

Project ISTC - K-1240p

“Post-containment Management and Monitoring of Mercury
Pollution in Site of Former PO “Khimprom” and Assessment
of Environmental Risk Posed by Contamination of
Groundwater and Adjacent Water Bodies of the Northern
Industrial Area of Pavlodar”

Quarterly technical report

on the work performed from 1 July 2009 - to 30 September 2009

Quarter 16

Non-profit JSC “Almaty Institute of Power Engineering and
Telecommunication”, BG Chair of Environmental Technology

Address: 126, Baytursynov Str., Almaty, 050013, Kazakhstan

Project manager

Ilyushchenko M.A.
PhD (Chemistry)



15.06.2010

Signature / Data

1. Summary of Technical Progress

1.1. Current Technical Status

| Task Subtask | Start (quarter) | End (quarter) | Status / Comments |
|--------------|-----------------|---------------|---|
| 1.1. | 1 | 17 | Implementing/the laboratory equipment purchased are checked for being complete, tested and delivered to the Participant Institution JSC "Kaustik". |
| 1.2. | 4 | 8 | Completed. |
| 1.3. | 1 | 15 | Completed |
| 2.1. | 1 | 2 | Completed |
| 2.2. | 3 | 4 | Completed |
| 2.3. | 5 | 6 | Completed |
| 2.4. | 7 | 12 | Completed |
| 2.5. | 10 | 12 | Completed. |
| 2.6. | 8 | 8 | Replaced with other works in 14-16 quarters. |
| 2.7. | 8 | 8 | Replaced with other works in 14-16 quarters. |
| 2.8. | 9 | 10 | Replaced with other works in 14-16 quarters. |
| 2.9. | 9 | 10 | Completed |
| 3.1. | 1 | 17 | Implementing/the laboratory equipment purchased are checked for being complete, tested and delivered to the Participant Institution JSC "Kaustik". |
| 3.2. | 4 | 6 | Completed |
| 3.3. | 8 | 8 | Replaced with other works in 14-16 quarters. |
| 3.4. | 8 | 8 | Completed |
| 3.5. | 14 | 15 | Completed |
| 3.6. | 15 | 15 | Completed |
| 4.1. | 1 | 2 | Completed |
| 4.2. | 2 | 10 | Completed |
| 4.3. | 3 | 11 | Completed |
| 4.4. | 4 | 8 | Completed |
| 4.5. | 4 | 9 | Completed |
| 4.6. | 14 | 16 | Completed/Recommendations on further use of the wastewater storage pond Balkyldak have been produced. |
| 5.1. | 1 | 17 | Suspension in the work. |
| 5.2. | 1 | 16 | Completed /The results of post-demercuration monitoring were discussed at International Symposium on Contaminated Soils and Sediments arranged within the framework of an exhibition RemTech 2009, Ferrara 23-24 September 2009). |

1.1. Tasks of the work plan

Task 1: Study of the movement of mercury in the groundwater rise in depressed area in saturated and unsaturated zones and its accumulation in the shallow ponds and vegetation. Development of management strategy to contain the risk to population in the vicinity and livestock.

Subtask 1.1: To facilitate the Laboratory of environmental protection of PCP with the equipment for conduction of mercury monitoring, and to train the local staff.

▪ **State / Situation at the beginning of the current quarter**

Requisition for purchase of laboratory equipment and materials for the Participant Institution JSC “Kaustik” has been drawn up and sent to ISTC Procurement office.

▪ **Fulfilled work**

As being delivered to AIPET, the laboratory equipment was unpacked, checked for being complete, tested if necessary, and dispatched to Pavlodar city to the Participant Institution JSC “Kaustik”.

▪ **Results by the end of the current quarter**

The laboratory equipment delivered to AIPET is dispatched to Pavlodar city to the Participant Institution JSC “Kaustik”.

▪ **Personnel Commitments**

| Name | Category | Work days |
|-------------------------------------|----------|-----------|
| Kaustik | | |
| Merenkova Lyudmila Borisovna | 1 | 15 |
| Solov'eva Nadezhda Vassilievna | 1 | 17 |
| AIPET | | |
| Uskov Grigoriy Aleksandrovich | 2 | 12 |
| Stepanov Vladimir Aleksandrovich | 3 | 30 |
| Mukhamejanov Khamit Valiakhmetovich | 2 | 20 |

Task 3. Study of the spread of groundwater plume contaminated with oil products from the territory of Pavlodar Oil Refinery; development of model and assessment of environmental risk posed by oil-products contamination of groundwater in the Northern industrial area of Pavlodar: Subtask 3.1: To facilitate the Laboratory of environmental protection of PCP with the equipment to monitor contamination of groundwater with oil products, and to train the local staff.

▪ **State / Situation at the beginning of the current quarter**

Requisition for purchase of laboratory equipment and materials for the Participant Institution JSC “Kaustik” has been drawn up and sent to ISTC Procurement office.

▪ **Fulfilled work**

As being delivered to AIPET, the laboratory equipment was unpacked, checked for being complete, tested if necessary, and dispatched to Pavlodar city to the Participant Institution JSC “Kaustik”.

▪ **Results by the end of the current quarter**

The laboratory equipment delivered to AIPET is dispatched to Pavlodar city to the Participant Institution JSC “Kaustik”.

▪ **Personnel Commitments**

| Name | Category | Work days |
|----------------|----------|-----------|
| Kaustik | | |

| | | |
|-------------------------------------|---|----|
| Merenkova Lyudmila Borisovna | 1 | 14 |
| Solov'eva Nadezhda Vassilievna | 1 | 16 |
| AIPET | | |
| Uskov Grigoriy Aleksandrovich | 2 | 15 |
| Stepanov Vladimir Aleksandrovich | 3 | 25 |
| Mukhamejanov Khamit Valiakhmetovich | 2 | 29 |

Task 4: Assessment of possibility to contain the risk posed by mercury pollution of lake Balkyldak including the fish within it:

Subtask 4.6: To identify the pathways of Hg bioaccumulation and to develop the possible solutions to break these pathways.

▪ **State / Situation at the beginning of the current quarter**

Presentation M. Ilyushchenko, P. Randall, R. T. Tanton, A. Ubas'kin, G.A. Uskov "Mercury Contamination of a Wastewater Storage Pond of Chlor-Alkali Production in Pavlodar and Problems of its Remediation" was done and discussed at the special session of 9th International Conference "Mercury as a Global Pollutant" (China, Guiyang, 7-12 June, 2009).

▪ **Fulfilled work**

Together with the administration of JSC "Kaustik" and the project partner the Participant Institution PSU the results of investigation of the biota mercury contamination in the wastewater storage pond Balkyldak and prospects of its further use were discussed including feasibility to apply ichthyologic poisons in order to stop sport fishing of mercury contaminated fish. Taking into account substantial decrease in mercury concentration in water of the wastewater storage pond and fish caught out of the pond during the post-demercuration period the consensus has been reached to give recommendation for local authority in output documentation of K-1240p project to continue both their explanatory activity through the mass media such as warning about a danger to use fish from the wastewater pond Balkyldak as a foodstuff and a practice of administrative ban against fishing in the pond Balkyldak.

A question about excavation or immobilization of mercury contaminated bottom sediments of the wastewater storage pond Balkyldak should be examined after decision about its further use would have been made that depends first of all on perspectives of JSC "Kaustik" development. Possible technical solutions for demercuration of the wastewater storage pond Balkyldak have been discussed.

▪ **Results by the end of the current quarter**

Recommendations for the local authorities on reduction of risks posed by mercury contaminated fish from the wastewater storage pond Balkyldak have been discussed together with the administration of JSC "Kaustik" and the project partner the Participant Institution PSU which would be formulated in resulting documents of K-1240p project.

▪ **Personnel Commitments**

| Name | Category | Work days |
|---------------------------------|----------|-----------|
| Kaustik | | |
| Akhmetov Arthur Darazhatovich | 1 | 33 |
| PSU | | |
| Ubaskin Alexander Vasilievich | 2 | 20 |
| AIPET | | |
| Ilyushchenko Mikhail Alexeevich | 1 | 10 |
| Yakovleva Lyudmila Vassilievna | 2 | 10 |

Task 5: To draw up and discuss with local stakeholders the recommendations for the 2nd stage of demercuration and other remediation activities in the area of the former PO "Khimprom"

(Northern industrial area of Pavlodar), including the recommendation for abolishment or further safe use of the wastewater storage pond – lake Balkyldak:

Subtask 5.2: To hold the workshops, press-conferences and presentation in order to discuss the interim results.

- **State / Situation at the beginning of the current quarter**

At the 9th International Conference on Mercury as a Global Pollutant (Guiyang, China June 7-12, 2009) ISTC special session has been arranged where 5 presentations (2 platform presentations and 3 poster ones) were done on the results of ISTC K-1240p project.

Manuscript and abstract were prepared for International Symposium on Contaminated Soils and Sediments arranged within the framework of an exhibition RemTech 2009, Ferrara 23-24 September 2009: M.A.Ilyushchenko, V.Yu.Panichkin, P.Randall, T.W.Tanton, S.A.Abrashitova, O.L.Miroshnichenko, L.V.Yakovleva “Influence of efficiency of chlor-alkali production cleanup from mercury on groundwater status in Pavlodar City, Kazakhstan”.

- **Fulfilled work**

Platform presentation: M.A.Ilyushchenko, V.Yu.Panichkin, P.Randall, T.W.Tanton, S.A.Abrashitova, O.L.Miroshnichenko, L.V.Yakovleva “Influence of efficiency of chlor-alkali production cleanup from mercury on groundwater status in Pavlodar City, Kazakhstan” was made at International Symposium on Contaminated Soils and Sediments, arranged within the framework of an exhibition RemTech 2009, Ferrara, Italy, 23-24 September 2009.

- **Results by the end of the current quarter**

Presentation: M.A.Ilyushchenko, V.Yu.Panichkin, P.Randall, T.W.Tanton, S.A.Abrashitova, O.L.Miroshnichenko, L.V.Yakovleva “Influence of efficiency of chlor-alkali production cleanup from mercury on groundwater status in Pavlodar City, Kazakhstan” was made at International Symposium on Contaminated Soils and Sediments, arranged within the framework of an exhibition RemTech 2009, Ferrara, Italy, 23-24 September 2009.

- **Personnel Commitments**

| Name | Category | Work days |
|---------------------------------|----------|-----------|
| AIPET | | |
| Ilyushchenko Mikhail Alexeevich | 1 | 10 |
| Yakovleva Lyudmila Vassilievna | 2 | 10 |
| Kamberov Rustam Irkenovich | 2 | 31 |

Task 0.: Project Management

- **Fulfilled work**

The Report for Quarter XVI was prepared.

- **Personnel Commitments**

| Name | Category | Work days |
|---------------------------------|----------|-----------|
| AIPET | | |
| Ilyushchenko Mikhail Alexeevich | 1 | 17 |
| Yakovleva Lyudmila Vassilievna | 2 | 17 |
| Ibraeva Alma Abylkasymovna | 3 | 15 |

2. Summary of Personnel Commitments

| | Number of persons | Total days | Total grants (US\$) |
|--------------|-------------------|------------|---------------------|
| Category I | 4 | 132 | 3690 |
| Category II | 4 | 144 | 4660 |
| Category III | 2 | 70 | 1675 |
| Category IV | 1 | 20 | 400 |
| Total: | 11 | 366 | 10425 |

Change in the project personnel

| Name | Previous | | | Newly appointed | | | Comments |
|------|----------|------------|-----------|-----------------|------------|-----------|----------|
| | Category | Daily rate | Work days | Category | Daily rate | Work days | |
| no | | | | | | | |

3. Preparation of reports and publications

The Report for Quarter XVI has been prepared

Manuscript have been published as follows:

M.A.Ilyushchenko, V.Yu.Panichkin, P.Randall, T.W.Tanton, S.A.Abrashitova, O.L.Miroshnichenko, L.V.Yakovleva "Influence of efficiency of chlor-alkali production cleanup from mercury on groundwater status in Pavlodar City, Kazakhstan". Proceedings of the International Symposium on Contaminated Soils and Sediments, RemTech 2009, Ferrara 23-24 September 2009. CD. DEA-EDIZIONI, Milano 2009, P.227-235.

4. Significant Travel and Meetings

4.1. Travel and meetings inside CIS

no

4.2. Travel and meetings outside CIS

Participants of ISTC K-12450p project:

1. Ilyushchenko Mikhail Alexeevich
2. Yakovleva Lyudmila Vasilievna

were sent to Ferrara, Italy for participation at International Symposium on Contaminated Soils and Sediments, arranged within the framework of an exhibition RemTech 2009, Ferrara, Italy, 23-24 September 2009. The trip was funded from the budget of K-1240p project.

5. Cooperation with foreign collaborators

- Exchange of scientific materials (information, computer programs and data, samples)

The manuscript and presentation for International Symposium on Contaminated Soils and Sediments, RemTech 2009, Ferrara, Italy, 23-24 September 2009 were discussed with Paul Randall, K-1240p project coordinator

6. Procurement

| Number in | Name | Status |
|-----------|------|--------|
|-----------|------|--------|

| | | |
|---------------------------|----|--|
| accordance with Work Plan | | |
| | no | |
| | | |

7. Questions, suggestions

(Including plans for the next quarter(s), if initial Work Plan has been changed significantly).

no