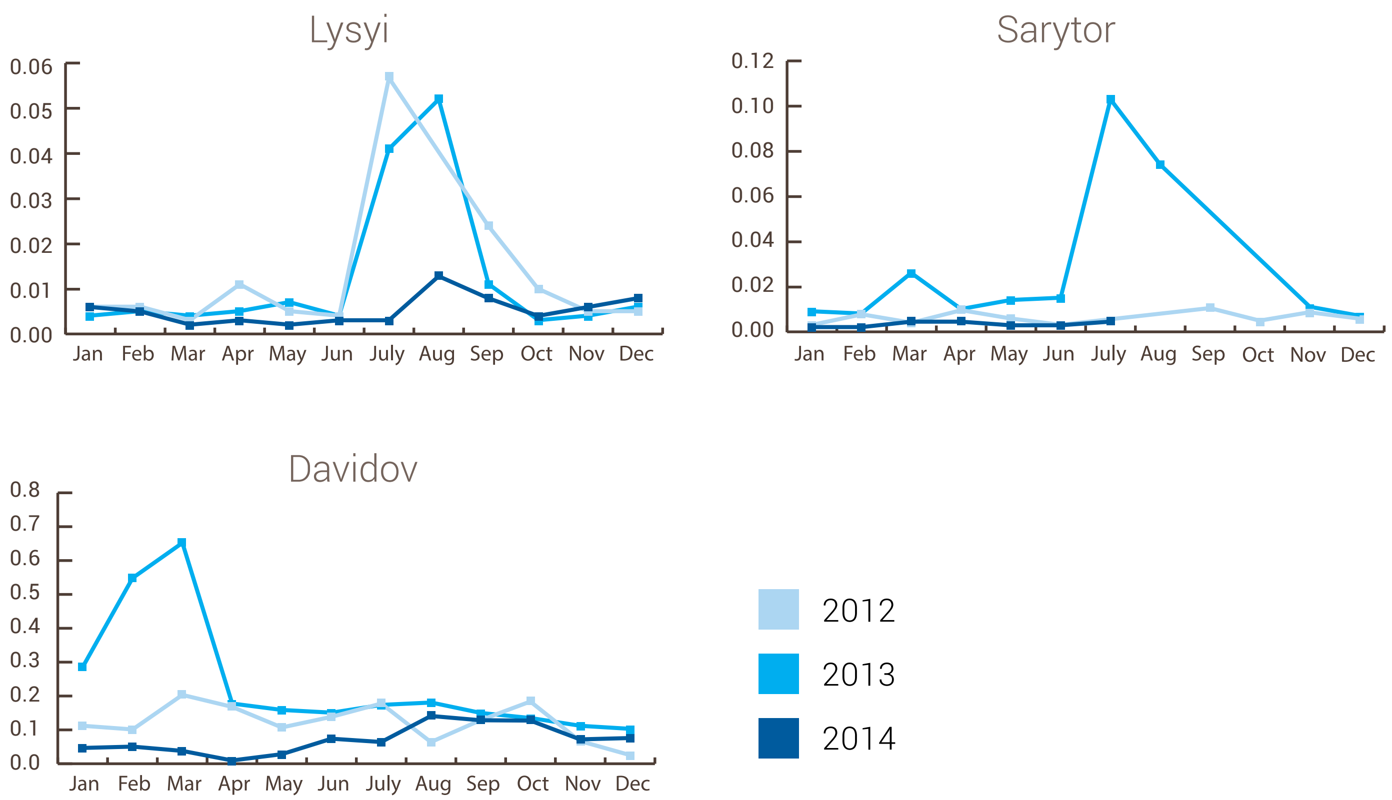
Key glacier monitoring results for 2014 within this project are based on ablation data gathered from the 5 glaciers listed above. It appears impossible to carry out a comprehensive analysis of data gathered in 2014, as they do not cover the whole ablation season. However, the data will be used in analysis for future interim reports and final report.

Upon completion of the full monitoring cycle (2014-2018), the research aims to achieve the following results:

- Comparative and quantitative assessment of glacier dynamics inside and outside KGC concession area;
- Assessment of glacier retreat in the context of interaction of natural (due to global climate change) and anthropogenic (related to KGC operations) factors;
- Physical and mathematical modelling of glacier evolution based on proprietary flow model;
- Determination of genetic run-off components (snow, glacier, rainfall) according to hydrological observation data using the method of genetic breakdown of runoff hydrograph and application of original proprietary flow model;
- Determination of connection between glacier ablation and weather conditions.

In 2014, the "Geotechnical Structure Stability" Laboratory of the Geomechanics and Subsoil Use Institute under KR NAS carried out scientific and engineering studies focusing on impact of the Davydov Glacier and Glacier #359 on safety of mining operations in the Central Pit of the Kumtor mine from 2015 to 2023 based on the Kumtor LOM Plan.

Fig. 4.4 Average glacier movement speed (m/day)



Waste rock dumps

In accordance with the KR Law on "Subsoil Protection", as well as standards of industrial safety, which KGC adheres to, waste dumps must have sufficient storage capacity, and be located at a minimum distance from a mining cutback. Mined waste should be placed in areas proven to contain no mineralisation. Waste dumps should not hinder mining operations in the pit and must be developed safely.

In addition, dumping methods and equipment in use at a waste dump must meet required dumping rates of waste rock without interruption, and comply with limitations on dump capacity whilst maintaining dumping costs at the lowest level and labour/ equipment productivities at the highest level.

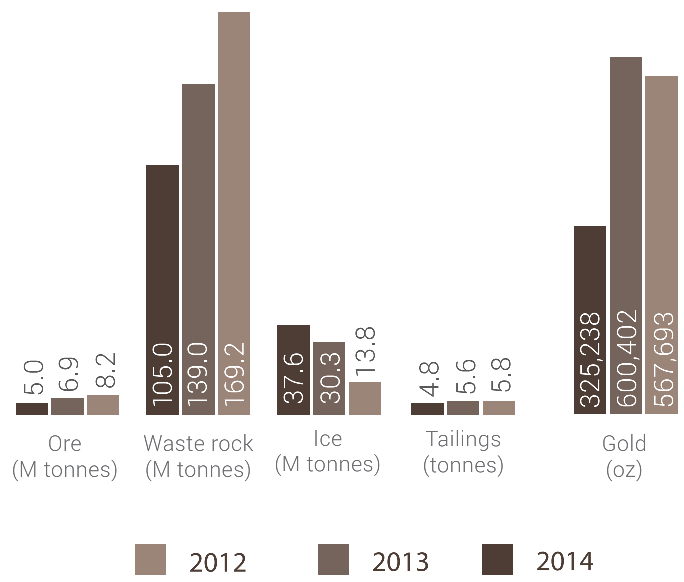
Modelling and assessment of waste dump stability is performed by specialists of the "Geotechnical Structure Stability" Laboratory of the Geomechanics and Subsoil Use Institute under KR NAS based on Kumtor's monitoring data.

Waste rock movement

Movement of a waste rock dump in 2012 and early 2013 has necessitated the relocation of certain infrastructure, including re-siting the mine camp which commenced in 2014. We continue to monitor all potential land and ice movements across the site, and to manage our handling of ice, rock, and waste dumps to ensure safe mining practice and timely relocation of affected infrastructure.

Starting from 2013, the Company has implemented a number of controls aimed at reduction of waste rock movement rates to reduce the risks associated with their movement. Particularly, such controls include: relocation of waste dumping to the Chon-Sarytor Valley, reduction of dumping intensity through a more even distribution of loads, construction of water diversion systems and introduction of automatic monitoring system (24/7, these controls enabled us to significantly reduce the scope and rate of waste rock movement.)

Fig. 4.5 Key Preproduction Statistics



Acid rock drainage testing

Acid rock drainage (ARD) describes contaminated waste water that is pumped from, or leaks from an operating or closed mine, and which is usually acidic due to reaction with sulfur-bearing rocks. It is a concern raised by some stakeholders, relevant both during mining and post closure.

Kumtor has routinely monitored for ARD risk since the initial environmental impact assessment, taking into account the ore body, waste rock, and tailings. From a number of independent assessments by international consultants, it is concluded the ARD risk from Kumtor is low due to the high carbonate content of the deposits, which neutralizes acidity. ARD evaluation will continue and be a part of closure planning.

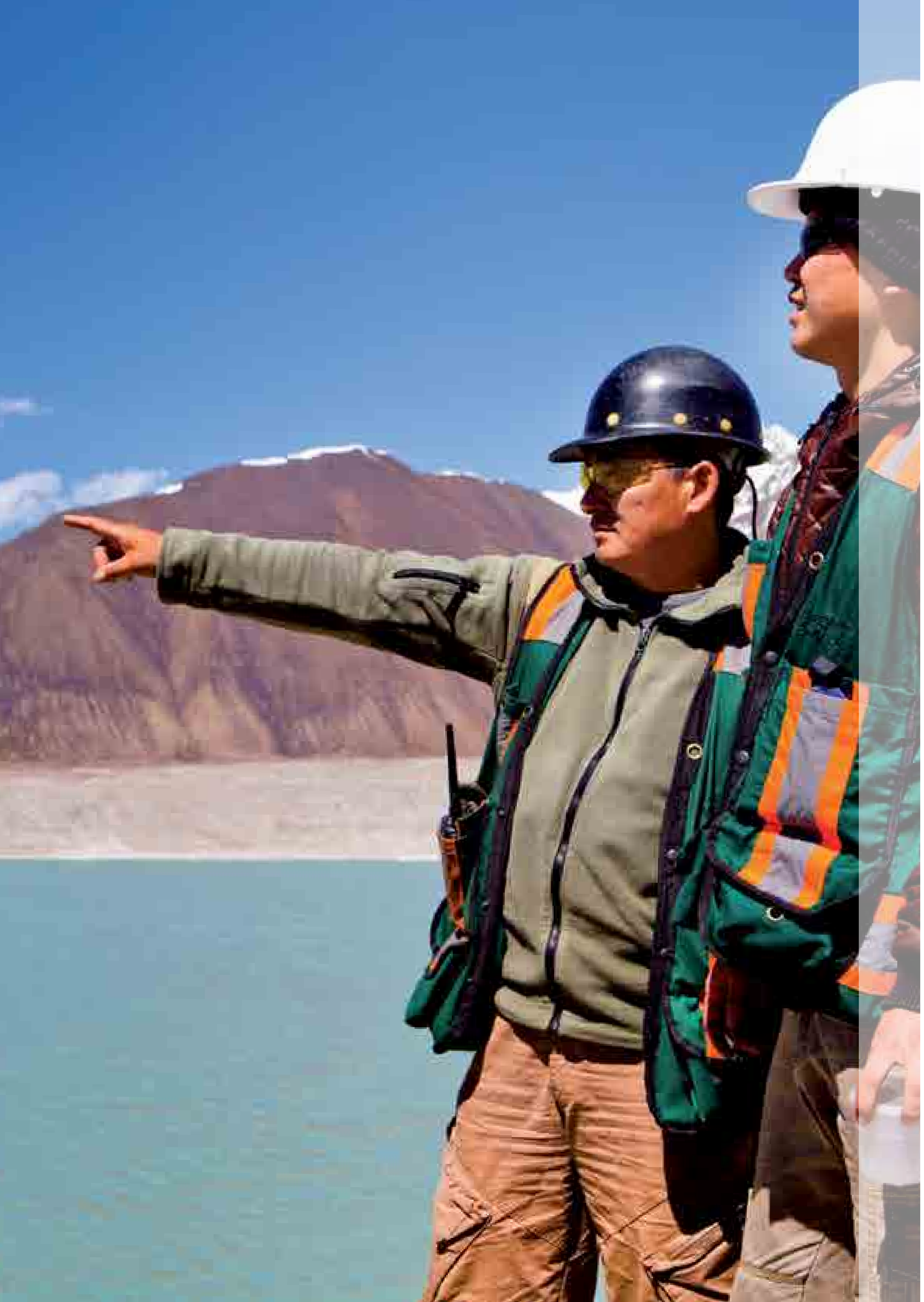
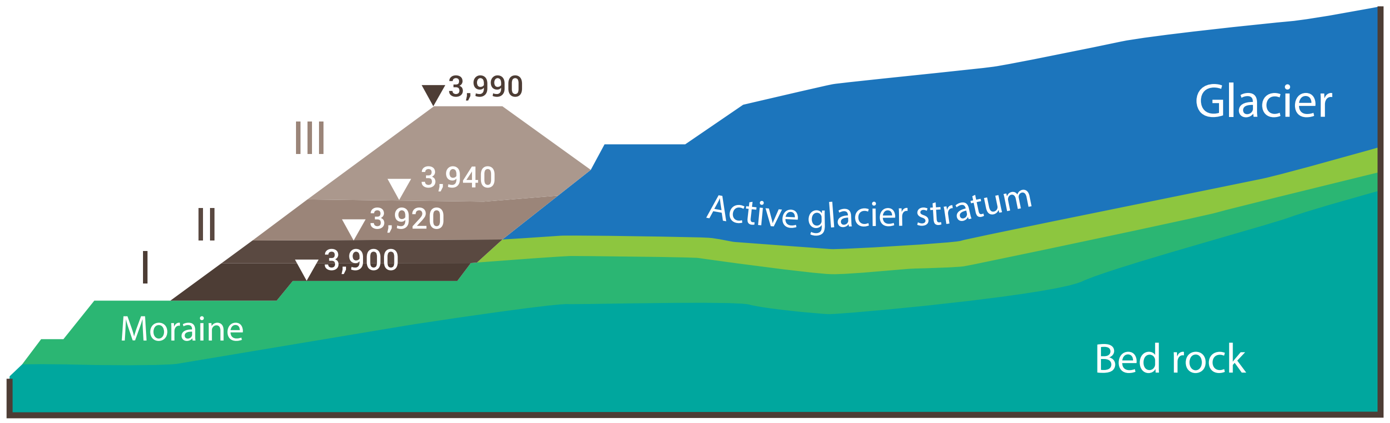


Fig. 4.6 Prediction model of the in-pit retaining buttress



In-pit retaining buttress

In 2014, specialists of the Geomechanics and Subsoil Use Institute carried out engineering studies focusing on impact of the Davydov Glacier on the safety of mining operations in the Central Pit of the Kumtor Mine.

KGC and Centerra specialists made an assessment of several alternative options for mining operations to stabilize movement of the Davydov Glacier in 2014. As a result, they chose the minimum risk option, which contemplated speeding up operations on the unloading area and replacement of the existing ice mass by an in-pit retaining buttress consisting of heavier rock material. An alternative way of reducing glacier movement rate would be to construct an in-pit retaining buttress before the front line of the glacier. It should be noted that construction of the in-pit buttress to hold-off the glacier is a unique engineering solution.

Monitoring results suggest that the retaining buttress is stable. Deformation rates of ice located immediately in front of the buttress have reduced.

To evaluate the construction progress and stability of the in-pit buttress arresting movement of ice on the South Arm of the Davydov Glacier, a digital model was developed in FLAC programming codes. The Model takes into account behaviour of the glacier after contact with the in-pit retaining buttress.

For a more comprehensive exposure of the effect caused by penetration of the glacier into the body of the retaining buttress and reduction of its strength, digital modelling of this situation was undertaken with consideration of time and buttress construction stages. The prediction model for evaluation of glacier influence on the in-pit retaining buttress and evaluation of its general stability is presented in Figure 4.6.

Parallel to construction of the in-pit retaining buttress, glacier unloading operations were undertaken, which reduced impact of the glacier on the buttress and improved general safety of mining operations inside the Pit.

In 2014, Kumtor achieved reduction in quantities of mined ice through construction of the in-pit retaining buttress on the South Arm of the Davydov Glacier. Current expectations are that if the in-pit retaining buttress remains to be stable, the positive effect on ice unloading quantities will be observed in future years as well.

Petrov Lake and lake out-burst risk

A related concern to that of retreating glaciers is that melting ice within natural moraine dams of high altitude lakes (normally at the foot of glaciers) could reduce dam stability and result in a sudden release of large volumes of water, known as a glacial lake out-burst flood (GLOF). Petrov Lake, near Kumtor mine, and which is the main source of its water supply, is such a high altitude lake contained by a natural moraine dam. Petrov Lake is at the foot of Petrov Glacier, which has demonstrated significant and continuing recession over recent decades.

We have supported or commissioned independent expert studies to better understand the characteristics of the moraine dam and the risks of a lake out-burst.

In response to the findings, we monitor movements of the moraine dam, commissioned a study on how to reduce water volumes in the Petrov Lake, and have begun procurement and installation of an early warning system to detect any sudden unexpected increase in lake outflow (to be completed in 2015). We will provide additional safeguards for mine infrastructure as appropriate, and continue to inform and liaise with Kyrgyz agencies on progress.

5 ENVIRONMENT

5.1 | ENVIRONMENTAL RESPONSIBILITY

Some of our stakeholders voiced concerns relating to biodiversity, geotechnical and natural hazards, waste management, glaciers and water resources, and mine closure. We have discussed these aspects in this report.

We also report on other important environmental aspects related to our hydrological setting, water treatment processes, energy use and greenhouse gas emissions.

Environmental expenditures

We operate a full time, fully staffed Environment Department of over 26 people at the mine site. Our total annual expenditure on environmental management exceeds $7.5 million for a range of activities including monitoring, laboratory analyses, external consultants, waste disposal, emissions treatment, water treatment and environmental impact prevention/minimization.

Focused environmental studies and Projects

We completed a range of focused environmental projects during 2014 – all aimed at improving our environmental management practices or our understanding of the natural environment and our impact. These studies involved staff of the Kumtor Environment Department working with international consultants, many scientists and researchers from the Kyrgyz National Academy of Sciences, Kyrgyz National Agrarian Academy, and Kyrgyz Biology and Soil Institute, as well as other national scientists, postgraduates and researchers. These projects included:

- Monitoring of traffic movement in the Barskoon Valley;
- Dust monitoring in the Barskoon Valley and Technical Road in accordance with international standards;
- A variety of fauna and hydro-biological surveys within the Kumtor concession area including observations of Marco Polo sheep, mountain goats, wolves, foxes and numerous bird species;
- Continued studies into the potential risk of CN impacts on biodiversity around the tailings dam – as part of demonstrating compliance with the International Cyanide Management Code;
- Further support and cooperation with Flora Fauna International (FFI) to improve biodiversity conservation and management in the SCER. This included training for rangers, purchase of a vehicle, finalization of the SCER Management Plan, finances for additional patrols, website development, and hydro-biological and geobotanical baseline surveys;
- Continued research into appropriate rehabilitation techniques for disturbed land, including the establishment of rehabilitation trial plots;
- Commencement of a Risk Assessment to consider potential 'gradual' release events during the Life-of-Mine and post closure;
- Bench-scale and pilot-scale laboratory research into the use of wetlands to reduce concentrations of sulphate, ammonia and heavy metals from the waste rock dump runoff and ETP discharge;
- Update of the Conceptual Closure Plan;
- Expansion of the Effluent Treatment Plant capacity by approximately 10 percent;

> “$7.5 million spent on environmental assessment and management in 2014.”

- Implementation of improved waste management practices including segregation for future recycling of >50 percent of the cardboard and paper waste produced at the mine site;
- Engineering evaluation of the condition of the TMF Diversion Channels and design flood assessment;
- Monitoring of glaciers and meteorological conditions on the Kumtor concession area and the basins of the Arabel and Uchkol Rivers;
- Various projects focused on reducing the risk related to a potential Glacial Lake Outburst Flood (GLOF) from Petrov Lake. These included a study on the options for controlled lowering of the water level in Petrov Lake; installation of key monitoring equipment to be used as part of an early warning system for a GLOF, and investigation into options to reduce potential erosion of the Tailings Dam in the event of a GLOF.

Fig. 5.1 **Spending on environmental protection (USD)**

	2012	2013	2014
Waste disposal, emissions treatment	3,473,867	3,969,131	4,036,409
Prevention and environmental management costs	2,487,124	2,878,554	3,547,008
Total annual environmental protection expenditures	5,960,990	6,847,685	7,583,418

5.2 | ENVIRONMENTAL MONITORING

Our monitoring programs follow Kyrgyz and international standards, and include:

- Water quality and flow
- Effluent quality and flow
- Biodiversity
- Soils and sediment analysis
- Air quality
- Radiation
- Waste disposal
- Acid rock drainage

The locations of key monitoring points are detailed in Figure 5.2 on the next page. Our performance status is represented in the Water Quality and Compliance section.

Fig. 5.2 **Description of Key Water Quality Sampling Points**

Station Name	Location Description
W1.1	Petrov Lake outflow - Kumtor River Head Waters (alpine glacier fed lake - elevated Al, Fe)
W3.4	Lysyi Creek before joining Kumtor River
W1.3	Kumtor River after confluence of Lysyi Creek and just before ETP discharge
TPX	End of tailings spigot – discharge into Tailings Management Facility (TMF) pond. Discharge point moves along dam wall.
T8.1	Tailings pond (feed to Effluent Treatment Plant)
T8.4	Effluent Treatment Plant discharge point into Kumtor River (MAD limits apply)
W1.4	Between Kumtor Bridge and flume 1 km downstream from ETP discharge
SDP	Treated sewage discharge point into Kumtor River (MAD limits apply)
W4.1	Head water of Arabel River diversion ditch (background level)
W4.3.1	Discharge of Upper Diversion Ditch (UDD) sediment pond to Kumtor River
W2.6	New Chong Sarytor Creek before joining Kumtor River
SWW1	Meltwater from Sarytor Glacier
POR1(1)	Pit Dewatering – discharge to Kichi Sarytor Creek
SWS.3	Kichi Sarytor Creek - before joining Kumtor River
W1.5.1	Kumtor River, just downstream from Kumtor Concession Area (voluntary compliance point)
W6.1	Arabel-Suu River, 6 km from Kumtor Concession Area (background level)
W1.6	Kumtor River, 17 km from Kumtor Concession Area (before confluence with Taragay River)
W1.7	Taragay River, 40 km from Kumtor Concession Area (Kumtor + Kashka Suu + Maitor Rivers)
W1.8	Naryn River in Naryn city, approximately 230 km downstream from Kumtor Concession Area
W1.8F	Naryn River just after Naryn city
P5.2, P5.34	Potable Water - Camp and Mill

Fig. 5.2 Key Environmental Monitoring Locations

Meteorological monitoring

We have a mutually beneficial arrangement with the Kyrgyz hydrometeorological agency. One of our monitoring stations is a formal part of the national weather network, while the agency provides us with local weather forecasts, important for safe and efficient operation in the extreme climatic conditions we work under.

We installed a dedicated automated meteorological station, first in 1996, and an additional one in 2012. These stations collect and report data in accordance with Canadian Atmospheric Environment Services protocols. The Saskatchewan Research Council in Canada is contracted to calibrate sensors and ensure they function correctly.

Hydrological flow monitoring

We track hydrological flows of the main water bodies within the concession area. These include Kumtor River and its principal tributaries (including Chon-Sarytor, Kichi-Sarytor and Lysyi Creek), Petrov Lake, and the Upper and Lower Diversion Ditches that divert the Arabel River around the tailings management facility.

The Kumtor River flow generally peaks between June and September each year. In 2014, a peak of 18.84 m^3/s was recorded on July 28, 7.59 m^3/s more than the peak in 2013. In 2014, the total annual flow of Kumtor River at the flume within the concession was 91.6 million m^3, 4 million m^3 more than in 2013. The flow at the End of Mixing Zone (also called W1.5.1), Kumtor's main water quality compliance point, was estimated to be 114.6 million m^3, 1 million m^3 less than 2013. These variations are not considered significant in the context of normal year-to-year fluctuations.

We also monitor water levels in Petrov Lake, which serves as the fresh water source for Kumtor. The highest recorded level was 3,734.06 metres above sea level in July 2014 (compared to 3,734.38 metres in 2013) and the lowest was 3,732.24 metres in December 2014 (compared to 3,732.41 in 2013). At the end of 2014, the level was 3,732.24 metres. Thus, we have observed an insignificant year-to-year change in lake water levels.

As Kumtor River flows downstream after leaving the concession area, it receives additional flow from many tributary streams and rivers. At the nearest town, Naryn, approximately 230 km downriver from Kumtor, the flow increases to an estimated 2,340 million m^3 per year.

Our water use at the mine site has no measurable impact on river flows at Naryn since the volume extracted each year from Petrov Lake represents just approximately 0.2 percent of average flow at Naryn. The treated effluent discharged back to the Kumtor River also reduces the net extracted volume.

Water quality monitoring

We follow a comprehensive program of sampling and analyses for water quality based on a network of more than 30 stations. The key stations are listed and described in Figure 5.2 in this section, with locations shown on an aerial photograph of the concession area (Fig. 5.2). Water quality results and associated discussion are in a separate section of this report: 'Water Quality and Compliance.'

Quality assurance and control

Most of our analyses are contracted to a professional external laboratory, Stewart Assay and Environmental Laboratories LLC (SAEL), part of the international ALS group. SAEL is located in Kara-Balta in the Kyrgyz Republic. We also maintain an on-site laboratory to support operational control. We routinely review our sampling program and processes, updating them as appropriate.

Our monitoring program includes a formal Quality Assurance and Quality Control (QA/QC) program for collection and handling of samples. This includes duplicate samples, blind samples, and blank samples, as well as calibration and documentation of instruments and procedures.

As part of quality control, samples are sent to expert local and international laboratories including SAEL (in Kyrgyz Republic), Saskatchewan Research Council (Canada), and Lakefield Research Laboratories (Canada). Lakefield Research specializes in cyanide chemistry and analysis.

Audits, inspections and claims

Our operations are subject to regular audits by Kyrgyz and international companies and experts. We also receive inspections from relevant national agencies and audits commissioned by Centerra Gold and the European Bank for Reconstruction and Development (EBRD).

Environmental claims

In December 2012, Kumtor received a series of claims and directives from the State Inspectorate for Environmental and Technical Safety (SIETS) and the State Agency for Environment Protection and Forestry (SAEPF). At the time of writing this report these claims wremain unresolved.

In 2014, two additional claims of KGS 448,674,748 (approximately $9 million) have been received from SIETS for compensation for allegedly lost agricultural production and loss of profits and for land disturbance at the Kumtor Mine.

As previously disclosed, we dispute the allegations made in these claims and consider them to be exaggerated and without merit.

> "In 2014, we received 50 state inspection visits, involving 151 individuals."

> No reportable environmental incidents occurred during 2014.

Environmental incidents

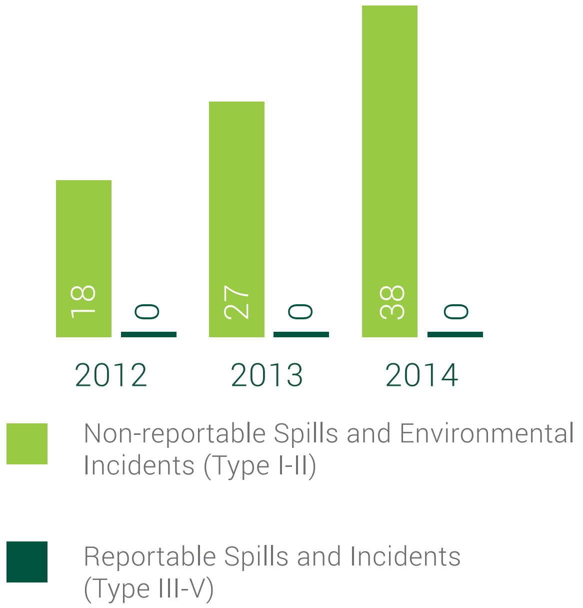
Kumtor maintains a system for reporting environmental and safety related incidents. This is based on a five category reporting system, which allows us to classify reportable and non-reportable environmental incidents and spills. The classification system considers level of environmental impact, national and other regulatory compliance, and concern of local communities.

Senior environmental staff are immediately informed of all incidents and allocate the appropriate classification level. For Type I and Type II incidents, which are considered insignificant in terms of scale and severity of impact, there are no external reporting requirements. Such incidents are also not immediately reported to Kumtor's president and Centerra's board of directors.

Incidents classified as III to V are reported to the board of directors and, in many cases, trigger external reporting requirements to relevant local regulatory agencies.

No reportable environmental incidents occurred at Kumtor during 2014. However, 38 non-reportable incidents were reported, up from 2013 (27). These were typically minor spills of fuels that were immediately contained and cleaned up, resulting in no significant or extended impact. This increase in reporting of minor incidents is not considered a drop in environmental performance, but an indication of improved environmental awareness on site.

Fig. 5.3 Environmental Incidents and Spills



Pursuing CN Code Certification at Kumtor

In addition to securing the CN Code certification of its transport operation within the Kyrgyz Republic, Kumtor continues to work towards the certification of its gold mining operations which were considered to be "substantially compliant" with the Cyanide Code by international auditors in 2012. To achieve full certification, Kumtor was requested to collect and present a variety of scientific data and wildlife observations over multiple seasons at Kumtor's large-scale tailings management facility (TMF). The size of Kumtor's TMF is equivalent to over 500 FIFA-sized football pitches. Key elements of this study, which is on-going, are highlighted below.

Designing and implementing study

Kumtor engaged a team of Kyrgyz and international multidisciplinary scientists and consultants, covering diverse fields ranging from ornithology to geochemistry, to design and implement a detailed study. As part of this process, members of Kumtor's Environmental Department were trained in order to conduct daily wildlife monitoring which supplemented additional observations conducted by experts.

New tools and methods

In support of the cyanide-wildlife study, new tools, such as a high magnification telescope, binoculars with range finder, and hand-held computer tablets for field data entry were procured. Probes measuring parameters ranging from temperature to conductivity were deployed across the tailings pond, and water samples were collected at different locations, depths and over time to characterize the chemical, heavy metal and cyanide distribution within the tailings pond. Kumtor also used a drone to help characterize the slurry flows within the tailings management facility.

Environmental context

Given extreme climatic and high altitude conditions (well above the tree line), the surface of Kumtor's tailings pond is completely frozen from November to the end of March, and is partially frozen in the immediately preceding and following months. However, throughout the year, the slurry discharge is generally ice-free and traverses across the tailings beaches (tailings deposits) before mixing with the tailings pond.

Wildlife activities

Between 1 April 2014 and 31 December 2014, daily wildlife observations reported a total of 4,232 wildlife visitations. Some bird species recorded on the tailings management facility are strongly seasonal, while other species are resident, including those attracted to Kumtor's landfill. In comparison, another gold mine in New Zealand recorded over 25,000 wildlife visitation per year to its tailings facility, and Lake Issyk-Kul supports a wintering population of some 60,000 – 80,000 water birds. Overall, the climatic and chemical composition of Kumtor's tailings pond does not make it an attractive habitat and provides very limited food resources for water fowl when the pond is not frozen.

Carcass detections

No cyanide-related deaths have been recorded during the study, although a total of six bird carcasses have been observed. Based on the chemical characterization of the tailings pond and other factors at the time, these carcasses have been attributed to background mortality. Carcass detection trials for observers and carcass removal experiments by scavengers (such as foxes and ravens) were also carried out to identify data bias. It was concluded that had it occurred, observers (including expert consultants) would have detected any significant wildlife mortality that may have been caused by cyanide within the tailings storage facility.

5.3 | BIODIVERSITY

Our commitment

As a large opencast mine, it is inevitable Kumtor has impacts on the local natural environment. We are committed to understanding our impacts, to understanding the native biodiversity, to reducing negative impacts during the mine's operational life, and to working with our partners to pursue net biodiversity gains. We feel that a critical success factor includes consulting with, and working with local, national, and international stakeholders. Further information is available on our website via the link below, from where our full Biodiversity Management Strategy and Plan (2012) can be downloaded at: **www.kumtor.kg/en/environment-protection/biodiversity**.

Regional context

The Tian Shan mountain range is one of the longest in Central Asia, stretching approximately 2,800 kilometres through mostly the Kyrgyz Republic and China. The region features globally important biodiversity and is home to a number of endangered species including the snow leopard, and the Marco Polo sheep (Argali).

The snow leopard is an important cultural symbol in Central and South Asia and features widely in local folklore. Other species of concern include an aquatic plant in the Ranunculus family (Hedysarum kirgizorum), which is also included in the Kyrgyz Red Data book, possibly endemic species of dandelion (Taraxacum syrtorum), and a tulip (Tulpe tetraphylia).

Ecosystem services

Ecosystem services are the benefits that people and businesses derive from ecosystems. Kumtor mine is remote, with no villages close to its boundaries that could be impacted by day-to-day operations at the mine site. The nearest village, Ak-Shyirak, with a population of approximately 120, is located approximately 80 km from the mine in a different valley.

Agricultural activities for the Ak-Shyirak community, such as crop growing, are very limited due to the harsh high altitude climate. Their livelihood is reliant on grazing sheep, goats, and other livestock, in addition to government-funded support. There is also seasonal sheep grazing in the valleys leading to the Kumtor mine site.

> Wildlife numbers have increased since mining started;
>
> We work with NGO partners to support nature conservation;
>
> We support the neighbouring Sarychat-Eertash Nature Reserve.

While there is little scope for Kumtor's operations to negatively impact on ecosystem services of Ak-Shyirak, our support – alongside contributions by other key nature conservation players – for biodiversity conservation (described below) is expected to generate positive benefits for the wider region.

Glacier-fed rivers, including the Kumtor River, which originates from Petrov Lake, form part of an important ecosystem service for a broader range of communities in the Kyrgyz Republic and for the Kumtor Mine itself. The Tian-Shan region also contains significant grasslands, which provide carbon storage and sequestration services.

Sarychat-Eertash Nature Reserve

At Kumtor we have worked with stakeholders concerned about nature conservation since the start of our operations in the mid-1990s. This early engagement, including involvement by European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC), contributed to the creation of the Sarychat-Eertash Nature Reserve (SCER), established by a government decree in 1995.

A draft management plan for the SCER reserve was published in 2008. Its development was facilitated by Flora and Fauna International (FFI) and co-financed through the EBRD and the IFC, both multilateral lenders to the Kumtor Project. In 2014, the management plan was finalized by FFI and submitted to the State Agency on Environment Protection and Forestry for formal approval. The document had been reviewed by the appropriate departments within the Agency and initial comments received and addressed by the SCER team.

In November 2014, we extended the Memorandum of Understanding with FFI for another two years. This MOU is based on the principle of mutual cooperation with the primary objective to deliver biodiversity conservation and management in SCER and the wider surrounding Tien Shan landscape. Founded in 1903, FFI is the world's longest established international nature conservation organization, operating in more than 40 countries worldwide. The Kyrgyz State Agency of Environment Protection and Forestry (SAEPF) had previously recognized FFI's activities by awarding it with Honorary Diplomas in recognition of its conservation initiatives and achievements in Kyrgyzstan.

Funded by Kumtor through this MOU, FFI continued its efforts to support the SCER by conducting the following activities and implementing the following projects in 2014:

- Training for rangers – review of latest protected areas management, wildlife monitoring, local communities interaction and field safety practices;
- SCER Management plan – submitting the finalized version to SAEPF;
- Patrolling – additional patrolling of the border and main access point during the hunting season was organized to reduce the risk of borderline violations;
- Website development – commenced in 2014 which will provide basic information about the reserve and cover its activities, more information at: **www.sarychat.kg**;
- Raising awareness for local communities – aimed to disseminate information among local citizens on the reserve, its objectives, activities, legal aspects and importance of wildlife conservations;
- Hydrobiological baseline surveys – to identify key invertebrate species and map species distribution according to the sampling spots;
- Geobotanical baseline surveys – which allows identification of vertical vegetation zones, mapping different geobotanical zones, and listing vascular plants; this data is the essential part of the reserve natural objects' assessment, it will be used for future monitoring of ecosystem against the current status, if changes take place.

5.4 | ENERGY USE AND CARBON EMISSIONS

Energy Consumption

Our large scale mining operation is a significant consumer of fuel and electricity. Fuel represents over 20 percent of our commodity and service-related purchases. Diesel and gasoline are the preferred choices for many applications such as vehicles and essential generators. However, wherever feasible, we use electricity. The most energy-intensive operation is the mill, representing approximately 75 percent of our electricity consumption.

We continue to calculate and monitor our greenhouse gas (GHG) emissions, and explore ways to reduce them as part of energy conservation measures. Our calculations include our three main sites, the mine, Balykchy Marshalling Yard, and Bishkek head office. However, the mine represents around 98 percent of energy use, and the only site using explosives. We include explosives in our GHG emission calculations as it was determined to be a significant component of the total emissions.

The Kyrgyz Republic generates more than 70 percent of its electricity through hydropower. In fact, the Kyrgyz Republic is a leading producer and exporter of hydroelectric energy in the Central Asia region, due to its mountainous terrain and abundant water resources. The major source of the power supplied to Kumtor is from the Toktogul Reservoir located on the Naryn River. This means that our specific GHG footprint generated from electricity is relatively low. It also means that efforts that reduce or replace our fuel consumption with grid power offers the greatest value in terms of reducing our GHG emissions.

GHG emissions and intensity

Scope 1 (direct) total GHG emissions increased compared to 2013 mainly because of increased diesel and explosives usage. Scope 2 (indirect) total emissions have remained fairly stable. Kumtor's GHG intensity, a measure

Fig. 5.4 GHG Intensity Ratio

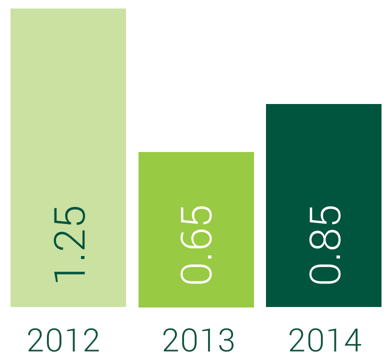
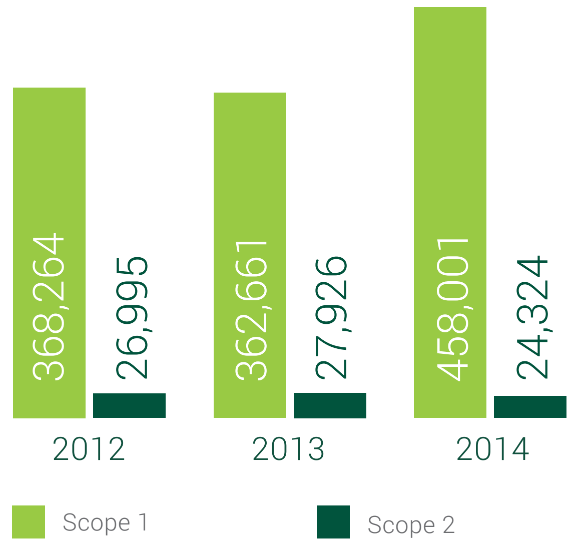


Fig. 5.5 GHG Emissions (Tonnes CO_2)



that normalizes GHG emission to gold production, is higher than for 2013 primarily due to increased emissions in 2014 and slightly lower gold production.

Energy conservation measures

We aim to reduce our GHG intensity by reducing our specific energy consumption and by increasing energy efficiency. We switch from diesel generators to grid electricity, wherever and whenever feasible, for such uses as mine-site lighting, dewatering pumps, and other equipment. This reduces both costs and our GHG footprint.

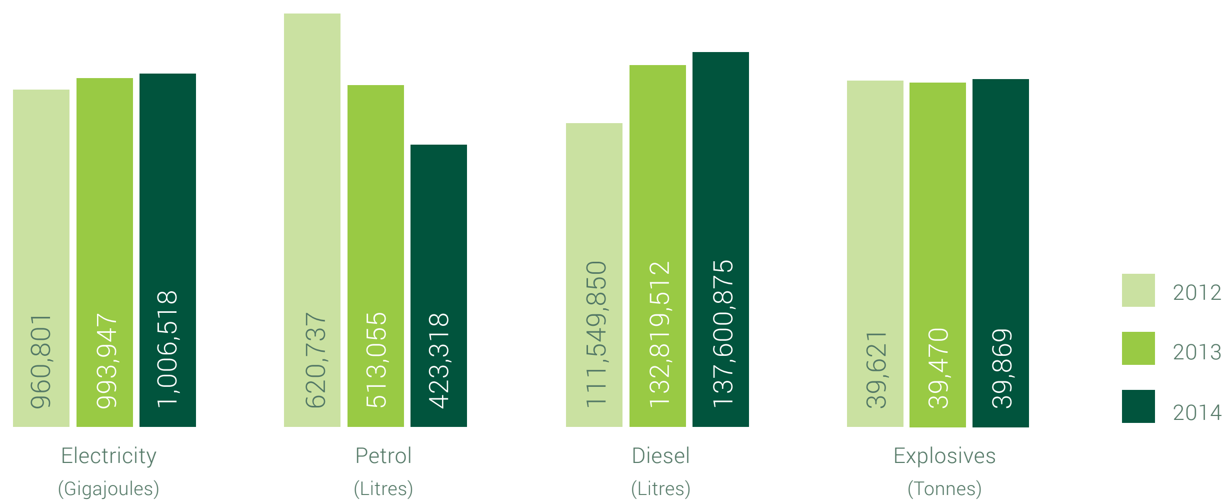
After the mill, our truck fleet is the largest energy consumer. Our program of reducing vehicular-related fuel consumption, has the benefit of reducing use of energy and carbon-intense consumables. For example, we are transitioning to more fuel-efficient engines and have a pro-active program to reduce the need for, and occurrence of running engines on parked vehicles.

We have also implemented energy conservation measures ranging from the installation of low wattage, hight efficiency lighting systems, better insulation in camp buildings, and encouraging behavior changes. However, such activities do not make a material difference to our GHG footprint due to the fact that these energy uses are very small, compared to major operational energy use, and because electricity already has a low GHG intensity.

We continue to explore approaches that may help reduce our energy and GHG intensity but because electricity is already mostly from renewable sources, the scope is limited.

> The electricity we use is mostly from renewable sources;
> We monitor and publicly disclose our carbon footprint;
> We apply energy and fuel efficiency measures;
> We switch from diesel to low carbon electricity where feasible.

Fig. 5.6 Electricity, Fuel, and Explosives Consumption



External reporting

As in previous years, Kumtor's carbon footprint is reported through Centerra's participation in the Carbon Disclosure Project. This is an independent international not-for-profit organization that tracks and reports corporate information pertaining to climate change. The data for individual companies is publicly available.

5.5 | AIR EMISSIONS

Road dust, dispersed by the movement of light and heavy vehicles, is the principle source of observable and measurable air emissions along our access road through the Barskoon Valley. Concerns have also been raised about mine dust deposition on nearby glaciers.

Regular monitoring of ambient air quality for particulate matter is a component of our environmental monitoring program. The results and our related activities are discussed in this section.

Dust in Barskoon Valley

Access to the site, for personnel and delivery of consumables and other materials, is via an unsealed road (called the technical road) maintained by Kumtor, which passes through the Barskoon Valley. This road also serves as an access road to tourist sites, several small communities, including Ak-Shyirak village, summer pastures and 'hunting farms' in the high altitude valleys, and the Sarychat-Eertash Nature Reserve. Consequently, this road brings not only the supplies and people needed for mining operations, but also residents, researchers, hunters, and tourists.

Following stakeholder concerns about dust levels in the Barksoon Valley, we expanded our road watering activities and continued monitoring of dust levels. As in previous years, three high-volume air samplers were installed during the summer of 2014 to measure the total suspended particulate (TSP) concentrations in the air. Sampling results for July and August of 2014 (normally the drier and dustiest time of year) are higher than the average of recent years. In summer of 2014 we observed an increase in the number of tourists to the Barskoon gorge, which negatively affected the dust levels. In July 2014 we recorded an exceedance of the applicable standard of 100 micrograms per cubic meter (μg/m³). In August, two results exceeded the applicable standard of 100 μg/m³. This is attributed to a short-term higher incidence of road traffic, including non-company vehicles, which occasionally occur. To verify that the company vehicles are not the sole source of dust, in autumn of 2014 we installed a radar device which records any vehicle passing by at a speed faster than 10 km/hr. Also, along the whole technical road going to the Mine we installed dust fallout gauges to measure the amount of dust in the air, which will be monitored monthly starting in 2015.

Concerns have been raised that dust adversely impacts some flora immediately adjacent to the road, that it is a driver of landslides originating from steep slopes (which often follow significant rain events), that is endangering a rare tulip species (Tulipa tetraphylla).

Some stakeholders from villages near the Issyk-Kul Lake, claim they are being adversely affected by dust and other air emissions emanating from the mine. However, the separation of these villages from the mine by a mountain range, and a radial distance of tens of kilometres, rules out the mine as a source of air pollution. Burning of rubbish and other uncontrolled air emissions are known to be commonplace in these village areas, and therefore, a much more likely source of emissions.

Fig. 5.7 **Dust Monitoring in the Barskoon Valley (μg/m³)**

Sampling Points (Stations)	Jul 2012	Aug 2012	Aug 2013	Sep 2013	Jul 2014	Aug 2014
#1	28	31	20	120	87	175
#2	63	22	33	93	126	304
#3	92	25	12	163	-	248
Recommended MAC*	100	100	100	100	100	100

Note: *#1 sampler was located 50 meters south of the road from the upper Kamaz truck monument; #2 sampler was located to the north of the road, towards the Barskoon River; #3 sampler was located 50 meters to the north of the road, opposite to the Kamaz truck monument, towards the Barskoon River.*

** Recommended maximum admissible concentration (MAC) standard for populated areas*

"We maintain mine roads and use water trucks to suppress traffic-related dust;

We expanded our dust mitigation program in response to community concerns."

NEW TYPE OF MONITORING ON THE TECHNOLOGICAL ROAD

Kumtor Gold Company initiated a new type of monitoring on the technical road, leading to the mine. The road is ninety kilometers long and passes through the Barskoon village of Jeti-Oguz district.

Two types of special devices were installed along the road with the assistance of independent experts, representatives of the public environmental organizations, as well as members of the Jashyl Oi youth eco-camp. The first device – an automated counter that collects data on the number of passing cars, their size, and the direction of their movement. The second type – dust fallout gauges which were installed in forty locations along the road. Monitoring of dust at these locations will be implemented in two ways - analysis of the total amount of dust which is deposited over a month period, and the concentration of heavy metals in the dust.

These devices have been installed by Kumtor in response to the recommendation of AMEC, an international consulting company, which advises the Kyrgyz Government on environmental issues in the negotiation process with the Centerra Gold Inc.

"The purpose of this work is to get scientifically proven data on the influence of dust on the environment. All results and measurements will be sent on a monthly basis to the independent laboratory Alex Stewart. Once we get the data, we can make informed judgments and take any required action if necessary", said Ben Ferris, Environment Director at Kumtor Gold Company.

Air quality at the mine

We routinely monitor and report the air quality at our mine site. This effort is supported by six high-volume samplers located strategically around the mine site to measure total suspended particulate (TSP) levels. At all stations, the annual average TSP concentration has been below the Kyrgyz 24-hour TSP limit of 500 μg/m³ for industrial zones.

Our analysis suggests that during spring, occasional point exceedances are related to commencement of tailing dam works, which typically start at that time. In winter, occasional point exceedances are related to exposure of dried tailings to occasional strong winds. When point exceedances occur, additional dust suppression actions are taken. We continue to explore options to further reduce dust uptake from the dried tailings beaches within the tailings management facility, and ways to reduce the 'freeze dry' effect from the discharge of tailings slurry during the coldest days of the year, as this can also contribute to dust emissions.

Selected TSP samples are also analysed for cyanide, sulphur, arsenic, nickel, selenium, zinc, uranium, radium-226, and strontium-90. Consistent with previous results, the 2014 monitoring data, which are presented in the appendix, demonstrate that the results are orders of magnitude below their relevant threshold limit values.

Fig 5.8 **Average Annual Dust Concentration at the Mine (TSP in μg/m³)**

Station	2012	2013	2014
A1.1	97	66	76
A1.2	131	-	-
A1.2a	-	91	72
A1.3	77	56	-
A1.3a	-	-	63
A1.4	54	84	69
A1.5	49	84	-
A1.5a	-	-	59
A1.6	28	56	30

Note:
TSP is total suspended solids, Kyrgyz 24 hour TSP compliance limit for industrial zones is 500 μg/m³.
Compliance limit is 500 μg/m³.
Monitoring station locations change occasionally along with changing footprint of the mine.
Annual average results only shown for locations with more than 6 months of data.

5.6 | WATER USE AND TREATMENT

We use water for operational activities, mostly in the mill, and for domestic use (drinking and sanitary) in the mining camp, offices, and workshops. We must also remove water from the mine pit in order to keep the works safe and stable.

Our main water management responsibilities are:

- Providing safe drinking water for our employees;
- Removing water and ice from the open pit to ensure access to ore, and stable and safe working conditions;
- Ensuring water returned to the natural environment is safe and meets defined quality criteria;
- Managing run-off to reduce sediment load entering surface water.

An information brochure describing Water Management at Kumtor can be downloaded from our website at: **www.kumtor.kg/en/environment-protection/water-management**.

Water sources

We have two primary sources of water at the mine site. Most of the water we use is extracted from Petrov Lake. We must also pump large volumes of water from the open mine pit to maintain stable and safe working conditions, some of which we can use at the mill, thus reducing our demand from the lake.

In 2014, we extracted approximately 5.62 million m^3 of water from Petrov Lake, which was very similar to the previous year (5.52 million m^3).

In 2014, we pumped a total of 8.72 million m^3 of water from the pit, including groundwater and glacier melt water. Of this, 0.56 million m^3 was used in the mill with the remaining approximately 8.2 million m^3 discharged to the environment.

Operational water use

Our main use of water is as process water in the mill, for crushing the ore and processing it to produce gold. The mill used a total of 5.96 million m^3 of 'make-up' water in 2014, of which 5.4 million m^3 was from Petrov Lake and with the remainder collected from one of the mine pits.

The use of pit water, which reduces our demand on Petrov Lake, has increased from zero in 2011 to 0.56 million m^3 in 2014. In addition, nearly 5.5 million m^3 of water was re-used within the mill (approximately the same as previous years). Due to higher throughput at the Mill in 2014, intake of water from the Petrov Lake increased by 3 percent, or approximately 150,000 m^3.

Drinking water

We also use treated water from Petrov Lake for domestic uses (drinking and sanitary) at the mining camp, the mill, and other working buildings. Domestic water use in 2014, was about 160,000 m^3, representing just 3 percent of the freshwater we collect from Petrov Lake. Drinking water quality is routinely monitored for safety and compliance.

Pit dewatering

We collect and discharge large quantities of water as a necessary part of our pit dewatering program to keep the pit stable and safe. Some dewatering occurs throughout the year, but most occurs during the summer period when large quantities of glacial melt water collects in the open pit. The majority of the pit water is discharged to the environment. In addition, nearly 0.56 million m^3 of water collected in 2014 from the North pit is pumped to the mill to supplement process water.

Water treatment

We source both industrial and drinking water from Petrov Lake, which is largely derived from glacial melt water. This means it exhibits naturally high concentrations of sediments, giving the lake a characteristic milky appearance, along with elevated background concentrations of some parameters such as iron, aluminium, and suspended solids.

Process water does not require treatment beyond settlement of sediments. However, the water quality of Petrov Lake does not meet hygienic drinking water standards without treatment. We apply treatment methods standard for public supplies around the world. These include flocculation, filtration, chlorination, and ultra-violet treatment. In combination, these processes remove fine sediments (which may carry metals) and disinfect the water for safe storage and use.

> Water pumped from Petrov Lake has reduced by 11% between 2011 and 2014;
>
> Kumtor's water intake is about 7% of natural throughflow of Petrov glacial lake;
>
> Kumtor treats its industrial and domestic effluents to meet prescribed standards prior to discharge.

Fig. 5.9 Water Use and Treatment

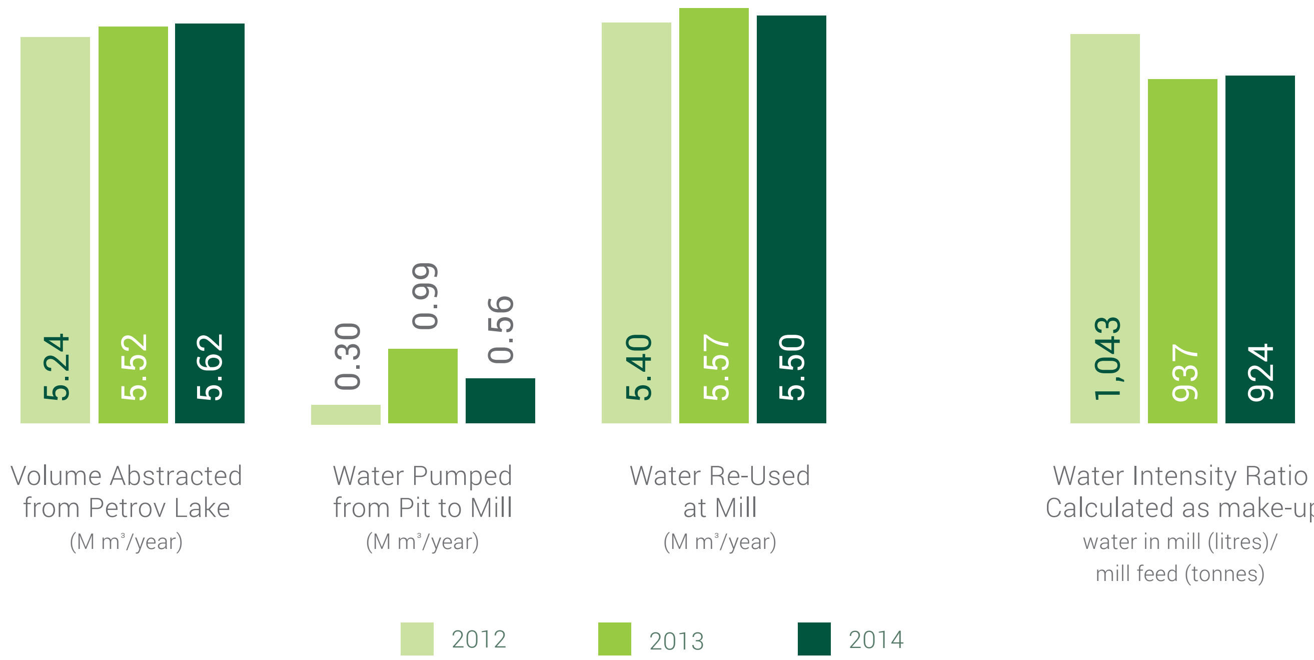


Fig. 5.10 **Water Usage**

	Units	2012	2013	2014
Sources of Water				
Total Water Extracted from Petrov Lake	M m³	5.24	5.52	5.62
Pit water pumped to the Mill	M m³	0.30	0.99	0.56
Pit water pumped to the environment	M m³	10.8	10.9	8.2
Water used for Domestic Purposes				
Water Used for Camp domestic purposes*	M m³	0.20	0.19	0.14
Water Used for Mill domestic purposes*	M m³	0.02	0.02	0.02
Water used for Process/Mill				
Raw water used at Mill*	M m³	4.96	5.24	5.40
Total water used at Mill (Petrov Lake + Pit water)	M m³	5.26	6.24	5.96
Water internally recycled at Mill	M m³	5.40	5.57	5.50
Ore Feed to Mill	Tonnes	4,756,094	5,596,251	5,839,623
Raw Water Intensity Ratio	Litres/Tonne Mill Feed	1,043	937	924
Water used for Dust Supression				
Water used for dust supression	M m³	0.06	0.07	0.07
Wastewater Discharged to Environment				
Treated wastewater discharged from ETP	M m³	5.07	2.80	4.70
Treated wastewater discharged from STP	M m³	0.16	0.15	0.14

**from Petrov Lake*

Sewage treatment

We have two systems to treat wastewater before safe discharge to the environment. Sanitary waste water is treated at the sewage treatment plant (STP). This uses standard processes of biological treatment and chlorination. The biological treatment removes the 'oxygen demand' of organic matter, which would otherwise use up oxygen in the river and reduce its quality. Chlorination is provided to eliminate potentially harmful bacteria. Although challenging to operate at high altitude with low oxygen and harsh weather conditions, treatment is achieved successfully through careful design and management. During freezing winter conditions, treated effluent is stored in a holding pond prior to gradual discharge during summer. In 2014, approximately 140,000 m³ of sewage was treated and discharged.

Industrial wastewater treatment

Industrial wastewater containing residual cyanide is a component of tailings slurry discharged by gravity flow from the mill to the tailings management facility (TMF).

The liquid component of tailings, approximately 51 percent of the slurry, is pumped to, and treated in compliance with established standards, at the effluent treatment plant (ETP) before being safely discharged to Kumtor River. Due to the freezing winter conditions, the treatment and discharge of wastewater is restricted to the warmer season, typically from June to November.

The main stakeholder concern regarding wastewater from Kumtor is related to cyanide, an essential chemical used routinely in the processing of ore to recover gold. Cyanide can be toxic at higher concentrations.

Approximately 8.0 million m³ of tailings were discharged into the tailings pond in 2014. This tailings contain residual levels of cyanide and other constituents which could be harmful to the environment if discharged untreated. The solids component is retained in the TMF, while the majority of liquid component is pumped to and treated at the ETP to reduce and remove cyanide, metals, and other elevated contaminants prior to discharge. We use the patented INCO treatment process, and operate one of the largest such plants outside of North America.

In 2014, approximately 4.7 million m³ of industrial wastewater from the tailings ponds was treated and discharged to the environment, 1.9 million m³ more than in 2013.

Our extraction of water from Petrov Lake has no measurable impact on average annual lake water levels and the level fluctuates naturally by about 2 metres during the year.

Our total water extraction from Petrov Lake of 5.62 million m³ in 2014 represents approximately 7 percent of its natural outflow to Kumtor River. We then returned 4.8 million m³ as treated wastewater (STP plus ETP) making the net impact on Kumtor river flow near neutral.

Water use intensity

Metallurgical challenges limit our ability to drive down our water use intensity by recycling effluents from our tailings pond. Studies have shown that even low levels of cyanide in the tailings pond would adversely affect our gold recovery process. However, in July 2012, we began to use water from pit dewatering in the mill. As a result, we are seeing a decreasing trend in the water use intensity of our operation, reflecting the positive impact of in-mill recycling and using an increasing proportion of water from pit dewatering.

Managing run-off

We continue to improve the management of surface run-off from snow and ice melt emanating above the rock dumps. As much as possible, we divert clean meltwater from Davydov and Sarytor glaciers away from the central valley and Sarytor rock dumps into the Kichi Sary-Tor stream. We also constructed a number of settlement ponds along Lysyi valley to collect large sediment particles. A pipeline diversion system will be constructed in 2015 in Lysyi Valley to direct ponded surface water around the Lysyi rock dump.

5.7 | WATER QUALITY AND COMPLIANCE

Drinking water

The water we use at the mine site for standard domestic use (for drinking, food preparation, personal hygiene and general cleaning of the mine camp and offices) is routinely tested against Kyrgyz, Canadian and World Health Organization (WHO) drinking water standards. Our drinking water is compliant with these standards, and therefore safe for all relevant uses.

Environmental water quality testing

We sample and test water quality at over 30 points across the Concession area, the key ones of which are listed and shown in the Environmental Monitoring Section. Sampling points are selected from a combination of legal obligations and additional commitments related to our environmental management responsibilities and programs.

Our main compliance point is where surface water converges downstream of our operations, below where treated water is discharged to the river and shortly after leaving the concession area.

This point, designated W1.5.1, and also referred to as 'End of Mixing Zone', was chosen by Kumtor to be protective of the intent of the Environmental Management Action Plan (EMAP) and the water quality in the Kumtor River. Any exceedance of water quality criteria at W1.5.1 triggers us to examine the data at W1.8, the monitoring point 1 km upstream of Naryn City, which is the nearest downstream community. Results for 2014 are presented in the bar chart, which includes the Kyrgyz maximum allowable concentration (MAC) values recommended for river basins providing public water supply.

Our results show that the majority of water quality parameters in 2014 were below the respective MAC values. This means we have been in material compliance with key water quality standards. However, we identify some areas where we fall short, and explain any planned steps to address these.

Overall, the glacial origin of surface water sources in the Kumtor project area results in them having elevated sediment loading (suspended solids), visible in the generally milky appearance of the water. This sediment loading influences the total metal concentrations, resulting in elevated results for a variety of metal parameters such as aluminum, copper, iron, and zinc. This naturally elevated background condition was documented in baseline monitoring prior to the start of Kumtor mining operations.

Elevated background concentrations are also reflected in water quality results from Petrov Lake, the source of Kumtor River and located upstream of the mine. The presence of sediments and associated metals, is not indicative of poor environmental performance of Kumtor mine.

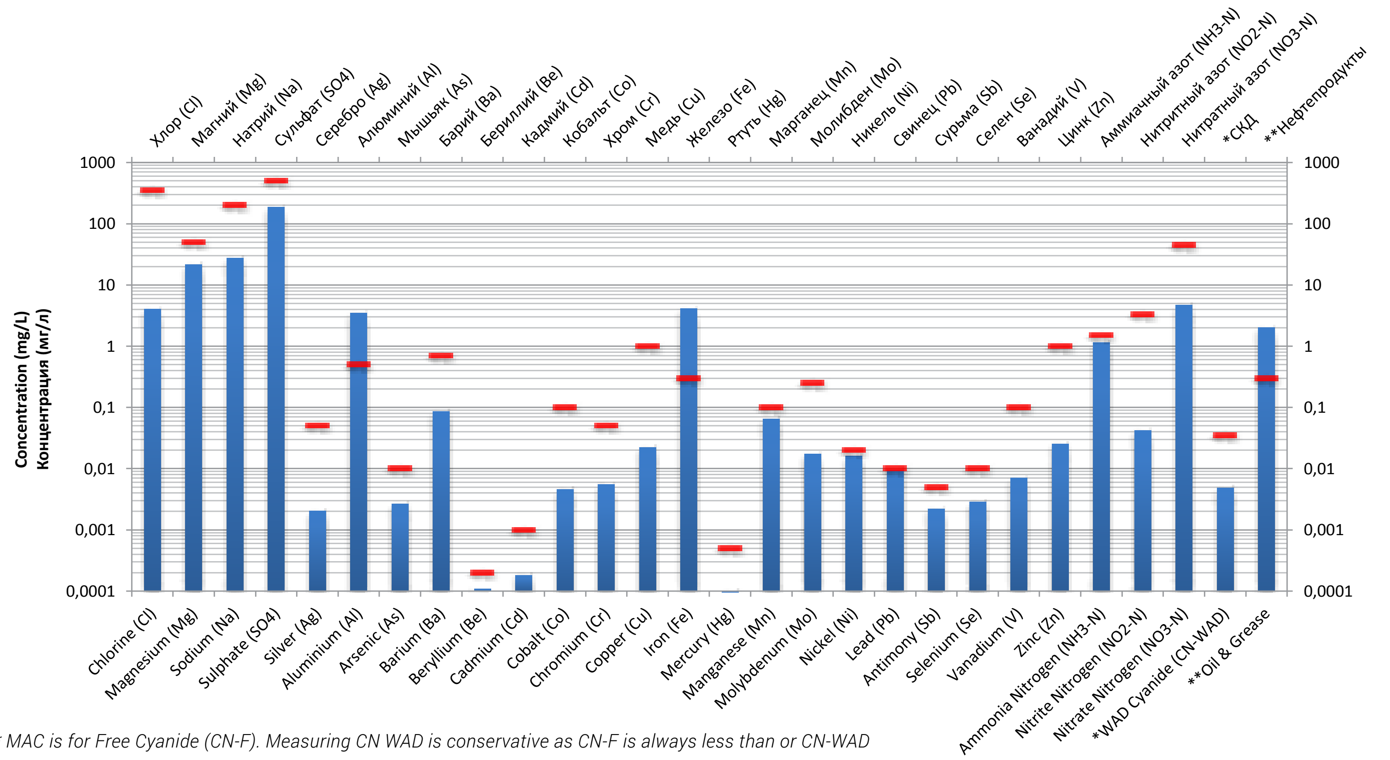
Kyrgyz standards refer to total metal concentrations, whereas international environmental water quality standards are more commonly based on dissolved metals, which is more indicative of environmental impact and risk. We take these aspects into consideration when evaluating water quality at Kumtor.

A review of results from 2014 shows the average total aluminum and iron concentrations exceeded the MAC standards. However, they remained consistent with the naturally high background concentrations in the region, which can be of the same order or higher. These results do not represent a significant risk to human health or the environment, as iron effects are mainly aesthetic (taste, visual appearance). These are some of the most abundant metals in the Earth's crust, and therefore not unusual to see at these concentrations.

> We follow a comprehensive program of sampling and analyses for water quality based on a network of more than 30 stations within the concession area.

> Our drinking water is safe and compliant;
> All our wastewater is treated and is environmentally safe before discharge.

Fig 5.11 **2014 Water quality data in the Kumtor River at the end of the Mixing Zone and Kumtor concession area (location W1.5.1)**



** MAC is for Free Cyanide (CN-F). Measuring CN WAD is conservative as CN-F is always less than or CN-WAD*

*** Laboratory detection limit - 2.0 mg/L. Kumtor is pursuing a more appropriate parameter to represent oil products in discussion with regulators*

Of all samples analyzed for oil and grease in 2014, all results were reported as below the laboratory detection limit of 2 mg/L. As such, the result of our annual average oil and grease concentrations for 2014 is conservatively presented as being equal to the laboratory detection limit. The applicable Kyrgyz MAC standard is 0.3 mg/L, or approximately one seventh of the laboratory detection limit for oil and grease. This results in the appearance of exceedance at our compliance point(s) even though there has been no positive detection of these substances in any of the samples analyzed. A recent investigation into this matter suggests that our previous interpretation of the MAC for Communal Use streams and resulting laboratory analysis of "oil and grease" may not have been the most appropriate. We are pursuing a more appropriate parameter and laboratory analytical method to represent oil products with a suitably sensitive detection limit for comparison to the MAC for Communal Use streams. From 2015, oil product samples will be sent to a Canadian laboratory (ALS in Kara-Balta cannot do such tests) to determine various derivatives of hydrocarbons to assess compliance with the MAC.

Sulfate is a source of concern for some of our stakeholders who associate it with acid rock drainage (ARD). However, our average annual sulfate level continues to be below its MAC. ARD is a process, which can generate acid leachate and release metals into the environment. This topic is discussed further in the section on waste rock and ice in this report.

Effluent treatment plant discharge

Given the extreme climate conditions at the mine site, Kumtor's effluent treatment plant (ETP), which treats the effluents contained in the tailings management facility (TMF), generally operates between June and November each year (when water is not frozen). In 2014, the average discharge rate was about 1,400 m^3/h.

During the water treatment season, the Kumtor River, which receives treated discharge from the ETP, is not frozen and exhibits significant flow volumes. In 2014, the peak flow of the Kumtor River was recorded at 18.84 m^3/s in July, and the minimum flow during the period of discharge was 1.5 m^3/s.

The 2014 ETP discharge water quality results are presented in Figure 5.12 (note log scale). The results are compared to the MAD standards and discussed below. The results show that treated effluent discharge concentration of cyanide and certain other key parameters met their respective MAD standards. However, the concentration of ammonia-nitrogen (a by-product of the cyanide destruction process) exceeded its MAD value.

In response to this exceedance for ammonia nitrogen, we plan to work with the Kyrgyz regulators to apply commonly used ecological risk-based approaches and develop a more site-specific standard for the ETP discharge which takes into account background concentrations, internationally accepted limits and the environmental toxicity of the discharge. In addition, during 2015 we will continue with the pilot-scale laboratory and on-site research into the use of wetlands to reduce concentrations of ammonia from the ETP discharge.

Sewage treatment plant discharge

In 2014, the average generation of wastewater and sewage was approximately 373 m^3/day. The annual average STP discharge water quality met all required MAD standards as shown in Figure 5.13.

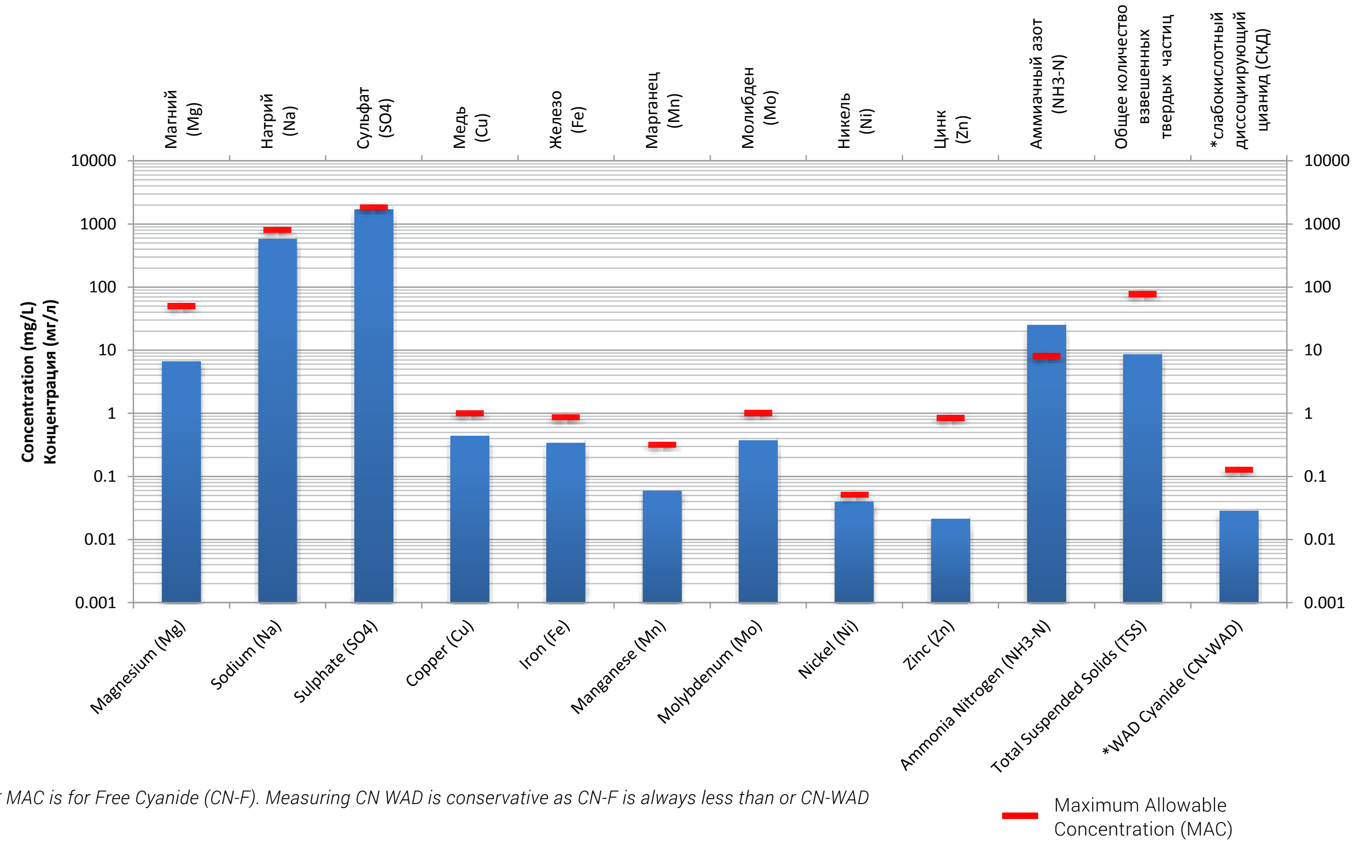
External water quality testing

Our operations are routinely subject to inspections by local government agencies, who notify us of any concerns identified. We then respond or address concerns accordingly.

Monthly and historic results

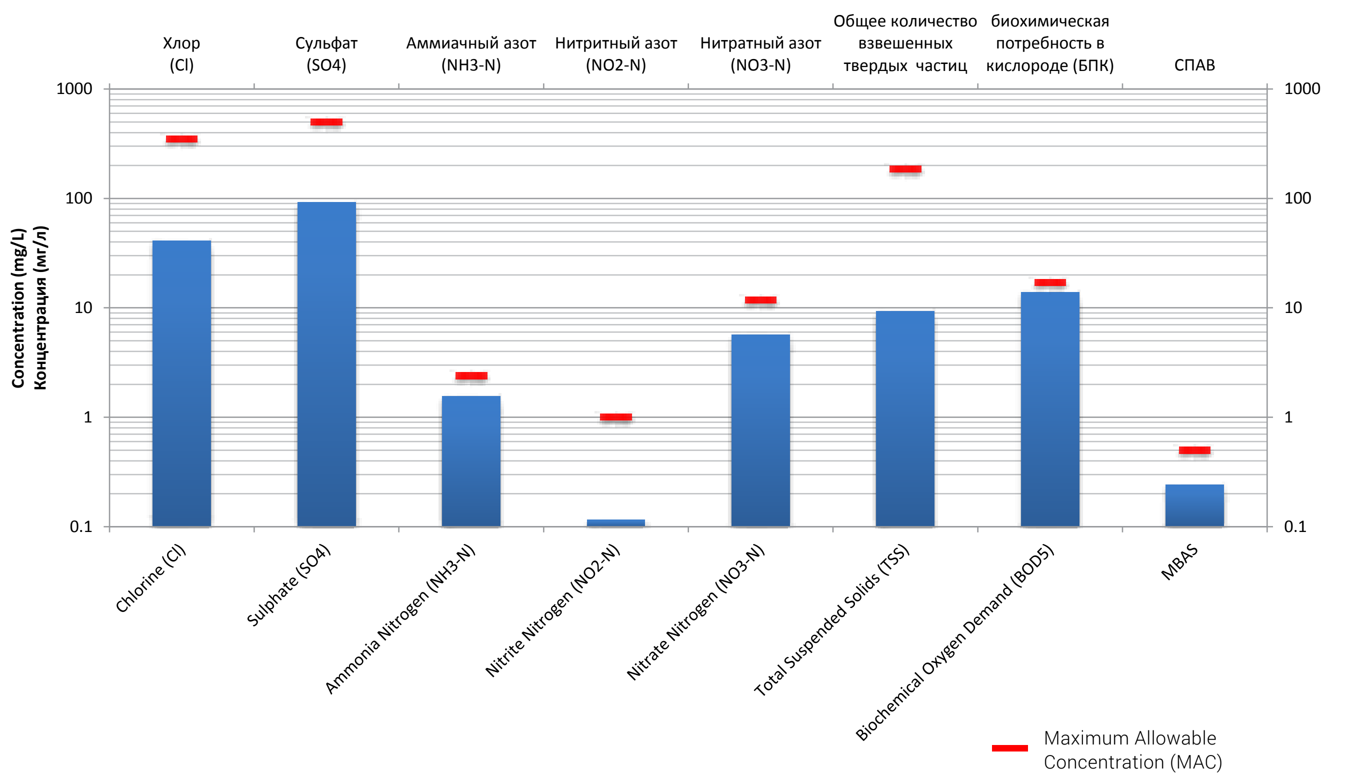
Average monthly monitoring results are presented in the appendix. Monitoring results from previous years are presented in past annual environmental reports, which are also available on Kumtor's website.

Fig. 5.12 **2014 Water quality data at the discharge point of the Effluent Treatment Plant (location T8.4)**



** MAC is for Free Cyanide (CN-F). Measuring CN WAD is conservative as CN-F is always less than or CN-WAD*

Fig. 5.13 **2014 Water quality data at the discharge point of the Sewage Treatment Plant (location SDP)**



5.8 | WASTE MANAGEMENT

Waste management practices

Being a large-scale mining operation, Kumtor understands the importance of waste recycling and in this regard operates in compliance with operating instructions concerning waste management, materials handling and worker safety.

We are committed to the ongoing improvement of our waste management strategy. In November 2013, international consultants completed a review of our waste management practices and developed an 'integrated solid waste management plan in accordance with good international industry practice.' Currently, work is actively being done to implement priority measures from this report to improve waste management efficiency and minimize the amount of waste generated.

Major waste streams

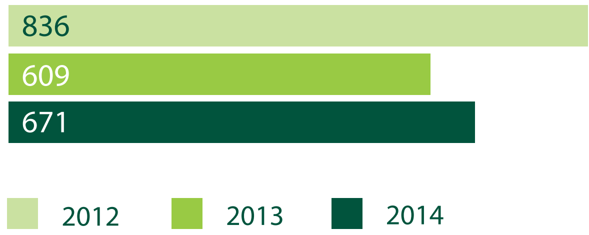
Our operations produce several key waste streams. These include domestic, industrial, and hazardous waste. Domestic waste typically include food waste and paper materials from camp facilities and offices. Industrial waste typically include plastic containers, wood, scrap metal, waste oil and fluids, and tires. Our main hazardous waste include cyanide packaging, batteries, medical waste, and expired reagents.

Waste handling

Our waste collection and disposal areas are currently located within the final footprint of our tailings management facility. These areas will eventually be covered by tailings and subject to mine closure.

Our waste management facilities include a sanitary landfill for domestic waste, primarily generated by the offices and accommodation camp with a typical population of up to 1,600 people. The per capita domestic waste generation at Kumtor is approximately 1.4 kg/person/day, which compares to approximately 2.0 kg/person/day in the United States in 2013 as reported by the US Environmental Protection Agency. We also maintain separate lined landfill cells for oily rags and cyanide packaging.

Fig 5.14 Domestic Waste Total
(weight in tonnes)



Waste recycling

Waste such as scrap metal, wood, and waste oil are provided to third parties. Waste materials with a potential to be recycled or reused, are temporarily stored on site if feasible recycling options become available. This includes waste tires.

Currently, the local market for such services is under developed, however, in late 2014 a contract was signed with a local contactor that recycles tires using the pyrolysis method. In 2015, trial tire recycling will begin to test this method and assess any potential environmental impacts. During 2013, Kumtor achieved 100 percent recycling of its scrap metal, batteries, waste oil and scrap timber through local vendors.

We re-use scrap metal in the production of grinding balls. The local company Vulkan Plus produces different size steel balls used for ore grinding at the Mill. In 2014, Kumtor spent more than $3.1 million on the purchase of 25 mm diameter grinding balls. We also started purchasing trial portions of other size steel balls - 30, 40, 50, and 60 mm in diameter. It is noteworthy that the cooperation with Vulkan Plus began with only the purchase of small grinding balls, however in 2014 they were able to produce almost all sizes of balls needed at the mill and they now employ 120 people.

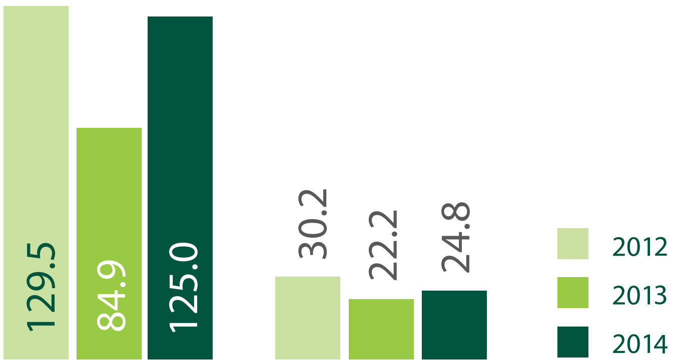
> "We recycle 100% of our scrap metal, waste oil and wood through local vendors."

Fig. 5.15 Industrial Waste
(weight in tonnes)

Waste disposal

In 2014, KGC initiated development of the design for construction of new landfills for solid domestic waste, hazardous waste and temporary sites for disposal of waste oil. The design underwent all state expert review and approval processes. We received a permit for construction of the facilities and commenced construction. The design and construction were carried out by taking into consideration modern engineering standards as well as requirements to comply with the national environmental legislation. The construction was completed by the end of 2014, and the Government acceptance inspection is scheduled for 2015. The commissioning of new landfills will minimize any environmental impact from waste disposal.

Fig. 5.16 Hazardous Waste
(weight in tonnes)



> “Recycling of tires is hampered by difficult and costly, modern, environmentally friendly waste tire recycling methods;
>
> We are pursuing a more integrated waste reduction and management strategy.”

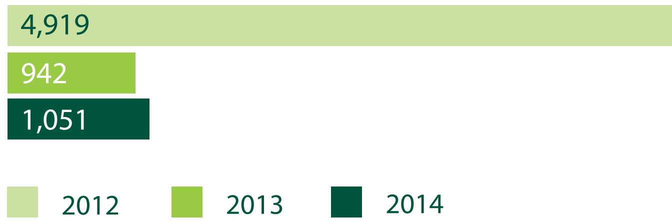
IMPROVING PRACTICES

In response to recommendations provided by Kyrgyz government-sponsored commissions and other internal and independent external reviews, Kumtor has been upgrading its waste management practices. This includes decreasing waste generation volumes, waste re-use and processing. In practice, it is reflected in the introduction of separate collection of industrial waste resulted in increased volumes of metal scrap, wood, plastic and waste oil removed from the Mine site.

We generate approximately 1,800 tonnes of waste motor oil each year. We are exploring opportunities to blend it with diesel fuel so it can then be used as heating fuel.

In 2014 a separate collection system for cardboard was introduced that reduced the waste volume disposed at the landfill for solid domestic waste and saved valuable land, financial and human resources. Currently, this collected cardboard is being temporarily stored at the Mine site until a suitable method for its recycling is selected.

Fig. 5.17 Waste Tires
(weight in tonnes)



5.9 | MINE CLOSURE

Background

The most recent life-of mine plan is for open-pit mining to end in 2023 and milling operations to conclude in 2026. As agreed with Kyrgyz authorities and outlined in the Environmental Management Action Plan (EMAP), KGC is required to update the Conceptual Closure Plan (CCP) for the operation every three years, and complete a Final Closure Plan (FCP) two years prior to closure. This approach allows for a period for testing and monitoring of several years to evaluate the various options contemplated by the CCP, and time to consider any changes to the environmental, regulatory and social environment that may have occurred over the life of the mine. KGC has prepared CCP's in 1999, 2004, 2008, 2011 and most recently in 2014.

The latest CCP covers the existing components of the Kumtor operations including the open pits, waste rock dumps, TMF and related water treatment facilities, and the mill complex and associated mine infrastructure. The latest revision to the plan also includes the prediction of post closure water quality in the central pit, revisions to waste rock dump management and reclamation in recognition that the dumps are likely to behave in a dynamic fashion during operations, as well as biodiversity and socioeconomic aspects of closure planning.

As part of the closure planning process, closure and land use objectives were established to guide development of the plan as follows:

- Materially comply with regulatory requirements;
- Minimize residual environmental impacts;
- Ensure mine site features are geotechnically stable;
- Ensure the protection of public health and safety;
- Return the land to suitable post-mining land use.

All CCPs have been previously submitted to the relevant Kyrgyz agencies for their information and in 2014, the conceptual closure plan was also provided to the Government's international technical advisors involved in the ongoing negotiation to restructure Kyrgyzaltyn's ownership in Centerra and Kumtor.

Overview of Closure Strategy

Historical land use in the region was limited and the latest closure plan envisages a more diverse post-mining land use that utilizes the existing infrastructure that will remain at closure to support monitoring and maintenance of the facility as well as general environmental, meteorological, wildlife and glacier research and monitoring. Particular emphasis has been on maintaining positive benefits post closure for the Saryshat-Eertash Zapovednik (National Park) located in close proximity to the project area. However, the proposed final land use for all disturbed areas will need to be discussed and agreed with key stakeholders prior to closure.

At the end of the mining operations, part of the infrastructure (including high voltage power line, roads, and culverts) will remain in place. Material and equipment from the infrastructure decommissioning will be salvaged to the extent possible. Structural foundations will be levelled to the extent possible, graded and covered. Demolition waste will be taken to the industrial landfill. Potentially impacted soils in the vicinity of mining infrastructure will be tested and if found to be contaminated will be decontaminated or removed off site. The mine site area and decommissioned areas of the camp will be graded and contoured to blend in with the surrounding landscape.

The waste rock dumps at the Kumtor Gold Project occupy portions of three drainages including the Lysyi, Chon-Sarytor and Kichi-Sarytor; these drainages discharge to the Kumtor River. Numerous acid rock drainage (ARD) characterization studies, including static and kinetic testing, have been performed on waste rock material generated at Kumtor. These studies have demonstrated that an overwhelming majority of the waste rock deposited at site has no ARD potential. Moreover, the excess of neutralizing waste rock suggests that limited and localized areas of acid generation will be neutralized within the dump. While ARD is not predicted from the waste dump facilities, sulphide oxidation is and will continue to occur and produce drainage waters that are approximately neutral, but potentially elevated in sulphate. As such, the primary focus of the waste rock dumps reclamation will be to ensure physical stability of the dumps. Further, the latest CCP now includes a financial obligation for strategic revegetation of the dumps post closure. Monitoring of the geotechnical stability of the waste dumps and glacier movement is envisaged for a ten-year post-closure period.

Closure plans for the open pits (Central, Southwest and Sarytor) are based on maintaining public safety and additional wall monitoring primarily for the Central pit. At the cessation of operations, the Central and Sarytor pits will begin to fill with groundwater, precipitation and runoff water from upgradient glacial meltwaters. The pits are expected to fill and eventually overflow and flow control structures will be constructed to channel and direct the overflow from the Central and Southwest pits to the environment (Chon-Sarytor and Kichi-Sarytor, respectively).

Closure planning for the tailings management facility (TMF) has focused on water management and ensuring that there is no risk of acid rock drainage (ARD) from the TMF at closure. Based on the geochemical

> “Planned Life of Mine is until 2026;
>
> Mine Closure Plan priorities are safety and minimizing environmental impacts;
>
> The current Life of Mine Closure Cost estimate is $49.2 million.”

characterization of the Kumtor tailings, there is little to no risk of potential ARD occurring in the TMF and no special closure provisions for additional ARD prevention and control are required. A coarse inert cover will however be placed over the final tailings surface at closure to prevent erosion and dust generation from the facility. An additional cover of stockpiled soil/alluvial material will be placed on top of the inert TMF cover and re-vegetated. Prior to the placement of the TMF cover, the effluent treatment plant will be used to treat the water remaining in the tailings pond at the end of operations.

Also, in 2014 Kumtor expanded the scientific program to research and develop the best methods for land reclamation. This included collecting native plants and seeds and establishing trial plots with salvaged topsoil to test proposed seed species selection, topsoil addition rate, seeding rate and fertilization requirements. The studies are performed by the K. I. Skryabin Kyrgyz National Agrarian University.

Funding closure liabilities

As outlined in the current CCP, the uninflated life of mine close cost is estimated at $49.2 million. It is also estimated it would cost $42.8 million to rehabilitate the known impacts and disturbance as of December 31, 2013. Kumtor is required to re-calculate closure liability on an annual basis, in accordance with International Financial Reporting Standards to take account of future discount and inflation rates.

In 1995, Kumtor established a reclamation trust fund to accrue cash funds for mine closure liabilities. This is funded by sales revenue, annually in arrears.
As of December 31, 2014, the balance in the fund was $15.9 million, with the remaining $33.3 million to be funded over the life of the mine.

6 SOCIAL RESPONSIBILITY

6.1 | STAKEHOLDER ENGAGEMENT

The Company is striving to improve engagement with all stakeholders. We understand that effective stakeholder engagement with regulators, shareholders, employees, local communities, small businesses, and the general public is essential to establishing solid partnership relations.

The process also includes bringing stakeholders together. Many of the projects described in this section have brought together communities, other supporting partners, the international aid community (see case study boxes), and government representatives. Our efforts to mobilize and promote the local entrepreneurs and business community are also highlighted further below.

Engagement context

Our approach to engagement reflects our desire for respectful and meaningful dialogue within the complex social and political context of the Kyrgyz Republic. For example, we witnessed civil unrest and a government overthrow in 2010, and several further government changes since then. A third of the population lives below the national poverty line. Kyrgyzstan's Soviet past, along with uranium and other mining related environmental legacies, continue to shape perceptions of the industry today.

We have faced a series of allegations and claims regarding environmental impacts and technical aspects of the mine operation. We also have ongoing dialogue with the Kyrgyz government to renegotiate certain operational and financial agreements. This context means that public and media interest in Kumtor's activities remains high.

Structured dialogue

Our local engagement is primarily through three Regional Information Centers. The Centers have been established in the Jety-Oguz and Ton districts, and in the city of Balykchy. The main objective of the Centers is to provide information about Kumtor to local residents. This includes information related to our hiring procedures, human-resources policy, and job vacancy information. Community relations officers attend local community events, monitor the implementation of development projects funded by Kumtor, and act as a point of first contact for members of local communities.

In addition to these structured activities, other types of formal and informal engagement occur on a regular basis across our host communities, with a range of other stakeholders such as community leaders, community organizations (eg. schools, medical centers, youth groups), local small businesses, and agricultural representatives.

Public communication

Adhering to the information transparency policy and main principles of the Extracting Industries Transparency Initiative (EITI), Kumtor Gold Company recognizes the importance of providing accurate and objective information on the Company and satisfying the information needs of all stakeholders.

In recognition of the increased interest in Kumtor's activities, by the media we update on a regular basis our corporate website (**www.kumtor.kg**) in three languages (English, Russian, and Kyrgyz). On the website, we post news releases, downloadable reports, and media articles that feature Kumtor. Stakeholders can also have an access to the information describing our business, the work we do, and our environmental and social responsibility activities.

We commission films about our activities which we post on our website and through social media channels, such as Youtube and Facebook (as **Kumtor Gold Company**).

On a regular basis, we produce a multi-lingual newsletter, "In Touch", and occasional brochures on specific issues, such as environmental and operational safety (all also available on our website).

> "We paid $7.4 million, 1% of gross revenue, in 2014 directly to the independently managed Issyk-Kul Regional Development Fund;
>
> We voluntarily contributed an additional $5.1 million in 2014 to Community Development Programs and Donations."

In 2013, we launched a free telephone number to allow members of the public to contact us, in order to express a concern or request information. We also have an email address for this purpose, or can be contacted via our website.

Issyk-Kul Regional Development Fund

As part of its Operating Agreement, Kumtor contributes one percent of gross annual revenues to the Issyk-Kul Development Fund. This fund is managed independently of Kumtor, and is governed by an oversight and steering committee, which includes local government representatives and NGOs.

The fund is designed to develop the socioeconomic infrastructure in the Issyk-Kul Region in accordance to local and regional government priorities. Since the creation of the fund in 2009, Kumtor has invested more than $40 million into projects as diverse as kindergartens, schools, sports clubs, and irrigation infrastructure across the Issyk-Kul region. We understand that the Fund continues to be criticized for lack of transparency and that some stakeholders are expressing concerns about how project selections are made, and funds are being spent. We are aware of these concerns and will continue to encourage the fund to be more transparent, and work closely with Transparency International (a global coalition against corruption) on this issue.

REGIONAL SCHOLARSHIP PROGRAM

KGC annually through the Regional Scholarship Program provides students completing high school and wishing to pursue a vocational career the opportunity to apply for one of 15 scholarships. The successful applicants under full scholarship, that includes, tuition, accommodation, meals and a monthly stipend attend Technical Vocational School #27 or Technical School #91 in Bishkek.

Students studying at Technical School #91 work towards the profession of Cook/Baker and are offered practical experience in the hospitality industry in Bishkek or the resort area of Cholpon-Ata.

Technical School #27 has worked closely with KGC to establish a program that incorporates school based instruction with practical training in the Heavy Duty workshop or the Mill Maintenance area at the Kumtor Mine site.

Since inception in 2000, approximately 65 percent of the students completing the programs have gained employment with KGC.

Fig. 6.1 **SUMMARY OF STAKEHOLDER CONCERNS**

Stakeholders	Topic	Report Section Where Discussed
Kyrgyz Republic Government and Parliament	■ Changing legal agreements ■ Claims and changes to the legislation (glaciers) ■ Project benefits	■ President's Message ■ Economic Responsibility ■ Waste Rock and Ice ■ Social Responsibility
Various Commissions, Government Agencies and Local Communities	■ Economic benefits ■ Environmental impacts ■ Biodiversity impacts ■ Waste management ■ Waste rock management ■ Tailings dam displacement ■ Impacts on glaciers ■ Glacial lake outburst flood ■ Mine closure and funding ■ Dust in Barskoon valley ■ Claims	■ President's Message ■ Economic Responsibility ■ Social Responsibility ■ Environmental Sections ■ Case Studies ■ Tailings Management ■ Waste Rock and Ice ■ Mine Closure
Local Communities, Youth, Vulnerable Groups	■ Employment opportunities ■ Environmental impacts ■ Water resources ■ Community support, projects and donations	■ President's Message ■ Social Responsibility ■ Local Procurement ■ Water Use and Treatment
Local Businesses	■ Supplying goods and services	■ President's Message ■ Economic Responsibility ■ Local Procurement ■ Social Responsibility
Employees and Contractors	■ Employment conditions ■ Benefits ■ Health, safety and well-being	■ President's Message ■ Commitment to People ■ Occupational Health & Safety
Conservation NGOs	■ Environmental impacts ■ Biodiversity strategy ■ Mine closure	■ President's Message ■ Environment sections ■ Mine Closure

6.2 | COMMUNITY INVESTMENT PROJECTS

Our aim is for our community investments to generate sustainable local benefits. The overall budget of Kumtor's community development programs in 2014 was $5.1 million (including administration costs).

The current life of the Kumtor mine is expected to end in 2026. Given its size as a major employer, taxpayer, and purchaser, mine closure is expected to bring with it a negative economic impact in the Issyk-Kul region and across the country.

In order to reduce this impact, the strategy of our community investments is to promote and develop a more diverse economy which will not be over-reliant on Kumtor. This approach would help lessen the effects of Kumtor's mine closure.

We work in partnership with a number of international and local organizations to maximize the impact of our community investments. The partnerships focus mainly on the southern shore of Lake Issyk-Kul. Projects are developed taking into account stakeholder input, community needs, company risks, and availability of an experienced partner that can deliver against expected outcomes.

Within the framework of implementing its programs in the region, the Company strictly follows the Sustainable Development Strategy of the Issyk-Kul Region that includes four main areas:

1. Support to business growth and diversification (especially small businesses and entrepreneurs);
2. Support to development of the agricultural sector;
3. Youth and educational projects;
4. Environmental protection projects.

A key criterion for project selection is the principle of sustainability, which refers to the lasting effects of the project beyond the end of Kumtor's funding. If a project cannot be deemed to be sustainable and able to continue - or continue to generate benefits - beyond our funding period, then it will not be selected for implementation.

Supporting businesses

We support the development of local businesses in a number of ways. Of these, one of the most important is our policy of supporting local procurement and encouraging new local suppliers to supply goods and services, as described in the Local Procurement section.

However, we are aware of the risk of individual suppliers becoming overly dependent on business with Kumtor. Therefore, we work with suppliers to support them in improving business processes (such as quality management systems) and encourage them to seek additional customers apart from Kumtor.

Another important initiative is our micro-financing and credit program, which supports and enables local microcredit agencies in Jety-Oguz, Ton, and Balykchy by offering favourable lending rates for small enterprises and farming businesses. The interest rates of these programs are the lowest in Kyrgyzstan. Between 2006 and 2014, Kumtor invested more than $4 million.

We are working hard to unite international organizations that invest in the Issyk-Kul Region to develop a comprehensive approach in addressing regional development issues.

In 2014, we continued our partnership with the Japanese International Cooperation Agency (JICA), within the framework of the project on the shores of Lake Issyk-Kul called 'One Village One Product.' Using an approach linking individuals into community-based organizations, we have been able to support the growth of small businesses. We supported the development program by purchasing a piece equipment required for a shop in Karakol. Thanks to the agreements reached, participants of the Karagat+ Program (i.e. farmers and gardeners) now have the opportunity to process their produce in this shop. We also pay particular attention to supporting craftspeople, artisans and working women. Goods produced through the 'One Village One Product' program are sold in shops in Bishkek and Karakol. Moreover, having become a local supplier the project participants established a distribution channel for their products (a range of natural jams) to be supplied to the Kumtor Mine site. Further information on the cooperation is highlighted in the Local Procurement section.

DEVELOPMENT OF AGRICULTURAL SECTOR: KARAGAT+

The three-year Karagat+ Project was launched in the Issyk-Kul Region in 2013. All Issyk-Kul residents are free to join its extensive network, where experts provide every possible aid in building greenhouse systems, nursery gardens, and farm produce reception points across the region. The Company provided technical assistance to the project by providing containers on a long-term lease. These containers were re-purposed to store fruit, vegetables and berries.

During training workshops, the company's partners educated farmers about the technology involved in growing new, high-producing varieties of berries that are more cold resistant. They also taught new methods of storing fruits and berries, as well as innovative irrigation techniques.

The residents of Issyk-Kul proved to be capable students, and in 2014 they closed contracts for the delivery of 50 tonnes of fruit and berries abroad.

Also, the Berry and Fruit Festival "Karagat Fest", held annually within the framework of the Karagat+ Program, was regarded as the best tourism event in Kyrgyzstan in 2014. In 2013, the festival was held in the village of Bokonbaevo, Ton District. Last year it was relocated to the Jety-Oguz District and was held in the stadium of Kyzyl-Suu Village. In 2015 the Festival is scheduled to be held in the Tyup District on the northern shore of Issyk-Kul lake.

NEW TECHNOLOGIES TO PRODUCE DRIED FRUITS

In 2014, within the pilot project the Issyk-Kul farmers were taught the principles of dried fruit production with the use of innovative equipment. The initiative was implemented with assistance of local youth organizations and communities.

Dried fruit production technology has been developed by Swiss experts. Re-equipped 20-tonne containers can now be used to process fruits and berries, herbs and even meat. The system is completely autonomous. The solar energy is used to heat the air inside the container and fans operating from photoelectric panels secure the air circulation.

Donations and charitable support

In addition to our sustainable community development programs, we provide one-off donations, usually in form of in kind equipment or services. We receive many requests for support from across the country. Donation requests and proposals are reviewed on a monthly basis by our donations committee and may be supported as long as they are:

1. For local community groups or organizations, not individuals or companies;
2. Not for travel or medical expenses;
3. Not for funding of private businesses;
4. Not for religious or political purposes;
5. Not for government related costs.

In order to ensure a transparent and strictly governed donation process, a donation committee consisting of the vice-presidents of the company under the chairmanship of the KGC president, meets once a month to review all applications and approve those meeting the criteria. Our donations are not made in cash but rather through goods or equipment procured by Kumtor and provided to the recipients. Follow up monitoring visits ensure that the donations are used for the intended purpose.

A selection of examples of one-off donations during 2014 are:

- Office equipment, furniture and sports equipment for the Balykchy Yntymak Jashtary Public Association;
- Sewing equipment for the Manas School #10 in Balykchy;
- Office equipment and furniture for Ayisha Children's Educational Center in Balykchy;
- Musical instruments and furniture for the Tamga Village Music School;
- Sports equipment for gym in Konkino Village of the Jety-Oguz District;
- Household appliances, furniture and office equipment for Nafil Public Association in Balykchy;
- Costumes for the Kyzgaldak Dancing Group in Tamga Village;
- Furniture, office equipment and household appliances for the Disabled Children Society in Balykchy;
- Office equipment and household appliances for Tunuk Dos Public Association in Karakol;
- School furniture for Abdrahmanov School in Kyzyl-Suu Village of the Jety-Oguz District;

- Furniture for Kelechek Orphanage in Kyzyl-Suu Village of the Jety-Oguz District;
- Furniture for the daycare center in Svetlaya Polyana Village of the Jety-Oguz District;
- Sports equipment for the School #6 in Balykchy;
- Repair of the heating system in the building of "Senior Citizen Self-Help Group Federation" Public Association;
- Coal for the Karakol Orphanage;
- Repairs of the Therapy Department building of the Issyk-Kul Regional United Hospital;
- Major repairs of the processing shop of the Vocational School #81 in Bokonbaevo Village of the Ton District;
- Purchasing of spare parts for the Bars-C Municipal Enterprise to develop agriculture;
- Co-funding to purchase excavator for the Jety-Oguz Village Administration;
- Salbuurun Annual International Festival of Traditional Hunting in Cholpon-Ata as well as Salbuurun Federation participation in the World Nomad Games;
- Coal distribution among low-income families of Jety-Oguz, Ton Districts and Balykchy;
- Gifts for WW II veterans in Jety-Oguz, Ton Districts and Balykchy dedicated to the Victory Day;
- Sport uniform, equipment for the Soccer federation of the Issyk-Kul Region as well as funding of the Issyk-Kul soccer team participation in the Soccer Championship of the Kyrgyz Republic;
- Construction of stands in the sports center of Saruu Village of Jety-Oguz District;
- Construction of mini soccer field in Balykchy;
- Construction of the power line in Kara-Taala and rehabilitation works on two wells in Kara-Shaar Village of the Ton District;
- Topolek Children's Summer Camp in the Jety-Oguz District;
- 9 tonnes of flour to the Issyk-Koldun Kelechegi Public Foundation for the public bakery in Balykchy;
- Furniture for the daycare center in Baltabay Village of Jety-Oguz District;
- Garbage bins for the public beach in Tosor Village of the Jety-Oguz District, beaches of the Ton District and Karakol as well as for the public park in the Kyzyl-Suu Village and Beatification and Sanitary Treatment Municipal Enterprise in Balykchy;
- Purchasing of pipes to repair the water supply system in Kadjy-Say Village of the Ton District;
- Sports equipment and sports uniform for the Physical Training Department under the Balykchy Mayor's Office;
- Household appliances for the daycare center in Barbulak Village of the Ton District;
- Environmental campaign to clean southern shore of the Issyk-Kul Lake;
- Annual wrestling tournament in Saruu of the Jety-Oguz District;
- Gifts for school students of the Jety-Oguz, Ton Districts and Balykchy.

Socially responsible business: efforts to develop local communities

The Muras Team of the Jety-Oguz District has three age groups: young, middle, and old – 50 players all in all. The Adult team competes in the Kyrgyz Championship. The company also provided assistance to them last year. These young men were the champions of the district and regional games, proving that there are stars even the rural areas.

The indoor football field, provided by the Favorit Trans contracting company, is used year-round by young athletes to master their soccer skills. Favorit repaired the building using its own funds and bought the necessary sports equipment. They also sponsor trips for athletes within the country and abroad. Moreover, based on 2014 results, Favorite was the best taxpayer in the Issyk-Kul region, paying 10 million soms in taxes (approximately $186,000) to the local budget.

Autovneshtrans Company from Balykchy also supports young athletes and promotes a healthy life style. The company repaired one of the floors of a building located on their premises at their own expense, to the total amount of about two million soms (approximately $37,000). Since last November the warm and spacious hall has been to teach four taekwondo classes to children from Balykchy. The facility has locker rooms and a closet for the girls who take dance lessons in the evenings, after taekwondo classes are over. Promising, young athletes take classes free of charge.

Both in 2013 and 2014, the Company invested over $1.9 million to renovate the 4.5 km road section between the villages of Bokonbaevo and Ton. Moreover, road-surface repairs were financed on the 12 km road section between the villages of Shor-Bulak, Kara-Koo, Kaji-Sai and Tosor.

Kumtor Mine site employees have been also engaged and participated in a series of activities to provide assistance to orphanages, conduct voluntary clean-ups and implement other social projects. We also try to support initiatives of our partners, i.e. organizations that provide their services to ensure continued Mine operations in their efforts to be reliable neighbors of the local communities. We are proud that Kumtor has become a role model for the socially responsible business and that our partners support local communities after their businesses are developed and become prosperous.

Grievances and Road Blocks

As the major company operating in the Kyrgyz Republic, Kumtor receives complaints and requests ranging from dust related to truck traffic, to requests for jobs and building hospitals or roads. We maintain an open dialogue with all stakeholders and listen to rational ideas. The measures taken by the company with regard to the dust on the technological road are highlighted in the Environmental Monitoring Section.

Kumtor also experienced temporary road blocks in 2012 and 2013, but none in 2014. Protests typically involved demands for a greater distribution of the mine's profits and benefits. Negotiations between Centerra and KR Government actively continued in 2014. Overall, we note that the frequency and scale of road blocks have been diminishing.

Since 2013, we have been using a new IT-supported management system, Kumtor Connect, to further improve our approach and recording of stakeholder engagement, governance of community investment spending, and managing grievance and commitments.

GLOSSARY AND ABBREVIATIONS

ARD - Acid rock drainage is a term used to describe the outflow of mine waters that have been acidified by contact and exposure to rocks, reducing the pH levels which, in turn, can release and mobilize metals into the environment.

Biodiversity - Short for "biological diversity," the variability among living organisms and the ecosystems of which they are part. This includes diversity within species, between species, and within ecosystems.

BMY - Balykchy Marshalling Yard.

Capacity Building - Activities and initiatives that strengthen the knowledge and skills of individuals and improve structure and processes such that communities can grow and develop in a sustainable way.

CCP or MCP - Conceptual Closure Plan (see also Closure Plan).

CJSC - Closed Joint Stock Company.

Closure Plan - A plan designed to ensure public safety and restore the physical, chemical, and biological quality of the area disturbed by mining to an acceptable level. It must aim at leaving the area in such a way that the rehabilitated property does not become a burden to society after the mining operation is over.

Code of Ethics - A policy that sets out Centerra's dedication to upholding high moral and ethical standards and specifies basic business conduct and behavior.

Collective Bargaining Agreement - An agreement between a company and one or more workers' organizations or, in absence of such organizations, the representatives of the workers duly elected and authorized by them in accordance with national laws and regulations.

Corporate Responsibility - A form of corporate self-regulation integrated into a business model where companies embrace the responsibility forthe impact of their activities on the environment, consumers, employees, communities, and stakeholders.

Currencies - Kyrgyz som (KGS): 2014 average exchange rate 1 USD = 53.65 KGS.

Cyanide - A chemical compound containing carbon and nitrogen used to dissolve gold from ore EBRD - European Bank for Reconstruction and Development.

Derived Air Concentration (DAC) - A derived limit on the activity concentration in air (in Bq/m^3) of a specified radionuclide - calculated such that a typical worker, breathing air with constant contamination at the DAC while performing light physical activity for a working year, would receive the annual limit on intake for the radionuclide in question.

EBRD - European Bank for Reconstruction and Development.

Economic Value Retained - Component of GRI Economic Indicator EC1 and calculated as economic value generated less economic value distributed (see also **www.globalreporting.org** for further details).

EITI - Extractive Industries Transparency Initiative.

EMAP - Environmental Management Action Plan.

Engagement - A process of contact, dialogue, and interaction that ensures all parties of interest are informed and participate in decisions that affect their future.

Environmental Assessment -The process of identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of development proposals priorto making major decisions and commitments.

Environmental Incident - An event that has caused or could cause environmental harm. Ranges in scale and severity from Type I (Insignificant) to Type V (Catastrophic).

Environmental Management System (EMS) - A framework developed by an organization to help improve its environmental performance by taking environmental considerations into account when making decisions and managing risks.

ETP - Effluent treatment plant

First Aid Injury (FA) - A work related injury that requires first aid treatment.

GDP - Gross Domestic Product.

GHG - Greenhouse gas - Emissions commonly reported as CO_2 equivalents (CO_2e).

GJ - Gigajoules (1GJ = one billion (10^9) joules).

Global Reporting Initiative (GRI) - A global network-based organization that has developed a widely used sustainability reporting framework consisting of principles and indicators to measure and report on an organization's economic, environmental, and social performance (see also **www.globalreporting.org** for further details and definitions of the GRI framework and indicators).

Governance - A set of processes, customs, policies, laws, and institutions affecting the way a company is directed, administered, or controlled.

Hazard - A source of potential damage, harm, or adverse effects on something or someone under certain conditions at work.

HSE - Health, Safety and Environment.

ICMI - International Cyanide Management Institute.

IFC - International Finance Corporation, a member of the World Bank Group.

IFRIC 20 - International Financial Reporting Interpretations Committee/ Stripping Costs in the Production Phase of a Surface Mine.

ISO - International Organization for Standardization, the world's largest developer of voluntary International Standards.

ISO 31000 standard - Standard developed by ISO Technical Management Board Working Group.

IWP & HP - Institute of Water Problems and Hydropower.

JSC - Joint Stock Company.

km - Kilometres / Kilometers.

KR - The Kyrgyz Republic.

KR NAS - Kyrgyz National Academy of Sciences.

KGC - Kumtor Gold Company.

Kyrgyz Som (KGS) - Currency of Kyrgyzstan (see 'Currencies' for exchange rate).

Liter/Litre - International System unit of volume.

Local Suppliers - Suppliers based in the same country as the operation that they supply.

Lost Time Injury (LTI) - A work related injury resulting in the employee being unable to attend work on the next calendar day after the day of the injury. If a suitably qualified company medical professional advises that the injured person is unable to attend work on the next calendar day after the injury, regardless of the injured person's next rostered shift, a lost time injury is deemed to have occurred. Site and company medical advisors will determine when a lost time injury is no longer recorded as a lost time injury. This includes fatalities.

LTI Frequency Rate - Number of LTIs x200,000/hours worked.

LTI Severity Rate - Number of days lost to injury x200,000/hours worked.

MAC - Maximum allowable concentration standards apply at Kumtor's surface water quality compliance point (referred to as W.1.5.1) downstream of the Kumtor mine.

MAD - Maximum allowable discharge standards apply to treated effluent discharges from the effluent treatment plant and the sewage treatment plant.

masl - Metres above sea level.

Materiality - The threshold at which an economic, environmental or social issue or indicator becomes sufficiently important that it warrants disclosure in the corporate responsibility report.

Medical Aid (MA) - A work related injury or illness that requires medical treatment administered by an off-site physician or by a registered medical personnel. Site and company medical advisors are to be consulted and a final decision as to how a medical aid injury is to be managed will be determined by the company medical team in consultation with senior site management.

Meter/Metre (m) - International System unit of length.

Millimeter/Millimetre (mm) - International System unit of length, 1000th of a metre.

NGO - Non-Governmental Organization, a not-for-profit group largely funded by private contributions and operating outside of institutionalized government or political structures. NGOs focus on environmental, social, and economic issues at local, regional, national and international levels.

Oblast - Administrative division, which in English translates as province or region.

OJSC - Open Joint Stock Company.

Open Pit - A mine where the minerals are mined entirely from the surface.

Ore - A naturally occurring solid material (usually rock) from which a metal or valuable mineral can be extracted profitably.

QA/QC - Quality assurance and quality control program for collection, handling, and analysis of samples to ensure a consistent approach and accurate results.

Reclamation - The restoration of a site after the completion of mining or exploration activity.

Reportable Injury - The sum of the number of Medical Aid Injuries and Lost Time Injuries in a given period.

Reportable Injury Frequency Rate (RIFR) - Number of Reportable Injuries per 200,000/Hours Worked

Responsible Mining - A comprehensive and transparent minerals activity that respects the rights of all stakeholders, especially those of local people, operates safely, protects the environment, minimizes the impact on human health, embraces the best international practices, and upholds the rule of law while generating benefits for host countries (see also Corporate Responsibility).

SAEL - Stewart Assay and Environmental Laboratories LLC (part of the ALS international group of laboratories), located in Kara-Balta, Kyrgyz Republic.

SAEPF - State Agency of Environment Protection and Forestry.

SCER - Sary Chat Ertash Reserve, a strictly protected Zapovednik neighboring Kumtor Concession. Sometimes referred to as SCEZ, with Zapovednik replacing Reserve. Zapovednik is a work of Russian origin meaning protected wilderness.

SEDAR - System for Electronic Document Analysis and Retrieval.

Significant Spill - Any spill that is Level III or higher, as defined by Centerra's incident reporting system, Level III spills are significant enough that they must be reported to Centerra's Board of Directors.

SME - Small or medium sized enterprise, referring usually to small businesses. Definitions vary, but typically they have less than 50 employees.

Stakeholder - Any person or group of people who may be affected in a good or bad way by the financial, safety, environmental, and social aspects of our operations and those who have an interest in or an influence on our activities.

Stakeholder Engagement -The communication with stakeholders, through various means, to find out what social and environmental issues matter most to them, with a view to a company improving decision-making and actions to address these concerns.

STP - Sewage Treatment Plant.

Sustainable Development - As used in the report Our Common Future (also known as the Brundtland Report): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (see also Corporate Responsibility). Kumtor develops mineral deposits in a manner that does not restrict communities' efforts to sustain themselves and strives to catalyze economic activity that promotes long-term sustainability among our communities and their surroundings.

Sustainability - An approach to decision-making that integrates economic, environmental, and social considerations (see also Corporate Responsibility).

Tailings - The material that remains after recoverable metals or minerals of economic interest have been removed from ore through milling.

Threshold Limit Values (TLV) - The level/concentration of a chemical substance to which it is believed a worker can be exposed day after day for a working lifetime without adverse health effects.

TMF - The Tailings Management Facility is the combination of infrastructure to hold and manage semi-liquid tailings so as to avoid negative health and environmental impacts, consisting of delivery infrastructure, storage ponds, holding dam, water and waste treatment facilities, and discharge facilities for treated effluent.

TSP - Total suspended particulates.

USD - US Dollars.

WTP - Water Treatment Plant.

APPENDIX

Average Monthly Dust Concentration at the Mine (TSP in µg/m³)

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A1.1	65	64	129	88	124	59	45	94	62	35	42	108
A1.2a	65	69	105	114	98	47	32	70	27	90	51	94
A1.3	51	38	64	82	Station moved to A1.3a							
A1.3a	Station not installed				111	45	71	46	66	87	53	21
A1.4	107	100	96	107	129	17	46	32	33	59	32	66
A1.5a	97	29	43	92	85	34	32	101	34	71	58	28
A1.6	34	7	21	104	11	13	22	47	27	27	20	30

Radionuclides and Heavy Metals in Dust Samples

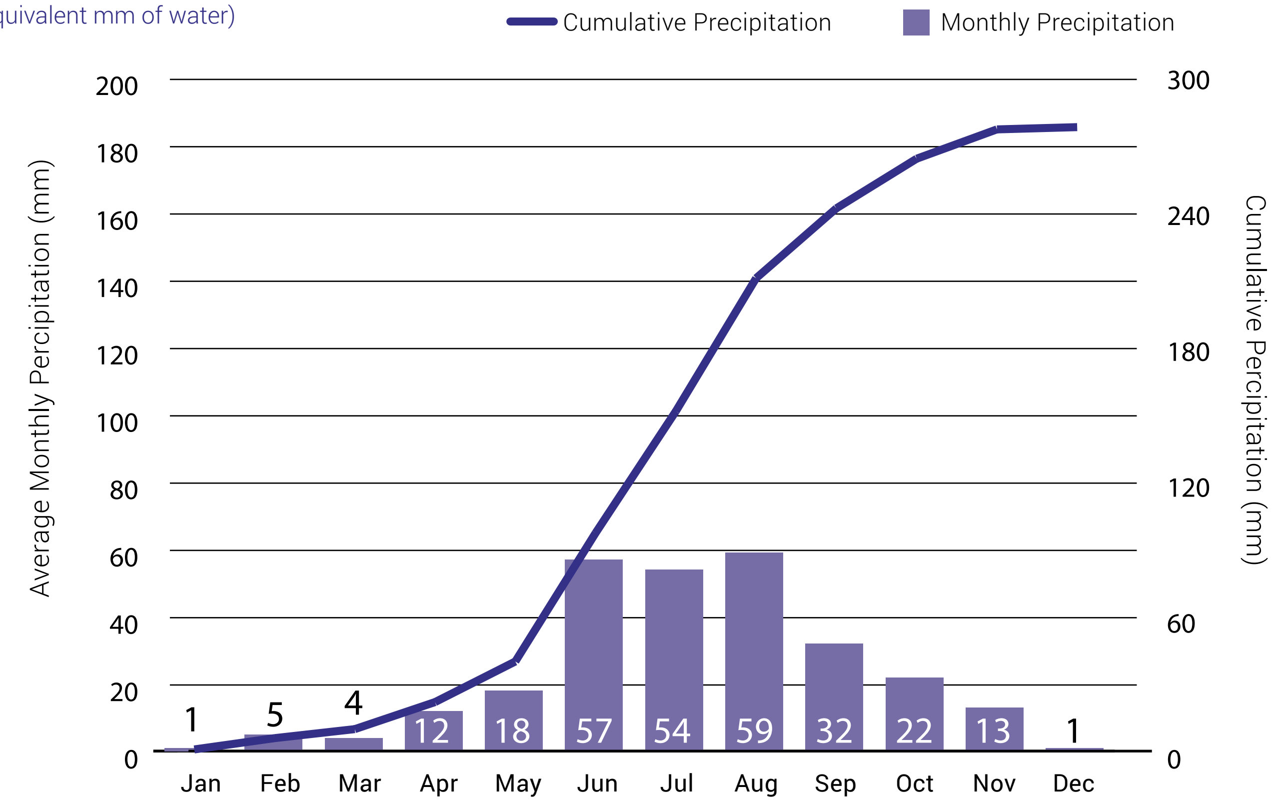
Station	Zn (ng/m³)	CN (ng/m³)	S (ng/m³)	As (ng/m³)	Ni (ng/m³)	Se (ng/m³)	U (ng/m³)	Sr-90 (mBq/m³)	Pb-210 (mBq/m³)	Ra-226 (mBq/m³)
TLV[1]	1,600,000	5,000,000	330,000	10,000	200,000	200,000	200,000			
DAC[2]								300,000	8,000	4,000
A1.1	763	0.025	19.6	0.702	1.90	0.031	0.385	0.0057	0.101	0.009
A1.2a	259	0.029	109.7	0.859	1.81	0.035	0.366	0.0058	0.080	0.012
A1.3a	496	0.086	41.1	0.994	1.91	0.043	0.388	0.0057	0.104	0.006
A1.4	2165	0.028	1.0	0.082	2.05	0.017	0.429	0.0014	0.128	0.027
A1.5a	1694	0.029	3.2	0.074	1.80	0.013	0.408	0.0058	0.168	0.011
A1.6	6617	0.141	24.7	2.046	6.63	0.099	1.686	0.0282	0.444	0.062

Notes:

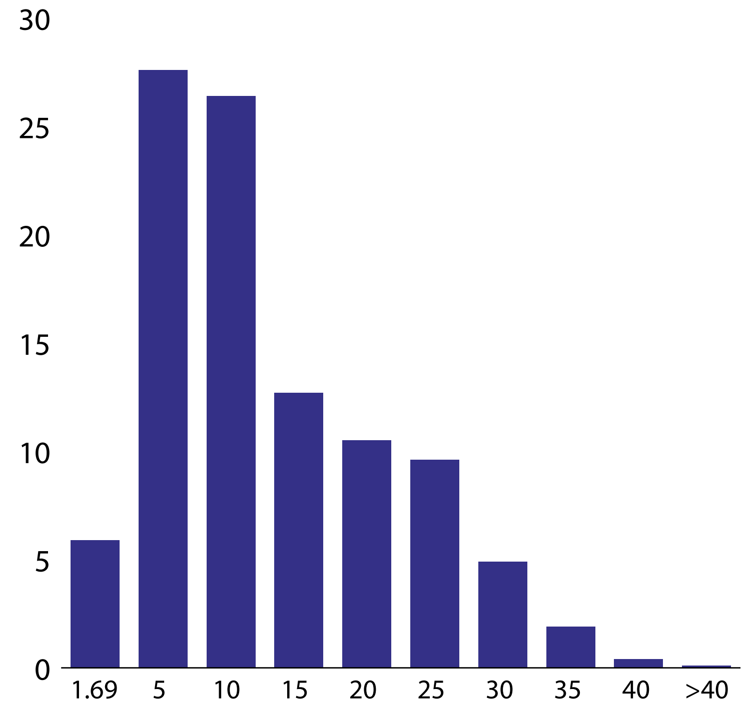
1. TLV's have been sourced from either the Agency for Toxic Substances and Disease Registry (ATSDR), or the Occupational Health & Safety Administration (OHSA). S and Zn TLV's have been adjusted using the molar ratios of SO_2 and ZnO.

2. DAC's have been sourced from the 1999 International Atomic Energy Agency (IAEA) safety standards.

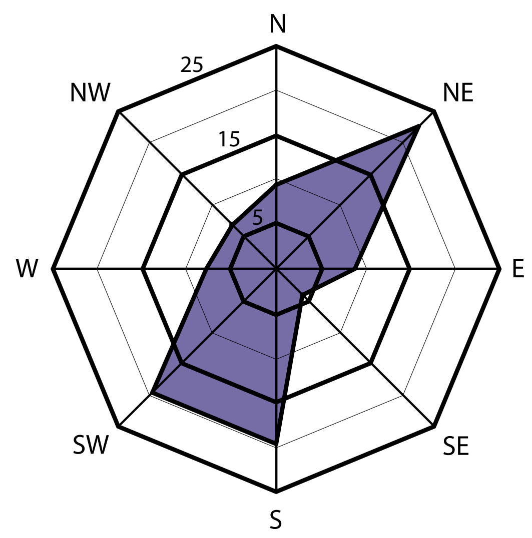
Precipitation 2014
(equivalent mm of water)



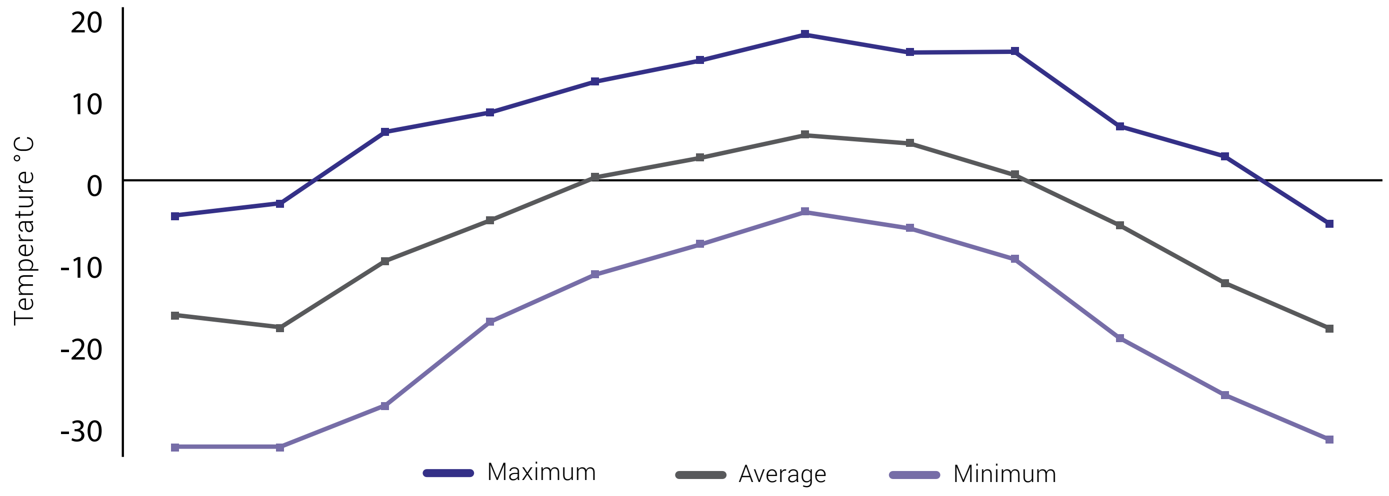
Wind Speed and Direction 2014
(km/hour)



Distribution of Wind Direction 2014 (%)



Average Monthly Temperatures in 2014



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum	-32.7	-32.7	-27.6	-17.3	-11.5	-7.8	-3.8	-5.8	-9.6	-19.3	-26.3	-31.8
Maximum	-4.4	-2.9	5.9	8.3	12.1	14.7	17.9	15.7	15.8	6.6	2.9	-5.4
Average	-16.6	-18.1	-9.9	-4.9	0.4	2.8	5.6	4.59	0.7	-5.5	-12.6	-18.2

Kumtor Weather Station Summary 2014

2014		HOURLY AVERAGE READINGS FOR 2014									hr./rdg. Total precip., mm	AVERAGE 5 SECOND READING			
					TEMPERATURE °C										
		W. Spd. 10 m, km/h	W. dir. deg. True N	W. Spd. 0.5 m, km\h	Avg./h	Max., 5 s.	Min., 5 s.	Rel. hum., %	Dew. Point, 0C	Solar rad., KW/m³		Temp. 0C	Rel. hum., %	Dew. Point, 0C	Barom. Press., mbar
JAN	max	41.5	359.7	0.0	-5.5	-4.4	-5.9	91.8	-10.8	0.63		-5.6	608.9	-10.8	658.8
	min	0.3	0.6	0.0	-31.8	-31.1	-32.7	22.0	-41.5	0.002		-31.8	21.8	-645.7	647.1
	avg	9.8	145.1	0.0	-16.6	-15.5	-17.6	60.6	-24.3	0.09		-16.5	61.3	-25.1	651.7
	tot										1.2				
FEB	max	43.6	358.3	0.0	-4.9	-2.9	-5.6	88.7	-10.1	0.68		-4.5	88.9	-10.3	655.1
	min	0.6	0.9	0.0	-31.6	-30.9	-32.7	23.8	-42.4	0.002		-31.2	21.9	-43.2	640.1
	avg	11.4	153.4	0.0	-18.1	-17.1	-19.1	62.5	-25.7	0.14		-18.1	62.3	-25.7	648.0
	tot										4.6				
MAR	max	32.8	359.2	0.0	5.4	5.9	4.8	94.5	-5.7	0.78		5.0	94.3	-5.7	660.0
	min	0.2	1.5	0.0	-27.1	-26.6	-27.6	21.1	-34.9	0.002		-27.2	20.9	-34.4	648.2
	avg	8.4	175.3	0.0	-9.9	-9.0	-10.8	61.6	-16.9	0.19		-9.9	61.6	-16.9	653.4
	tot										4.1				
APR	max	42.2	359.4	0.0	7.7	8.3	7.4	98.5	-2.7	0.98		7.7	98.5	-2.6	662.9
	min	0.27	0.8	0.0	-16.7	-16.3	-17.3	14.0	-28.1	0.002		-16.6	13.8	-27.9	651.9
	avg	14.4	195.6	0.0	-4.9	-4.1	-5.7	56.6	-13.1	0.22		-3.8	56.8	-13.0	655.8
	tot										12.3				
MAY	max	38.8	359.5	0.0	11.3	12.1	10.7	99.9	0.4	1.06		10.91	99.90	-0.01	664.00
	min	0.0	0.1	0.00	-11.0	-10.8	-11.5	7.0	-25.1	0.002		-11.10	6.86	-25.81	650.20
	avg	12.2	180.8	0.0	0.4	1.3	-0.4	55.9	-8.1	0.28		0.43	56.06	-8.14	658.72
	tot										17.7				
JUN	max	36.45	359.80	0.0	14.0	14.7	13.3	99.5	3.3	1.16		14.0	99.4	3.7	665.1
	min	0.03	3.18	0.00	-6.8	-6.3	-7.8	11.1	-17.9	0.002		-7.1	10.2	-18.9	654.4
	avg	11.55	172.41	0.0	2.8	3.6	2.0	69.5	-2.4	0.25		2.8	69.6	-2.4	659.7
	tot										57.1				
JUL	max	40.3	357.5	0.0	16.3	17.9	15.3	99.0	4.1	1.09		16.6	98.8	4.1	663.8
	min	0.0	1.0	0.0	-3.3	-2.8	-3.8	15.5	-8.5	0.000		-3.1	15.4	-8.8	655.4
	avg	12.4	175.7	0.0	5.6	6.5	4.7	63.7	-1.0	0.25		5.6	63.7	-1.0	659.6
	tot										54.0				
AUG	max	30.1	359.7	0.00	14.95	15.69	14.44	99.80	2.27	1.04		15.1	99.8	2.1	665.7
	min	0.0	0.2	0.00	-4.57	-3.00	-5.83	14.77	-11.35	0.00		-3.7	14.0	-11.9	600.5
	avg	9.2	158.6	0.00	4.59	5.45	3.78	61.75	-2.40	0.24		4.6	61.7	-2.4	660.6
	tot										58.7				
SEP	max	35.1	359.2	0.0	12.9	15.8	12.2	99.3	1.7	0.94		12.8	99.2	1.5	662.4
	min	0.2	1.6	0.00	-9.3	-8.8	-9.6	12.7	-18.7	0.002		-9.3	13.7	-19.0	655.9
	avg	12.2	169.8	0.0	0.7	1.6	-0.1	68.4	-4.9	0.20		0.7	68.6	-4.9	659.6
	tot										31.5				
OCT	max	34.4	359.8	0.0	5.8	6.6	5.2	99.9	0.6	0.78		5.7	99.8	0.2	663.9
	min	0.1	2.4	0.00	-18.8	-18.6	-19.3	24.5	-23.6	0.002		-18.8	25.4	-23.4	652.6
	avg	10.0	194.3	0.0	-5.5	-4.7	-6.3	69.9	-10.6	0.16		-5.5	69.9	-10.6	659.7
	tot										21.6				
NOV	max	36.1	359.3	0.0	1.8	2.9	0.8	93.8	-6.9	0.61		1.6	93.9	-6.8	659.9
	min	0.0	2.6	0.00	-24.9	-24.0	-26.3	29.3	-36.2	0.002		-24.6	27.0	-35.9	647.0
	avg	9.4	154.0	0.0	-12.6	-11.7	-13.5	70.5	-18.0	0.11		-12.6	70.4	-18.0	654.8
	tot										13.4				
DEC	max	34.8	359.9	0.0	-7.2	-5.4	-8.4	91.0	-12.4	0.53		-7.4	90.8	-12.8	660.8
	min	0.1	0.2	0.00	-31.0	-29.8	-31.8	30.3	-41.5	0.002		-30.7	29.3	-41.4	645.4
	avg	5.5	118.2	0.0	-18.2	-16.8	-19.4	62.9	-25.6	0.09		-18.2	62.9	-25.6	654.9
	tot										1.1				
Yearly	Max	43.6	359.9	0.0	16.3	17.9	15.3	99.9	4.1	1.16		16.6	608.9	4.1	665.7
	Min	0.0	0.1	0.0	-31.8	-31.1	-32.7	7.0	-42.4	0.0		-31.8	6.9	-645.7	600.5
	Avg	16.0	175.5	0.0	-6.0	-5.1	-6.8	59.6	-14.4	0.35		-5.9	73.8	-31.3	654.7
	tot										277.3				

Sample Point: W1.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field data													
Temp	°C	6.2	3.9	4.4	5.6	6.5	6.2	10	5		4.5	4.1	
Cond-F	mS/cm	0.122	0.086	0.187	0.128	0.014	0.136	0.332	0.11		0.109	0.277	
pH-F	pH unit	8	8.2	7.4	7.1	8.4	8.3	8	8.3		7.3	8.6	
Major Constituents													
Ca	mg/L	23	22.7	28.9	16.7	15.1	16.4	16.6	17.9	18.4	19.9		
Cl	mg/L	0.7	0.8	0.8	0.8	1.1	0.5	0.5	0.6	1.4	0.7		
CO3	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L	46	46	44	43	34	39	43	40	40	42		
K	mg/L	2.41	2.37	2.62	1.66	1.41	1.68	3.73	4.21	3.96	2.25		
Mg	mg/L	4.83	4.33	5.44	3.09	2.56	3.05	3.96	4.41	4.06	3.49		
Na	mg/L	2.53	2.47	2.74	1.78	1.97	1.76	3.32	2.96	3.29	2.25		
SO4	mg/L	20	18	20	19	14	16	17	14	15.3	15		
T-Hardness	mg/L	55	55	55	55	41	47	110	50	45	50		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L										0.002		
Al	mg/L	0.51	0.81	0.36	0.37	0.38	1.16	4.32	5.73	2.17	1.06		
As	mg/L	0.001	0.02	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001		
B	mg/L												
Ba	mg/L	0.028	0.031	0.024	0.027	0.023	0.037	0.103	0.14	0.081	0.04		
Be	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000		
Bi	mg/L												
Cd	mg/L	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Co	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
Cr	mg/L	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.011	0.004	0.004		
Cu	mg/L	0.003	0.003	0.013	0.003	0.003	0.076	0.003	0.008	0.003	0.003		
F	mg/L												
Fe	mg/L	0.439	0.706	0.589	0.325	0.278	1.18	4.79	6.02	2.22	0.859		
Hg	mg/L												
Mn	mg/L	0.016	0.017	0.031	0.015	0.011	0.031	0.123	0.146	0.066	0.022		
Mo	mg/L	0.005	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		
Ni	mg/L	0.003	0.003	0.003	0.003	0.003	0.005	0.003	0.01	0.01	0.003		
Pb	mg/L	0.001	0.01	0.003	0.001		0.004	0.015	0.022	0.002	0.011		
Sb	mg/L	0.001	0.01	0.001	0.001		0.001	0.001	0.001	0.001	0.001		
Se	mg/L	0.001	0.01	0.001	0.001		0.001	0.002	0.001	0.001	0.001		
Si	mg/L												
V	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.007	0.009	0.003	0.003		
Zn	mg/L	0.005	0.016	0.008	0.013	0.008	0.015	0.033	0.065	0.047	0.016		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L	0.02	0.02	0.02	0.02	0.14	0.02	0.02	0.02	0.02	0.02		
NO2-N	mg/L	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.004	0.005	0.001		
NO3-N	mg/L	0.1	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L	94	75	169	128	61	83	124	148	131	80		
TSS	mg/L	24.0	11.3	11.5	10.3	0.5	5.0	42.0	72.0	41.0	4.0		
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		
CN-T	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003		
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		

Sample Point: W1.3

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field data													
Temp	°C					2.1	5.9	9.3	11.0		3.9	0.1	
Cond-F	mS/cm					0.016	0.070	0.179	0.297		0.288	0.391	
pH-F	pH unit					8.5	8.2	8.2	8.1		8.6	8.0	
Major Constituents													
Ca	mg/L						98	71	33		37		
Cl	mg/L						4.40	1.20	0.90		2.60	2.50	
CO3	mg/L						0.5	0.5	0.5		0.5	0.5	
HCO3	mg/L						120.0	64.0	50.0		66	100	
K	mg/L						3.29	3.98	2.06		1.95		
Mg	mg/L						54.8	29.4	9.2		12.4		
Na	mg/L						6.30	3.72	1.77		2.89		
SO4	mg/L						295	151	57		72	90	
T-Hardness	mg/L						425	232.5	100		140	180	
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.002	
Al	mg/L						0.47	6.32	4.49		1.23	0.1	
As	mg/L						0.001	0.005	0.002		0.001	0.001	
B	mg/L												
Ba	mg/L						0.055	0.128	0.107		0.054	0.054	
Be	mg/L						0.000	0.000	0.000		0.000	0.000	
Bi	mg/L												
Cd	mg/L						0.000	0.000	0.000		0.001	0.000	
Co	mg/L						0.002	0.003	0.002		0.002	0.002	
Cr	mg/L						0.004	0.006	0.010		0.004	0.004	
Cu	mg/L						0.003	0.008	0.01		0.014	0.005	
F	mg/L												
Fe	mg/L						0.44	7.6	4.90		1.42	0.181	
Hg	mg/L												
Mn	mg/L						0.065	0.240	0.12		0.054	0.010	
Mo	mg/L						0.005	0.002	0.002		0.002	0.002	
Ni	mg/L						0.003	0.009	0.008		0.003	0.003	
Pb	mg/L						0.007	0.012	0.013		0.004	0.032	
Sb	mg/L						0.001	0.001	0.001		0.001	0.001	
Se	mg/L						0.003	0.002	0.001		0.002	0.001	
Si	mg/L												
V	mg/L						0.003	0.011	0.007		0.003	0.003	
Zn	mg/L						0.014	0.044	0.145		0.016	0.032	
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						0.1	0.1	0.1		0.0	0.0	
NO2-N	mg/L						0.001	0.001	0.001		0.001	0.001	
NO3-N	mg/L						3.1	1.4	0.50		0.60	0.70	
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					45	566	327	164		181	249	
TSS	mg/L					101	11	263	106		84	1	
Trace Constituents													
CN-F	mg/L						0.003	0.003	0.003		0.003	0.003	
CN-T	mg/L						0.003	0.003	0.003		0.003	0.003	
CN-WAD	mg/L						0.003	0.003	0.003		0.003	0.003	

Sample Point: W3.4

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C			0.8	1.8	3.4	6.8	6.9	6.4	6.0	2.0		
Cond-F	mS/cm			0.727	0.921	0.653	0.186	0.424	2.380	0.970	1.160	1.250	1.550
pH-F	pH unit			7.8	7.4	7.6	8.0	8.0	8.1	8.3	8.0		7.8
Major Constituents													
Ca	mg/L			172	154	73	141	171	135	151	169	177	157
Cl	mg/L			8.6	11.3	2.70	4.88	2.54	2.83	4.26	6.66	14.13	27.33
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCO3	mg/L			230	250	86	130.0	110.0	110.0	150	210	240	570
K	mg/L			6.16	5.28	2.33	4.00	4.81	3.41	3.66	4.16	6.1	8.57
Mg	mg/L			132	115	34.2	79.2	74.5	52.6	65	81.4	102	99.7
Na	mg/L			8.06	13.8	3.34	6.59	4.24	3.54	5.42	9.41	19.0	28.5
SO4	mg/L			712.5	521.2	213	430	441	361	436	508	465	382
T-Hardness	mg/L					425	631.2	610	537.5	630	725	808.3	925
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L				0.002							0.002	0.002
Al	mg/L			0.55	0.72	15.30	2.54	3.86	1.96	0.95	1.16	0.217	0.050
As	mg/L			0.003	0.002	0.022	0.004	0.005	0.002	0.005	0.002	0.001	0.020
B	mg/L												
Ba	mg/L			0.06	0.047	0.254	0.077	0.082	0.052	0.037	0.043	0.040	0.048
Be	mg/L			0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bi	mg/L												
Cd	mg/L			0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001
Co	mg/L			0.002	0.002	0.017	0.004	0.005	0.003	0.002	0.002	0.002	0.002
Cr	mg/L			0.004	0.004	0.022	0.006	0.006	0.005	0.004	0.004	0.004	0.004
Cu	mg/L			0.005	0.011	0.036	0.008	0.010	0.008	0.017	0.004	0.047	0.031
F	mg/L												
Fe	mg/L			1.08	1.17	26.20	5.04	7.1	3.41	1.66	1.97	0.378	0.15
Hg	mg/L												
Mn	mg/L			0.081	0.174	0.79	0.287	0.283	0.13	0.07	0.105	0.075	0.099
Mo	mg/L			0.004	0.003	0.004	0.006	0.006	0.007	0.005	0.005	0.004	0.003
Ni	mg/L			0.003	0.004	0.032	0.015	0.019	0.012	0.007	0.005	0.010	0.006
Pb	mg/L			0.003	0.005	0.025	0.010	0.009	0.023	0.008	0.006	0.003	0.01
Sb	mg/L			0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01
Se	mg/L			0.003	0.003	0.002	0.004	0.003	0.003	0.024	0.015	0.004	0.010
Si	mg/L												
V	mg/L			0.003	0.003	0.027	0.006	0.006	0.005	0.003	0.003	0.003	0.003
Zn	mg/L			0.013	0.012	0.06	0.019	0.029	0.033	0.009	0.020	0.023	0.012
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L			0.09	0.085	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0
NO2-N	mg/L			0.004	0.002	0.008	0.002	0.002	0.001	0.001	0.001	0.001	0.001
NO3-N	mg/L			2.55	2.25	2.1	4.05	3.62	2.48	3.04	3.66	1.80	0.7
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L			761	824	446	725	730	671	789	966	1038	1090
TSS	mg/L			122.4	130	614	80.25	336	95	57.3	56	16	0.5
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CN-T	mg/L			0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003

Sample Point: T8.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C						34.0			7.8	4.6	3.2	0.0
Cond-F	mS/cm					0.371				3.530	3.680	3.750	3.230
pH-F	pH unit	10	11	11	10	10.0	10.0	9.5	8.9	8.9	9.3	9.3	9.7
Major Constituents													
Ca	mg/L	323	446	444	202	242	338	389	310	340	272	274	269
Cl	mg/L	26	23	26.3	17.3	17.47	20.50	21.25	22.00	23.00	23.33	24.75	26.00
CO3	mg/L	71	72	81	45	45	34	14	15	5.2	5.2	25	35
HCO3	mg/L	2.4	13	0.5	0.5	1	30.0	64.0	100.0	120	82	52	42
K	mg/L	101	142	156	85.5	81.50	110.00	127.00	109.00	126.00	109.00	119.0	123.00
Mg	mg/L	5.34	6.1	4.81	2.43	3.7	5.2	6.5	5.5	8	6.7	7	7.2
Na	mg/L	646	669	722	382	396.00	534.00	592.00	507.00	607.00	542.00	602.0	636.0
SO4	mg/L	1752	1670	1750	925	991	1425	1475	1522	1545	1693	1618	1640
T-Hardness	mg/L	967.5	962.5	908.3	520	330	843.8	850	900	843.8	741.7	718.8	733.3
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.087	0.095
Al	mg/L	0.184	0.23	0.397	0.237	0.18	0.18	0.20	0.15	0.14	0.135	0.14	0.123
As	mg/L	0.005	0.02	0.01	0.002	0.002	0.006	0.003	0.002	0.004	0.004	0.002	0.020
B	mg/L												
Ba	mg/L	0.027	0.023	0.026	0.019	0.017	0.021	0.023	0.023	0.023	0.030	0.039	0.036
Be	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bi	mg/L												
Cd	mg/L	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.002	0.001
Co	mg/L	0.056	0.053	0.065	0.029	0.038	0.071	0.071	0.085	0.074	0.062	0.065	0.061
Cr	mg/L	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cu	mg/L	29.8	27.2	27.1	17.7	16.2	26.1	27.5	27.9	26.1	28.8	31.1	29.9
F	mg/L					0.072							
Fe	mg/L	0.996	1.74	3.09	1.36	0.63	0.49	0.6	0.50	0.56	0.73	1.180	1.98
Hg	mg/L			0.005		0.002							
Mn	mg/L	0.010	0.011	0.006	0.010	0.01	0.006	0.011	0.02	0.03	0.025	0.016	0.023
Mo	mg/L	0.438	0.398	0.397	0.255	0.236	0.386	0.406	0.439	0.424	0.427	0.451	0.416
Ni	mg/L	0.653	0.602	0.699	0.445	0.398	0.669	0.746	0.776	0.650	0.671	0.654	0.662
Pb	mg/L	0.001	0.01	0.004	0.005	0.002	0.007	0.008	0.009	0.022	0.006	0.004	0.02
Sb	mg/L	0.162	0.159	0.143	0.081	0.065	0.090	0.089	0.084	0.100	0.121	0.165	0.186
Se	mg/L	0.035	0.037	0.033	0.023	0.015	0.025	0.029	0.028	0.035	0.054	0.038	0.042
Si	mg/L					0.003							
V	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.006	0.003	0.003	0.003
Zn	mg/L	0.458	0.428	0.448	0.877	0.33	0.453	0.364	0.130	0.023	0.075	0.14	0.185
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L	21.1	19.2	20.5	13.3	12.7	13.2	14.6	14.2	13.9	15.7	18.9	19.7
NO2-N	mg/L	0.505	0.16	0.212	0.243	0.178	0.142	0.159	0.855	0.81	0.585	0.54	0.43
NO3-N	mg/L	29.8	33	26	22.3	17.2	22.2	22.2	22.50	23.20	24.00	26.20	27.7
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L	2993	3069	2657	1170	1159	2554	3030	3164	3255	3157	3208	3453
TSS	mg/L	5.7	6.1	292.35	762	611	8.25	5	10	18.1	21	5	0.5
Trace Constituents													
CN-F	mg/L	28.2	27.5	41	22.1	17.1	16	8.9	6.4	6.02	8.07	12.3	14.7
CN-T	mg/L	63	71.5	88	49.5	39.3	43	35.2	27.2	29.5	35.000	51.200	61.3
CN-WAD	mg/L	58.5	68.5	81	45.8	37.8	41	32.5	25.2	25.8	33.3	47	54

Sample Point: T8.4

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C									6.7	5.0		
Cond-F	mS/cm									3.300	4.090		
pH-F	pH unit									7.3	9.4		
Major Constituents													
Ca	mg/L						343	367	328	329	285		
Cl	mg/L						18.50	22.00	41.67	39.29	54.50		
CO3	mg/L						1.6	5.3	0.5	1.9	4.5		
HCO3	mg/L						64.0	72.0	58.0	55	37		
K	mg/L						80.90	106.00	107.00	120.00	110.00		
Mg	mg/L						6.7	5.8	6.0	7	7.3		
Na	mg/L						493	538	598	626	614		
SO4	mg/L						1425	1690	1772	1740	1815		
T-Hardness	mg/L						875	943.8	888.3	815.8	987.3		
T-Alkalinity	mg/L							111		74.5	37		
Total Metals													
Ag	mg/L							0.000	0.000	0.001	0.001		
Al	mg/L						0.23	0.13	0.13	0.09	0.067		
As	mg/L						0.003	0.004	0.006	0.004	0.003		
B	mg/L												
Ba	mg/L						0.033	0.026	0.022	0.019	0.021		
Be	mg/L						0.000	0.000	0.000	0.000	0.000		
Bi	mg/L												
Cd	mg/L						0.001	0.001	0.001	0.001	0.001		
Co	mg/L						0.040	0.049	0.056	0.066	0.063		
Cr	mg/L						0.004	0.004	0.004	0.003	0.003		
Cu	mg/L						0.409	0.620	0.416	0.345	0.408		
F	mg/L												
Fe	mg/L						0.44	0.3	0.35	0.31	0.28		
Hg	mg/L							0.000		0.000	0.000		
Mn	mg/L						0.070	0.087	0.05	0.05	0.043		
Mo	mg/L						0.278	0.332	0.388	0.400	0.456		
Ni	mg/L						0.052	0.080	0.021	0.027	0.028		
Pb	mg/L						0.003	0.007	0.019	0.013	0.005		
Sb	mg/L						0.049	0.064	0.055	0.065	0.060		
Se	mg/L						0.015	0.021	0.021	0.027	0.031		
Si	mg/L												
V	mg/L						0.003	0.002	0.003	0.011	0.002		
Zn	mg/L						0.021	0.029	0.026	0.015	0.015		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						22.2	23.8	26.0	24.7	27.7		
NO2-N	mg/L						0.590	0.515	0.7	1.02	0.96		
NO3-N	mg/L						17	20.3	20.80	21.60	22.30		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU							3.08	1.1	1.28	1.18		
TDS	mg/L						2823	3376	3477	3253	3348		
TSS	mg/L						9.75	10	6	5.2	16		
Trace Constituents													
CN-F	mg/L						0.032	0.003	0.003	0.008	0.007		
CN-T	mg/L						0.222	0.268	0.178	0.188	0.120		
CN-WAD	mg/L						0.036	0.027	0.036	0.024	0.020		

Sample Point: W1.4

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					0.4	5.7	6.8	8.8		1.2		
Cond-F	mS/cm					0.014	0.017	0.282	0.228		0.243		
pH-F	pH unit					7.8	7.9	7.9	7.9		8.4		
Major Constituents													
Ca	mg/L						25	31	32	42	31		
Cl	mg/L						1.10	1.10	1.30	3.00	1.30		
CO3	mg/L						0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L						54.0	49.0	45.0	46	60		
K	mg/L						2.03	5.09	4.74	10.70	2.43		
Mg	mg/L						6.9	4.7	4.5	5	8.7		
Na	mg/L						2.90	19.30	18.60	57.10	4.51		
SO4	mg/L						36	77	80	194	57		
T-Hardness	mg/L						80	100	100	160	100		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L						2.06	2.38	5.25	1.80	3.15		
As	mg/L						0.002	0.004	0.002	0.001	0.004		
B	mg/L												
Ba	mg/L						0.060	0.086	0.117	0.084	0.083		
Be	mg/L						0.000	0.000	0.000	0.000	0.000		
Bi	mg/L												
Cd	mg/L						0.000	0.000	0.000	0.001	0.000		
Co	mg/L						0.002	0.002	0.005	0.007	0.002		
Cr	mg/L						0.004	0.004	0.009	0.004	0.004		
Cu	mg/L						0.003	0.020	0.019	0.030	0.023		
F	mg/L												
Fe	mg/L						2.26	3.1	5.60	1.77	3.22		
Hg	mg/L									0.000			
Mn	mg/L						0.064	0.134	0.15	0.07	0.109		
Mo	mg/L						0.002	0.011	0.011	0.032	0.002		
Ni	mg/L						0.003	0.007	0.008	0.003	0.003		
Pb	mg/L						0.007	0.013	0.009	0.015	0.001		
Sb	mg/L						0.001	0.002	0.001	0.010	0.001		
Se	mg/L						0.001	0.001	0.001	0.004	0.073		
Si	mg/L												
V	mg/L						0.003	0.003	0.008	0.003	0.003		
Zn	mg/L						0.010	0.022	0.073	0.013	0.001		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						0.2	0.9	0.8	2.1	0.0		
NO2-N	mg/L						0.001	0.024	0.032	0.18	0.001		
NO3-N	mg/L						0.4	0.9	0.90	2.30	0.50		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					44	118	195	185	419	158		
TSS	mg/L					95	63	294	167	76.0	143		
Trace Constituents													
CN-F	mg/L						0.003	0.003	0.003	0.003	0.003		
CN-T	mg/L						0.003	0.008	0.003	0.017	0.003		
CN-WAD	mg/L						0.003	0.003	0.003	0.007	0.003		

Sample Point: W4.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C						7.1	8.9					
Cond-F	mS/cm						0.020	0.015					
pH-F	pH unit						8.1	8.9					
Major Constituents													
Ca	mg/L						33	25		17			
Cl	mg/L						8.40	4.00		2.90			
CO3	mg/L						0.5	6		0.5			
HCO3	mg/L						70.0	48.0		43			
K	mg/L						1.04	0.67		0.94			
Mg	mg/L						4.0	3.2		2			
Na	mg/L						3.17	2.23		2.24			
SO4	mg/L						9	7		6			
T-Hardness	mg/L						75	60		47			
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L						0.07	0.08		0.43			
As	mg/L							0.001					
B	mg/L												
Ba	mg/L						0.011	0.009		0.016			
Be	mg/L						0.000	0.000		0.000			
Bi	mg/L												
Cd	mg/L						0.000	0.000		0.002			
Co	mg/L												
Cr	mg/L												
Cu	mg/L						0.003	0.003		0.009			
F	mg/L												
Fe	mg/L						0.23	0.2		0.91			
Hg	mg/L												
Mn	mg/L												
Mo	mg/L												
Ni	mg/L						0.003	0.003		0.003			
Pb	mg/L						0.003	0.006		0.021			
Sb	mg/L							0.001					
Se	mg/L							0.001					
Si	mg/L												
V	mg/L												
Zn	mg/L						0.007	0.004		0.149			
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						0.1	0.1		0.1			
NO2-N	mg/L						0.001	0.001		0.001			
NO3-N	mg/L						0.05	0.05		0.05			
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L						127	72		60			
TSS	mg/L						5.7	1		22.0			
Trace Constituents													
CN-F	mg/L												
CN-T	mg/L												
CN-WAD	mg/L												

Sample Point: W4.3.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C						5.2	9.9					
Cond-F	mS/cm						0.020	0.015					
pH-F	pH unit						8.2	8.3					
Major Constituents													
Ca	mg/L						38	31					
Cl	mg/L						9.80	5.30					
CO3	mg/L						0.5	0.5					
HCO3	mg/L						84.0	74.0					
K	mg/L						1.41	1.01					
Mg	mg/L						5.6	4.3					
Na	mg/L						4.00	2.78					
SO4	mg/L						12	9					
T-Hardness	mg/L						90	75					
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L						0.14	0.14					
As	mg/L							0.001					
B	mg/L												
Ba	mg/L						0.024	0.017					
Be	mg/L						0.000	0.000					
Bi	mg/L												
Cd	mg/L						0.000	0.000					
Co	mg/L												
Cr	mg/L												
Cu	mg/L						0.003	0.003					
F	mg/L												
Fe	mg/L						0.21	0.2					
Hg	mg/L												
Mn	mg/L												
Mo	mg/L												
Ni	mg/L						0.003	0.003					
Pb	mg/L						0.003	0.004					
Sb	mg/L							0.001					
Se	mg/L							0.001					
Si	mg/L												
V	mg/L												
Zn	mg/L						0.005	0.010					
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						0.0	0.1					
NO2-N	mg/L						0.001	0.001					
NO3-N	mg/L						0.05	0.05					
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L	103					133	87					
TSS	mg/L						9.3	1					
Trace Constituents													
CN-F	mg/L												
CN-T	mg/L												
CN-WAD	mg/L												

Sample Point: W2.6

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C				4.7	3.4	12	9.7	8.3	6.1	0.55		-0.1
Cond-F	mS/cm				2.26	0.796	0.247	0.486	2.4	2.38	2.82	3.62	4.07
pH-F	pH unit				8.6	7.8	8	8.1	8	8.2	8.3		7.5
Major Constituents													
Ca	mg/L			520	473	309	392	358	463	381	464	542	535
Cl	mg/L			21	20	10.4	16.5	16.8	18.2	20	22.8	23.3	27.7
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCO3	mg/L			360	362	185	280	228	240	250	324	383	460
K	mg/L			42	34.3	17.6	27.5	26.4	30	26.3	33.1	39.6	41.2
Mg	mg/L			311	258	126	197	173	217	189	254	303	314
Na	mg/L			40.1	35.1	17.9	28.4	19.6	27.8	24.5	33.5	38.9	41.8
SO4	mg/L			1600	1513	830	1185	982	1073	1126	1604	1560	1833
T-Hardness	mg/L					1575	1806	1410	1675	1740	2210	2492	2850
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.002	0.002
Al	mg/L			0.04	8.84	1.53	3.21	1.12	1.44	0.8	1.44	3.1	2.15
As	mg/L			0.001	0.008	0.001	0.003	0.002	0.002	0.003	0.004	0.004	0.02
B	mg/L												
Ba	mg/L			0.107	0.101	0.038	0.058	0.062	0.089	0.063	0.054	0.048	0.081
Be	mg/L			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bi	mg/L												
Cd	mg/L			0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001
Co	mg/L			0.002	0.019	0.005	0.009	0.006	0.005	0.005	0.007	0.017	0.019
Cr	mg/L			0.004	0.013	0.004	0.006	0.004	0.008	0.004	0.004	0.004	0.006
Cu	mg/L			0.003	0.013	0.003	0.003	0.006	0.003	0.015	0.003	0.003	0.029
F	mg/L												
Fe	mg/L			0.371	12.1	2.23	4.33	1.71	2.49	1.36	2.17	4.72	3.15
Hg	mg/L												
Mn	mg/L			0.092	1.2	0.461	0.728	0.584	0.761	0.462	0.818	1.31	1.53
Mo	mg/L			0.051	0.055	0.022	0.039	0.037	0.055	0.060	0.049	0.057	0.058
Ni	mg/L			0.014	0.112	0.039	0.061	0.039	0.049	0.065	0.079	0.124	0.152
Pb	mg/L			0.009	0.011	0.008	0.010	0.007	0.010	0.009	0.007	0.007	0.023
Sb	mg/L			0.004	0.006	0.003	0.004	0.004	0.004	0.005	0.006	0.006	0.01
Se	mg/L			0.008	0.008	0.004	0.005	0.006	0.012	0.014	0.022	0.009	0.02
Si	mg/L												
V	mg/L			0.003	0.016	0.003	0.006	0.003	0.003	0.003	0.003	0.003	0.003
Zn	mg/L			0.009	0.041	0.011	0.022	0.066	0.039	0.006	0.017	0.03	0.025
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L			6.6	7.2	5.5	8	6.4	6.2	5.9	6.2	8.4	8.7
NO2-N	mg/L			0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
NO3-N	mg/L			97	90.5	44.5	73.2	61	63.8	68.2	99.6	110	131
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L			2830	2745	1303	2155	2002	2370	2448	3486	3670	4187
TSS	mg/L			7	470	265	152	58	90	68	119	167	89
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CN-T	mg/L			0.003	0.003	0.003	0.005	0.003	0.003	0.003	0.003	0.003	0.003
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003

Sample Point: POR(1)

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C				5.4	3.2	7	4.8	4.9	3.8	2.5	1.2	2
Cond-F	mS/cm				0.683	0.663	0.237	0.581	0.686	0.711	1.16	1.24	1.65
pH-F	pH unit				8	7.8	8	8	8.1	8.1	8.2	8.1	8.2
Major Constituents													
Ca	mg/L				164	65.3	126	93	75.4	109	155	176	141
Cl	mg/L				8.9	5.6	4.2	2.1	2	16	5.1	5.6	6.8
CO3	mg/L				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCO3	mg/L				120	120	100	77	78	110	140	230	120
K	mg/L				7.72	3.23	5.19	4.06	3.02	4.41	4.78	8.42	9
Mg	mg/L				58.2	35.3	61.7	57.4	49	56	62.6	71.3	67.8
Na	mg/L				20.8	4.96	6.22	4.16	3.1	6.56	8.71	20.2	28.3
SO4	mg/L				422.5	192	407	267	262	345.2	485	473.3	517.5
T-Hardness	mg/L						600	450	393.8	494	665	683.3	587.5
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.002	0.002
Al	mg/L				1.38	1.59	2.35	5.77	3.28	0.804	0.414	0.28	0.14
As	mg/L				0.003	0.002	0.004	0.008	0.004	0.003	0.003	0.011	0.02
B	mg/L												
Ba	mg/L				0.049	0.051	0.053	0.074	0.059	0.033	0.035	0.039	0.036
Be	mg/L				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bi	mg/L												
Cd	mg/L				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Co	mg/L				0.002	0.002	0.006	0.009	0.007	0.006	0.002	0.004	0.002
Cr	mg/L				0.004	0.004	0.005	0.009	0.007	0.004	0.004	0.004	0.004
Cu	mg/L				0.003	0.003	0.018	0.017	0.013	0.012	0.003	0.027	0.009
F	mg/L					0.578							
Fe	mg/L				1.75	2.34	4.88	10	5.33	1.41	0.841	0.524	0.308
Hg	mg/L					0.297							
Mn	mg/L				0.223	0.548	0.74	0.72	0.692	0.473	0.304	0.139	0.158
Mo	mg/L				0.041	0.015	0.012	0.007	0.009	0.021	0.019	0.041	0.029
Ni	mg/L				0.018	0.036	0.043	0.041	0.038	0.041	0.038	0.045	0.044
Pb	mg/L				0.003	0.011	0.010	0.013	0.024	0.010	0.004	0.003	0.01
Sb	mg/L				0.015	0.007	0.007	0.003	0.003	0.008	0.012	0.034	0.045
Se	mg/L				0.001	0.004	0.004	0.002	0.002	0.006	0.019	0.004	0.01
Si	mg/L					0.003							
V	mg/L				0.003	0.003	0.005	0.008	0.004	0.003	0.003	0.003	0.003
Zn	mg/L				0.01	0.007	0.021	0.035	0.113	0.017	0.018	0.029	0.015
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L				4.2	8.6	1.11	0.384	0.345	0.844	0.972	6.82	8.85
NO2-N	mg/L				0.031	0.004	0.002	0.003	0.001	0.001	0.001	0.11	0.012
NO3-N	mg/L				16	12	6.46	2.7	2.25	4.76	4.84	18.4	23.5
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L				803	751	736	450	500	655	860	968	1085
TSS	mg/L				33.0	60.0	87.6	271.4	175.0	48.6	17.8	22.0	9.5
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.006
CN-T	mg/L				0.011	0.006	0.005	0.003	0.003	0.006	0.008	0.041	0.088
CN-WAD	mg/L					0.003	0.004	0.003	0.003	0.003	0.003	0.013	0.050

Sample Point: SWS.3

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					3.0	5.6	5.2	4.3	4.3	0.9	1.3	1.8
Cond-F	mS/cm					0.683	0.117	0.493	0.764	1.030	1.010	1.290	1.640
pH-F	pH unit					7.8	7.9	8.0	8.1	8.4	8.3	8.1	8.0
Major Constituents													
Ca	mg/L					133	140	120	83	137	171	184	190
Cl	mg/L					4.80	4.68	2.68	2.10	19.52	5.73	6.40	7.95
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCO3	mg/L					110	100.0	94.0	78.0	120	150	150	140
K	mg/L					5.40	5.22	3.48	2.86	4.42	4.77	10.3	11.60
Mg	mg/L					115.0	88.7	132.0	66.4	110	98.6	79	91.4
Na	mg/L					6.92	6.51	3.19	3.00	6.99	8.93	24.8	36.9
SO4	mg/L					580	470	593	331	527	613	500	603
T-Hardness	mg/L					775	680	825	493.8	830	825	737.5	837.5
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.002	0.002
Al	mg/L					26.90	5.68	5.44	5.10	1.92	1.22	0.235	0.102
As	mg/L					0.034	0.007	0.007	0.004	0.002	0.003	0.01	0.020
B	mg/L												
Ba	mg/L					0.272	0.076	0.070	0.073	0.048	0.042	0.040	0.033
Be	mg/L					0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bi	mg/L												
Cd	mg/L					0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001
Co	mg/L					0.035	0.010	0.013	0.009	0.005	0.003	0.004	0.002
Cr	mg/L					0.037	0.009	0.007	0.011	0.004	0.004	0.004	0.004
Cu	mg/L					0.055	0.016	0.015	0.009	0.012	0.020	0.051	0.003
F	mg/L												
Fe	mg/L					59.40	10.70	9.2	8.05	3.03	2.16	0.391	0.28
Hg	mg/L												
Mn	mg/L					2.29	1.000	1.020	0.77	0.46	0.239	0.155	0.158
Mo	mg/L					0.013	0.010	0.007	0.008	0.014	0.015	0.054	0.031
Ni	mg/L					0.091	0.046	0.051	0.041	0.034	0.035	0.056	0.045
Pb	mg/L					0.040	0.011	0.014	0.033	0.013	0.008	0.003	0.01
Sb	mg/L					0.006	0.006	0.003	0.003	0.006	0.011	0.040	0.043
Se	mg/L					0.005	0.004	0.002	0.002	0.005	0.021	0.005	0.010
Si	mg/L												
V	mg/L					0.045	0.010	0.007	0.007	0.004	0.003	0.003	0.003
Zn	mg/L					0.11	0.029	0.032	0.185	0.013	0.024	0.020	0.014
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L					1.9	1.0	0.4	0.3	0.7	0.7	8.3	12.5
NO2-N	mg/L					0.03	0.001	0.003	0.001	0.001	0.001	0.082	0.027
NO3-N	mg/L					8.2	5.8	2.42	1.98	4.38	4.45	25.50	28.0
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					867	823	1013	844	1070	1156	1070	1270
TSS	mg/L					1180	634.0	349	222	83.5	55	10	5.0
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.006	0.010
CN-T	mg/L					0.003	0.004	0.003	0.003	0.004	0.006	0.080	0.108
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.043	0.057

Sample Point: SWW1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					3.9	10.0	6.3	5.3	4.7	1.6		
Cond-F	mS/cm					0.180	0.147	0.574	1.140	0.953	0.447		
pH-F	pH unit					7.7	8.1	8.0	8.1	8.2	8.2		
Major Constituents													
Ca	mg/L					95	139	198	88	94	94		
Cl	mg/L					3.80	5.24	3.04	2.33	28.00	24.60		
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L					100	120.0	110.0	75.0	98	160		
K	mg/L					3.17	3.60	3.02	1.78	2.14	1.77		
Mg	mg/L					173.0	232.0	283.0	102.0	99	35.1		
Na	mg/L					4.79	4.95	9.39	1.68	3.26	6.63		
SO4	mg/L					710	943	1144	498	433	156		
T-Hardness	mg/L					950	1275	1365	631.2	637.5	333.3		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L					0.002							
Al	mg/L					7.02	42.70	10.00	13.70	8.31	0.217		
As	mg/L					0.005	0.029	0.007	0.007	0.008	0.002		
B	mg/L												
Ba	mg/L					0.075	0.288	0.102	0.129	0.104	0.043		
Be	mg/L					0.000	0.002	0.000	0.001	0.000	0.000		
Bi	mg/L												
Cd	mg/L					0.000	0.000	0.000	0.000	0.000	0.000		
Co	mg/L					0.015	0.044	0.033	0.016	0.011	0.002		
Cr	mg/L					0.01	0.054	0.013	0.022	0.013	0.004		
Cu	mg/L					0.008	0.058	0.016	0.019	0.019	0.003		
F	mg/L												
Fe	mg/L					11.10	60.50	14.8	19.30	13.50	0.36		
Hg	mg/L												
Mn	mg/L					1.24	3.070	2.520	1.20	0.93	0.130		
Mo	mg/L					0.009	0.008	0.005	0.003	0.005	0.004		
Ni	mg/L					0.056	0.118	0.125	0.053	0.036	0.007		
Pb	mg/L					0.019	0.041	0.013	0.034	0.017	0.004		
Sb	mg/L					0.003	0.002	0.001	0.001	0.002	0.002		
Se	mg/L					0.006	0.003	0.004	0.001	0.004	0.029		
Si	mg/L												
V	mg/L					0.011	0.059	0.014	0.022	0.014	0.003		
Zn	mg/L					0.03	0.149	0.052	0.076	0.035	0.009		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L					0.8	0.5	0.2	0.1	0.1	0.0		
NO2-N	mg/L					0.004	0.002	0.002	0.001	0.002	0.002		
NO3-N	mg/L					3.3	2.68	1.64	0.58	0.78	1.40		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					589	1558	1900	821	776	452		
TSS	mg/L					347	3913.0	612	714	379.8	8		
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.004		
CN-T	mg/L					0.003	0.003	0.004	0.003	0.003	0.007		
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		

Sample Point: W1.5.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C				0.83	2.0	2.0	7.0	7.1	3.7	0.9	0.6	
Cond-F	mS/cm				0.796	0.418	0.389	0.317	0.393	0.573	0.662	0.731	
pH-F	pH unit				8.5	8.1	8.0	8.0	8.0	8.0	8.0	8.1	
Major Constituents													
Ca	mg/L				149	54	64	54	48	67	59	99	
Cl	mg/L				13	6.83	4.43	2.57	1.73	4.20	5.33	5.35	
CO3	mg/L				0.5	0.62	0.5	0.64	0.53	0.56	0.57	0.5	
HCO3	mg/L				200	74	70.0	59.0	53.0	56	81	110	
K	mg/L				9.08	2.72	7.10	6.97	5.24	13.30	6.50	6.2	
Mg	mg/L				77.7	23.5	17.8	15.3	16.8	14	19.6	42	
Na	mg/L				14.4	4.32	35.10	25.80	19.30	68.40	23.70	11.4	
SO4	mg/L				673.3	118	177	142	120	241	167	233	
T-Hardness	mg/L				783.3	209.7	213.8	274	166.8	220.1	436.8	375	
T-Alkalinity	mg/L					66		60	41	48	58		
Total Metals													
Ag	mg/L				0.002	0.000		0.003	0.002	0.002	0.005		
Al	mg/L				0.393	2.27	1.87	4.01	4.44	2.71	5.28	0.155	
As	mg/L				0.001	0.002	0.002	0.004	0.003	0.001	0.005	0.001	
B	mg/L												
Ba	mg/L				0.049	0.054	0.055	0.094	0.102	0.075	0.107	0.034	
Be	mg/L				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Bi	mg/L												
Cd	mg/L				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Co	mg/L				0.002	0.003	0.004	0.005	0.004	0.008	0.005	0.002	
Cr	mg/L				0.004	0.005	0.005	0.005	0.005	0.004	0.009	0.01	
Cu	mg/L				0.003	0.006	0.024	0.023	0.020	0.038	0.033	0.003	
F	mg/L												
Fe	mg/L				0.906	3.57	2.76	5.6	4.86	2.84	6.16	0.155	
Hg	mg/L					0.000		0.000	0.000	0.000	0.000		
Mn	mg/L				0.042	0.05	0.050	0.066	0.04	0.08	0.136	0.078	
Mo	mg/L				0.022	0.005	0.019	0.015	0.011	0.038	0.017	0.014	
Ni	mg/L				0.024	0.019	0.015	0.017	0.012	0.011	0.022	0.038	
Pb	mg/L				0.003	0.008	0.011	0.014	0.010	0.006	0.007	0.02	
Sb	mg/L				0.003	0.001	0.003	0.002	0.002	0.003	0.003	0.002	
Se	mg/L				0.005	0.001	0.001	0.001	0.001	0.002	0.012	0.004	
Si	mg/L												
V	mg/L				0.003	0.005	0.004	0.007	0.007	0.011	0.009	0.003	
Zn	mg/L				0.011	0.01	0.017	0.042	0.029	0.015	0.032	0.012	
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L				2.57	0.5	1.5	0.8	0.7	2.3	1.0	0.8	
NO2-N	mg/L				0.001	0.004	0.036	0.018	0.018	0.179	0.046	0.001	
NO3-N	mg/L				32	4.1	2.98	1.84	1.35	3.71	4.74	10.90	
T-PO4	mg/L					0.21		0.064					
TKN	mg/L												
Solids													
Turb-L	NTU					29.5		51.8	104	126	274		
TDS	mg/L				1248	244	334	283	252	473	365	527	
TSS	mg/L				19	162	93.9	291	195	88.4	103	1	
Trace Constituents													
CN-F	mg/L				0.003	0.003	0.006	0.003	0.003	0.003	0.003	0.003	
CN-T	mg/L				0.017	0.005	0.021	0.014	0.014	0.058	0.020	0.003	
CN-WAD	mg/L				0.004	0.001	0.005	0.004	0.004	0.008	0.006	0.003	

Sample Point: W1.6

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					7.0	3.0	5.8	4.2	2.4	3.7		
Cond-F	mS/cm					0.336	0.630	0.344	0.560	0.498	0.755		
pH-F	pH unit					8.1	7.8	7.6	7.3	8.1	8.4		
Major Constituents													
Ca	mg/L					49	86	52	32	56	94		
Cl	mg/L					3.30	6.90	1.90	1.30	3.10	7.20		
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L					72	88.0	66.0	38.0	64	76		
K	mg/L					2.71	7.90	5.85	3.50	8.40	16.40		
Mg	mg/L					22.4	26.3	13.2	8.5	16	18.7		
Na	mg/L					4.66	40.40	22.30	13.00	41.40	88.80		
SO4	mg/L												
T-Hardness	mg/L					160	325	140	130	200	220		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L					2.42	1.43	1.31	4.04	2.37	2.6		
As	mg/L					0.001	0.002	0.002	0.002	0.001	0.012		
B	mg/L												
Ba	mg/L					0.062	0.045	0.069	0.097	0.080	0.081		
Be	mg/L					0.000	0.000	0.000	0.000	0.000	0.000		
Bi	mg/L												
Cd	mg/L					0.000	0.000	0.000	0.000	0.001	0.000		
Co	mg/L					0.002	0.002	0.002	0.002	0.005	0.012		
Cr	mg/L					0.004	0.004	0.004	0.012	0.004	0.004		
Cu	mg/L					0.003	0.010	0.003	0.019	0.046	0.074		
F	mg/L												
Fe	mg/L					2.99	1.95	1.9	4.87	2.88	2.79		
Hg	mg/L												
Mn	mg/L					0.14	0.099	0.193	0.18	0.23	0.117		
Mo	mg/L					0.007	0.016	0.009	0.013	0.022	0.056		
Ni	mg/L					0.014	0.007	0.02	0.027	0.015	0.010		
Pb	mg/L					0.006	0.006	0.019	0.018	0.02	0.014		
Sb	mg/L					0.001	0.003	0.002	0.002	0.009	0.008		
Se	mg/L					0.001	0.002	0.001	0.001	0.006	0.001		
Si	mg/L												
V	mg/L					0.003	0.003	0.003	0.006	0.003	0.003		
Zn	mg/L					0.01	0.012	0.013	0.052	0.095	0.008		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L					0.1	1.5	0.8	0.8	1.4	2.8		
NO2-N	mg/L					0.001	0.046	0.012	0.014	0.007	0.18		
NO3-N	mg/L					1.5	4.1	1.4	1.00	2.00	3.80		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					219	427	230	213	362	535		
TSS	mg/L					57	47.3	301	189	96.0	58		
Trace Constituents													
CN-F	mg/L					0.003	0.008	0.003	0.003	0.003	0.003		
CN-T	mg/L					0.003	0.044	0.012	0.01	0.02	0.023		
CN-WAD	mg/L					0.003	0.015	0.006	0.003	0.003	0.012		

Sample Point: W6.1

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					9.9		9.7	4.5	5.3	4.5		
Cond-F	mS/cm					0.669		0.294	0.140		0.215		
pH-F	pH unit					7.9		8.2	7.1	8.2	8.6		
Major Constituents													
Ca	mg/L					33	37	28	22	31	52		
Cl	mg/L					3.10	3.90	0.90	1.10	1.50	2.20		
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L					74	84.0	62.0	58.0	72	90		
K	mg/L					1.34	0.94	1.43	1.82	1.96	1.46		
Mg	mg/L					4.4	4.8	3.6	3.2	4	6.4		
Na	mg/L					2.66	2.40	1.97	1.23	2.12	3.04		
SO4	mg/L					19	23	14		17	28		
T-Hardness	mg/L					85	100	70	65	100	100		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L					0.53	0.44	1.16	4.06	1.73	0.37		
As	mg/L								0.003				
B	mg/L												
Ba	mg/L					0.014	0.019	0.018	0.032	0.023	0.024		
Be	mg/L					0.000	0.000	0.000		0.000	0.000		
Bi	mg/L												
Cd	mg/L					0.000	0.000	0.000	0.000	0.000	0.000		
Co	mg/L								0.002				
Cr	mg/L								0.012				
Cu	mg/L					0.003	0.008	0.003	0.011	0.019	0.013		
F	mg/L												
Fe	mg/L					0.77	0.69	1.8	7.15	2.56	0.61		
Hg	mg/L												
Mn	mg/L								0.13				
Mo	mg/L								0.002				
Ni	mg/L					0.003	0.003	0.003	0.009	0.016	0.006		
Pb	mg/L					0.004	0.01	0.01	0.013	0.014	0.013		
Sb	mg/L								0.001				
Se	mg/L							0.001	0.001				
Si	mg/L												
V	mg/L								0.007				
Zn	mg/L					0.01	0.014	0.011	0.032	0.015	0.006		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L					0.0	0.1	0.0	0.0	0.0	0.0		
NO2-N	mg/L					0.001	0.001	0.001	0.001	0.001	0.001		
NO3-N	mg/L					0.4	0.3	0.2	0.20	0.20	0.10		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					111	113	87	102	112	132		
TSS	mg/L					5	10.0	24	74	30.0	2		
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		
CN-T	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		

Sample Point: W1.7

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C					9.0	6.2	7.0	6.1	5.5	4.8		
Cond-F	mS/cm					0.240	0.460	0.282	0.322	0.392	0.747		
pH-F	pH unit					7.7	7.6	7.4	7.6	8.2	8.2		
Major Constituents													
Ca	mg/L					43	73	42	35	50	115		
Cl	mg/L					3.80	6.60	2.10	2.30	3.90	2.20		
CO3	mg/L					0.5	0.5	0.5	0.5	0.5	0.5		
HCO3	mg/L					76	96.0	70.0	64.0	76	110		
K	mg/L					2.17	4.66	3.98	2.83	5.74	13.00		
Mg	mg/L					12.3	20.9	9.9	9.1	10	27.7		
Na	mg/L					4.29	21.10	14.10	9.43	28.20	69.30		
SO4	mg/L												
T-Hardness	mg/L					120	210	120	110	160	275		
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L					1.28	0.50	3.04	4.39	1.74	0.73		
As	mg/L					0.001	0.001	0.003	0.003	0.001	0.001		
B	mg/L												
Ba	mg/L					0.026	0.041	0.060	0.080	0.055	0.055		
Be	mg/L					0.000	0.000	0.000		0.000	0.000		
Bi	mg/L												
Cd	mg/L					0.000	0.000	0.000	0.000	0.000	0.000		
Co	mg/L					0.002	0.002	0.002	0.002	0.002	0.007		
Cr	mg/L					0.004	0.004	0.004	0.010	0.008	0.004		
Cu	mg/L					0.003	0.003	0.015	0.012	0.031	0.037		
F	mg/L												
Fe	mg/L					1.92	0.82	4.6	6.04	2.02	0.81		
Hg	mg/L												
Mn	mg/L					0.05	0.063	0.135	0.16	0.07	0.091		
Mo	mg/L					0.002	0.009	0.009	0.007	0.020	0.044		
Ni	mg/L					0.006	0.003	0.022	0.010	0.030	0.027		
Pb	mg/L					0.004	0.012	0.021	0.017	0.015	0.012		
Sb	mg/L					0.001	0.002	0.001	0.001	0.008	0.006		
Se	mg/L					0.001	0.001	0.001	0.001	0.001	0.002		
Si	mg/L												
V	mg/L					0.003	0.003	0.003	0.006	0.003	0.003		
Zn	mg/L					0.01	0.013	0.019	0.049	0.019	0.008		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L					0.1	0.5	0.5	0.4	0.8	2.2		
NO2-N	mg/L					0.001	0.024	0.005	0.011	0.006	0.001		
NO3-N	mg/L					0.9	2.8	0.9	1.00	1.50	3.80		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L					159	359	641	174	251	544		
TSS	mg/L					32	30.3	124	135	93.0	19		
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003		
CN-T	mg/L					0.003	0.006	0.009	0.008	0.015	0.038		
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.005	0.009		

Sample Point: W1.8

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C	0.2	1.3	1.4	7.2	7.6	6.1		11.0	8.1	5.3	0.7	-0.1
Cond-F	mS/cm	0.466	0.2	0.38	0.237	0.316	0.221		0.278	0.348	0.360	0.360	0.424
pH-F	pH unit	7.8	8.2	8.2	8.2	7.7	8.1		7.7	8.1	8.2	8.0	8.7
Major Constituents													
Ca	mg/L	54	61.2	53.2	58.9	50	42	62	43	55	56	53	58
Cl	mg/L	6.2	6	6.5	7.5	5.05	2.80	3.10	2.65	3.98	5.18	6.38	6.47
CO3	mg/L	0.5	0.5	0.5	0.5	0.75	0.5	1	0.5	0.5	0.5	0.5	0.5
HCO3	mg/L	155	155	135	150	120	115.0	81.0	110.0	124	139	146	160
K	mg/L	2	1.67	2.17	1.78	1.54	1.36	2.25	1.66	2.16	1.78	1.5	1.67
Mg	mg/L	17	17.8	16.4	17.9	13.3	10.9	12.7	10.1	14	15.4	15	16.7
Na	mg/L	9	9.41	10.1	10.1	6.58	6.10	6.28	5.94	9.70	8.96	8.5	9.9
SO4	mg/L	67	63	58	65	54	52	46	49	62	66	62	58
T-Hardness	mg/L	200	200	170	190	160	150		145	175	180	192	200
T-Alkalinity	mg/L					111		81					
Total Metals													
Ag	mg/L				0.00375	0.00016		0.00246				0.0015	0.0015
Al	mg/L	0.1	0.1	1.05	0.51	0.38	1.63	2.41	6.05	0.58	0.0762	0.0712	0.130
As	mg/L	0.0005	0.02	0.001	0.0005	0.0006	0.0005	0.0017	0.006	0.0020	0.0065	0.0005	0.0200
B	mg/L												
Ba	mg/L	0.056	0.052	0.06	0.059	0.048	0.069	0.070	0.116	0.058	0.049	0.055	0.056
Be	mg/L	0.0001	0.0001	0.0001	0.0001	0.000075	0.00010	0.0001	0.0005	0.0001	0.0001	0.0001	0.0001
Bi	mg/L												
Cd	mg/L	0.00015	0.001	0.00015	0.00015	0.000082	0.00015	0.000068	0.00015	0.00015	0.00015	0.00015	0.001
Co	mg/L	0.002	0.002	0.002	0.002	0.0011	0.0020	0.00173	0.005	0.002	0.002	0.002	0.0020
Cr	mg/L	0.004	0.004	0.004	0.004	0.00252	0.004	0.00392	0.011	0.004	0.004	0.004	0.004
Cu	mg/L	0.012	0.0025	0.0025	0.0025	0.00248	0.003	0.008	0.013	0.0120	0.00388	0.00738	0.0358
F	mg/L												
Fe	mg/L	0.101	0.112	1.35	0.69	0.46	2.44	3.1	9.60	1.24	0.14	0.115	0.21
Hg	mg/L					0.000005		0.000005	0.00025				
Mn	mg/L	0.01	0.006	0.047	0.026	0.01	0.105	0.097	0.33	0.04	0.012	0.012	0.0147
Mo	mg/L	0.005	0.002	0.002	0.004	0.002	0.002	0.002	0.0020	0.005	0.003	0.00275	0.002
Ni	mg/L	0.0025	0.0025	0.0025	0.0025	0.00255	0.003	0.0049	0.011	0.003	0.003	0.003	0.003
Pb	mg/L	0.001	0.01	0.001	0.008	0.0120	0.006		0.011	0.0155	0.00325	0.008	0.03
Sb	mg/L	0.0005	0.01	0.0005	0.0005	0.00055	0.0005	0.0005	0.0005	0.0034	0.000625	0.001	0.01
Se	mg/L	0.001	0.01	0.0005	0.002	0.0008	0.0005	0.0005	0.0005	0.0149	0.0215	0.00425	0.0100
Si	mg/L												
V	mg/L	0.003	0.003	0.003	0.003	0.00162	0.0030	0.005	0.0105	0.036	0.003	0.003	0.003
Zn	mg/L	0.159	0.188	0.098	0.165	0.15	0.072	0.082	0.056	0.0128	0.007	0.0102	0.0253
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L	0.02	0.02	0.14	0.08	0.1	0.1		0.0	0.1	0.0	0.0	0.0
NO2-N	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0020		0.0025	0.003	0.00262	0.000625	0.0022
NO3-N	mg/L	0.5	0.3	0.6	0.8	0.7	0.7	0.6	0.60	0.73	0.70	0.70	0.8
T-PO4	mg/L							0.098					
TKN	mg/L												
Solids													
Turb-L	NTU					16.4		79.7					
TDS	mg/L	267	242	224	260	198	191	206	190	217	229	242	243
TSS	mg/L	2	0.5	53	24	89	99.0	96	1010	52.2	12	5	10.7
Trace Constituents													
CN-F	mg/L	0.0025	0.0025	0.0025	0.0025	0.00375	0.0025	0.005	0.0025	0.0025	0.0025	0.0025	0.0025
CN-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.00375	0.0025	0.005	0.0025	0.0025	0.003	0.003	0.0025
CN-WAD	mg/L	0.0025	0.0025	0.0025	0.0025	0.00125	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025

Sample Point: W1.8F

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C								12.0	10.0	7.0	0.6	0.0
Cond-F	mS/cm								0.229	0.305	0.347	0.389	0.432
pH-F	pH unit								7.8	8.4	8.6	8.4	8.3
Major Constituents													
Ca	mg/L								41	55	53	49	60
Cl	mg/L								2.60	4.25	5.30	6.62	6.77
CO3	mg/L								0.5	0.5	2.33	0.5	0.5
HCO3	mg/L								102.0	124	130	140	158
K	mg/L								1.62	2.09	1.63	1.4	1.88
Mg	mg/L								9.8	14	15.1	14	17.3
Na	mg/L								5.83	9.83	9.29	8.4	10.4
SO4	mg/L								47	63	66	59	69
T-Hardness	mg/L								135	172	177	192	217
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.0015	0.0015
Al	mg/L								9.84	0.65	0.137	0.0488	0.140
As	mg/L								0.008	0.0023	0.0038	0.0005	0.0200
B	mg/L												
Ba	mg/L								0.163	0.060	0.048	0.053	0.067
Be	mg/L								0.0005	0.0001	0.0001	0.0001	0.0001
Bi	mg/L												
Cd	mg/L								0.00015	0.00015	0.00015	0.00015	0.001
Co	mg/L								0.008	0.002	0.002	0.002	0.0020
Cr	mg/L								0.016	0.004	0.004	0.004	0.004
Cu	mg/L								0.0168	0.0058	0.00433	0.00488	0.0058
F	mg/L												
Fe	mg/L								15.70	1.42	0.19	0.096	0.30
Hg	mg/L								0.0007				
Mn	mg/L								0.52	0.05	0.013	0.010	0.0143
Mo	mg/L								0.0020	0.006	0.002	0.002	0.003
Ni	mg/L								0.018	0.003	0.003	0.003	0.003
Pb	mg/L								0.025	0.015	0.004	0.0105	0.031
Sb	mg/L								0.0005	0.0036	0.0005	0.001	0.01
Se	mg/L								0.0005	0.0144	0.0272	0.00312	0.0100
Si	mg/L												
V	mg/L								0.0185	0.036	0.003	0.003	0.003
Zn	mg/L								0.066	0.0115	0.011	0.0105	0.0183
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L								0.1	0.1	0.1	0.0	0.0
NO2-N	mg/L								0.00125	0.00362	0.00167	0.0005	0.0022
NO3-N	mg/L								0.55	0.73	0.67	0.68	0.8
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L								172	218	233	237	266
TSS	mg/L								1010	74.8	6	4	13.0
Trace Constituents													
CN-F	mg/L								0.0025	0.0025	0.0025	0.0025	0.0025
CN-T	mg/L								0.0025	0.0025	0.003	0.003	0.0025
CN-WAD	mg/L								0.0025	0.0025	0.0025	0.0025	0.0025

Sample Point: P5.2

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C	10	11	12	9.4	12.0	12.0	18.0	14.0	11.0	10.0		7.0
Cond-F	mS/cm	0.099	0.095	0.108	0.094	0.100	0.069	0.014	0.119	0.182	0.145	0.136	0.118
pH-F	pH unit	7.3	7.2	7.6	7.9	7.7	8.0	7.7	7.8	7.4	7.8		7.8
Major Constituents													
Ca	mg/L		22.2	32.8			19	20					
Cl	mg/L		1.3	1.1			1.10	1.00					
CO3	mg/L		0.5	0.5			0.5	0.5					
HCO3	mg/L		32	29			20.0	22.0					
K	mg/L		1.86	2.53			1.43	1.56					
Mg	mg/L		3.99	5.94			3.2	3.7					
Na	mg/L		2.42	3.06			2.19	2.27					
SO4	mg/L		30	32			29	35					
T-Hardness	mg/L		55	55			45	50					
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L							0.002					
Al	mg/L	0.105	0.056	0.093	0.069	0.17	0.12	0.12	0.09	0.07	0.066	0.07	0.070
As	mg/L		0.001	0.001			0.001	0.001					
B	mg/L												
Ba	mg/L		0.02	0.015			0.017	0.031					
Be	mg/L		0.000	0.000			0.000	0.000					
Bi	mg/L												
Cd	mg/L		0.000	0.000			0.000	0.000					
Co	mg/L		0.002	0.002			0.002	0.002					
Cr	mg/L		0.004	0.004			0.004	0.004					
Cu	mg/L	0.020	0.016	0.045	0.016	0.012	0.028	0.028	0.066	0.011	0.01	0.054	0.013
F	mg/L												
Fe	mg/L	0.117	0.1	0.356	0.095	0.03	0.10	0.1	0.13	0.12	0.09	0.079	0.11
Hg	mg/L		0.008										
Mn	mg/L		0.003	0.001			0.003	0.007					
Mo	mg/L		0.005	0.002			0.002	0.002					
Ni	mg/L		0.003	0.003			0.003	0.003					
Pb	mg/L		0.001	0.003			0.002	0.008					
Sb	mg/L		0.001	0.001			0.001	0.001					
Se	mg/L		0.001	0.001			0.001	0.001					
Si	mg/L												
V	mg/L		0.003	0.003			0.003	0.003					
Zn	mg/L		0.010	0.014			0.017	0.017	0.012				
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L		0.06	0.02			0.0	0.0					
NO2-N	mg/L		0.001	0.004			0.001	0.001					
NO3-N	mg/L		0.1	0.4			0.3	0.3					
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L	69.4	80.6	86	69	76	68	78	77	71	73	73	94
TSS	mg/L	16.4	5.0	5.6	12	5	4.8	4	3	3.5	1	1	0.5
Trace Constituents													
CN-F	mg/L												
CN-T	mg/L		0.003	0.003									
CN-WAD	mg/L												

Sample Point: P5.3

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C	12	14	14	12	13.0	13.0	15.0	17.0	15.0	12.0		13.0
Cond-F	mS/cm	0.112	0.107	0.107	0.08	0.107	0.158	0.054	0.110	0.104	0.137	0.193	0.122
pH-F	pH unit	7	7.4	7.1	7.2	7.8	8.3	7.8	7.9	7.9	7.7		8.2
Major Constituents													
Ca	mg/L						18	16				20	
Cl	mg/L						1.00	1.10				1.80	
CO3	mg/L						0.5	0.5				0.5	
HCO3	mg/L						14.0	27.0				29	
K	mg/L						1.43	1.28				1.8	
Mg	mg/L						3.1	2.8				3	
Na	mg/L						2.07	2.20				2.9	
SO4	mg/L						33	30				25	
T-Hardness	mg/L						45	55				55	
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L											0.002	
Al	mg/L	0.09	0.074	0.06	0.069	0.10	0.21	0.09	0.10	0.10	0.079	0.18	0.093
As	mg/L						0.001	0.001				0.001	
B	mg/L												
Ba	mg/L						0.019	0.028				0.020	
Be	mg/L						0.000	0.000				0.000	
Bi	mg/L												
Cd	mg/L						0.000	0.000				0.000	
Co	mg/L						0.002	0.002				0.002	
Cr	mg/L						0.004	0.004				0.004	
Cu	mg/L	0.013	0.014	0.027	0.013	0.01	0.015	0.007	0.015	0.032	0.014	0.011	0.025
F	mg/L												
Fe	mg/L	0.103	0.094	0.055	0.056	0.04	0.20	0.1	0.15	0.19	0.08	0.106	0.14
Hg	mg/L												
Mn	mg/L						0.007	0.010				0.003	
Mo	mg/L						0.002	0.002				0.002	
Ni	mg/L						0.003	0.003				0.006	
Pb	mg/L						0.001	0.005				0.001	
Sb	mg/L						0.001	0.001				0.001	
Se	mg/L						0.001	0.001				0.001	
Si	mg/L												
V	mg/L						0.003	0.003				0.003	
Zn	mg/L						0.019	0.013	0.010			0.017	
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						0.1	0.1				0.0	
NO2-N	mg/L						0.001	0.001				0.001	
NO3-N	mg/L						0.3	0.2				0.30	
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L	75.9	81.2	82	79	74	68	72	76	71	76	73	87
TSS	mg/L	19.1	5.1	7.4	15	6	5.6	4	4	4.3	1	1	0.5
Trace Constituents													
CN-F	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CN-T	mg/L	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CN-WAD	mg/L					0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003

Sample Point: SDP

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C						18.0	7.3	6.3	4.5			
Cond-F	mS/cm							0.494	0.667	0.693			
pH-F	pH unit						7.3	8.1	8.0	7.6			
Major Constituents													
Ca	mg/L							43	54		50		
Cl	mg/L						43.00	40.75	35.67	42.67	45.50		
CO3	mg/L							0.5	0.5				
HCO3	mg/L							160.0	160.0				
K	mg/L							8.07	9.65		8.52		
Mg	mg/L							12.7	14.7		15.8		
Na	mg/L							70.60	74.20		66.90		
SO4	mg/L						108	88	84	92	105		
T-Hardness	mg/L							170	170				
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L								0.002				
Al	mg/L							0.08	0.15		0.129		
As	mg/L							0.002	0.002		0.003		
B	mg/L												
Ba	mg/L							0.025	0.047		0.024		
Be	mg/L							0.000	0.000		0.000		
Bi	mg/L												
Cd	mg/L							0.000	0.000		0.001		
Co	mg/L							0.002	0.002		0.002		
Cr	mg/L							0.004	0.004		0.004		
Cu	mg/L							0.024	0.018		0.021		
F	mg/L												
Fe	mg/L							0.5	0.41		0.34		
Hg	mg/L												
Mn	mg/L							0.178	0.24		0.040		
Mo	mg/L							0.004	0.006		0.002		
Ni	mg/L							0.006	0.008		0.003		
Pb	mg/L							0.005	0.005		0.014		
Sb	mg/L							0.001	0.001		0.001		
Se	mg/L							0.001	0.001		0.01		
Si	mg/L												
V	mg/L							0.003	0.003		0.003		
Zn	mg/L							0.019	0.051		0.019		
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L						3.5	1.8	1.4	0.9	1.3		
NO2-N	mg/L						0.088	0.222	0.077	0.012	0.13		
NO3-N	mg/L						4.1	5.48	5.00	6.33	6.90		
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L						493	418	402	416	435		
TSS	mg/L						14.0	17	2	9.7	1		
Trace Constituents													
CN-F	mg/L												
CN-T	mg/L												
CN-WAD	mg/L												

Sample Point: TPX

		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Field Data													
Temp	°C				19	17.0	20.0	20.0	18.0	18.0	18.0		18.0
Cond-F	mS/cm				2.26	1.980	2.190	2.280	3.070	3.520	3.200	2.350	3.650
pH-F	pH unit				12	11.0	12.0	11.0	11.0	11.0	11.0		11.0
Major Constituents													
Ca	mg/L							650					
Cl	mg/L												
CO3	mg/L												
HCO3	mg/L												
K	mg/L							31.10					
Mg	mg/L							2.5					
Na	mg/L						551.00	354.00	572.00	600.00	561.00	717.0	685.0
SO4	mg/L					730	1197	1358	1006	931	1053	974	620
T-Hardness	mg/L												
T-Alkalinity	mg/L												
Total Metals													
Ag	mg/L												
Al	mg/L												
As	mg/L												
B	mg/L												
Ba	mg/L												
Be	mg/L												
Bi	mg/L												
Cd	mg/L												
Co	mg/L												
Cr	mg/L												
Cu	mg/L			23									
F	mg/L												
Fe	mg/L			1060									
Hg	mg/L												
Mn	mg/L												
Mo	mg/L												
Ni	mg/L												
Pb	mg/L												
Sb	mg/L												
Se	mg/L												
Si	mg/L												
V	mg/L												
Zn	mg/L												
Nutrients													
Un-ionized NH3	mg/L												
NH3-N	mg/L			11.2	8.42	9.1	7.0	3.3	2.6	4.4	2.1	2.4	6.3
NO2-N	mg/L												
NO3-N	mg/L												
T-PO4	mg/L												
TKN	mg/L												
Solids													
Turb-L	NTU												
TDS	mg/L												
TSS	mg/L			362615	505341	360320							
Trace Constituents													
CN-F	mg/L			31.8	10.9	27.2	45.2	27.4	77.4	63.4	79.8	85.6	87.6
CN-T	mg/L			54.4	39.9	45.2	62.9	52	122	122	192	211	198
CN-WAD	mg/L				17.8	31.9	51.8	41.8	101	92.2	143	155	145

Cautionary Note Regarding Forward-Looking Statements

Certain information contained or incorporated by reference herein may include “forward-looking-statements” within the meaning of certain securities laws. Such forward-looking statements involve risks, uncertainties, and other factors that could cause actual results, performance, prospects, and opportunities to differ materially from those expressed or implied by such forward-looking statements.

For a detailed discussion of such risks, uncertainties, and other factors, the Management’s Discussion and Analysis included in Centerra’s most recent Annual Report and Annual Information Form, both of which are available on Centerra’s website. Although Centerra believes that the assumptions inherent in these forward-looking statements are reasonable, the reader should not place undue reliance on these statements. Forward-looking information is as of December 31, 2014. Centerra disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise.

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