

NATO-CCMS Pilot Study on Selected Industrial Sectors: Mega Sites
Ottawa, Canada – June 12-16, 2005

MEETING REPORT

Summary

At this annual meeting of the Pilot Study, twenty countries participated, including three for the first time—Ukraine, Poland, and Georgia—while Australia and Japan attended (again) from outside the NATO sphere.

Outputs from the meeting will include a book of abstracts and a CD containing all presentation materials (i.e. powerpoint slides) from current and previous meeting; they will be NATO publications. Multiple copies of the CD and the book of abstracts are sent to each country rep to assure broad dissemination. In addition, all the meeting presentation materials will be mounted on the CLU IN web site at: www.cluin.org/ottawa by mid-July.

Twenty-one technical papers fell under the broad topics of former military sites, former industrial production, harbors and rivers, and risk assessment. Seven countries gave Tour de Table presentations-- summaries of the state of the development of waste and/or contaminated land programs in their respective countries. In addition, Lithuania and the Canadian Treasury Secretariat (the Canadian OMB) gave special presentations on industrial contamination of groundwater near cities and the new program to clean Canadian Federally-owned properties, respectively. A briefing on EPA electronic information resources included information on the web site, documents, recorded internet seminars, and training courses and materials.

Next year's sector of interest is redevelopment and remediation of (small) sites in urban settings; the meeting will be held in Athens, Greece. The countries also decided to request the CCMS plenary to extend the Pilot Study to five years, in order to cover industry sectors that were of mutual interest.

Highlights (Most of these presentations can be reviewed in their entirety at www.cluin.org/ottawa)

o The **Canadian plenary speaker from the Treasury Secretariat** described a new Government initiative to spend \$3.5 Billion Canadian over the next 15 years dealing with 25,000 Federal properties across 80 departments/agencies covering an area the size of Germany. This program resulted from repeated audits and findings of inadequacy beginning in the 1980's and culminating in a final assessment of the 4,000 contaminated sites needing attention in 2002. Sites have been classified by type, and early action is required at high risk sites. A public data base of all sites has been mounted on the internet.

Several new developments in country remediation programs were covered in the **Tour de Table** presentations:

o **Latvia**– Despite a lack of funding for polluted sites cleanup, an inventory and national database have nearly been completed. An additional implementation problem is the lack of capacity at the municipal level to carry out program functions which is complicated by no former “owners” of state run factories. A new National Environmental Policy Plan 2004-2008 has been adopted which includes three goals relevant to contaminated sites: to eliminate or reduce pollution caused by previous military or economic activities and the adverse impact thereof on human health, property, environment and biological diversity; to achieve improvement in soil, ground, underground and surface water quality in polluted sites; and to preclude the penetration of hazardous substances from polluted sites into surface and underground waters. About 16 million Euro is need to deal with the major sites of national significance; new European cohesion funds are expected to support some of this cost. In addition, a new environmental agency dealing with both hazardous wastes and radioactive wastes has been formed outside the Ministry of Environment.

o **Lithuania**– Of 3519 registered contaminated sites, about 412 have been investigated and about 133 deemed significant. A presentation was given related to several industrial fertilizer sites and their investigation of their impact on soil and groundwater especially near public water supply intakes. Further investigations of other industrial sites are planned.

o **Romania**– A new National Environmental Protection Agency was created several months ago to be the implementing agency for the Ministry of Environment. Beginning with 200 people this year and 200 more next year, the Agency will have a number of functions including: technical support to the Ministry of Env. and Waste Management, coordinating national action plans on wastes, air, packaging, etc., operating national reference laboratories on media (except water), organizing national info systems on the environment, national monitoring systems, and coordinating the work of 8 regional and 42 local offices implementing environmental legislation (previously reporting to the Ministry). Much technical assistance will be needed and appreciated over the next several years.

o **Netherlands**– In this presentation, the status of the contaminated soil issue was reviewed from the perspective of government, business, and citizens. From a government perspective, it was asserted that Parliament is tired of soil contamination (“isn't this problem solved yet?”) and the era of regulations has passed with competition from other environmental policy arenas. Consultants have formed a strong infrastructure, soil clean up companies have merged with other firms and the 400 million Euro/year market has 3-4% profit, and environment is not a popular major for students. Citizens are mainly concerned with soil pollution from the real estate value perspective (vs. public health) and air pollution and electromagnetic radiation are now in the forefront for citizen groups.

o **Japan**– Several topics were discussed including implementation of 2003 Soil Contamination Law, the creation of fixed facilities with public-private operation to destroy PCB stockpiles, and completion of a multi-year demonstration program for destruction of POP's chemicals. Under the Soil Law, closing facilities are required to use an approved “surveying” organization (1500 have been approved) to investigate their site OR the local governor may require surveying. Different organic and inorganic chemicals have specified (leaching) tests to determine contamination. If contamination will affect human health, the local governor can order clean up. To date, 1254 facilities have closed with 56 areas designated as contaminated and 20 cleaned up. Four permitted facilities have been set up for soil cleaning. Regarding PCB's, Japanese law requires destruction of all stored materials by 2016 and the first of five fixed facilities will come on line in November 2005 in Tokyo. Finally, Japan now recognizes the following technologies as proven for destruction of POP's: incineration (~1000C), mechano-chemical, geomelt, vacuum thermal, hydrothermal, super-critical water oxidation, BCD, and sodium reduction.

Technical Presentations (See detailed presentations at www.cluin.org/ottawa/.)

Mining Sites

o The **Canadian Giant Mine Site** was a unique case study because it deals with 237,000 tons of arsenic dust resulting from past gold mining in a tundra type environment in northern Canada. The solution is

to place all the arsenic dust back in chambers 250 feet deep, flood the chambers and re-freeze the caverns to be kept cold by the surround tundra; the original mining was done using hot air and running water to remove the ores.

- o The **Salsigne Gold Mine in France** also dealt with 200,000 tons of arsenic trioxide resulting from the mining of 100 tons of gold. With 2.4 million m³ of soil and waste, a risk management strategy was adopted to excavate and landfill (11 hectares) soil of greater than 3,000 ppm and then phytostabilize the remaining land (20 hectares) below this surface layer that was removed.. Field plots for different stabilization strategies have produced results, and scale up is planned in the future. The total cost for this demonstration is about 13.5 million Euros.

- o An interesting progress report was given by Belgium on a **low cost/passive multi-barrier treatment “wall” for acid mine drainage** at a site in Bulgaria. The concept was to test in the field the feasibility of multiple treatment processes in one treatment chamber embracing chemical transformation, biotransformation, bioprecipitation, and sorption.

Former Industrial Sites

- o In the **Czech Republic at the former Skoda automotive site** of 230 hectares, over 178,000 tons of contaminated soil plus groundwater had to be dealt with. The presentation discussed three different bioremediation projects which combined product recovery with surfactant flushing and biodegradation of petroleum and solvents (at two different operable units) and soil washing. Over 138,000 yards of soil were cleaned using these various techniques.

The Czech Republic has financed \$1 Billion of clean up at 270 projects from its National Property Fund since 1991.

- o In **Australia at the Kingston Development of 40 hectares** in Canberra, the consultant highlighted the criticality of appropriate site investigation (including a valid conceptual site model—apropos of the Triad), a third party auditor for their work, contingency planning, and continuous communication of uncertainties to the stakeholders as crucial to success. Interestingly, the presenter highlighted the value of EPA information on technologies as an aid in cost estimating for the project.

- o **Three presentations from the Netherlands, Poland, and Germany highlighted the evaluation of a software tool WELCOME (Integrated Management System for the Prevention and Reduction of Pollution of Waterbodies)** that was developed with EU funding. Each presentation explored how to use this software tool to organize and systematically analyze mega sites—their risks and exposures and risk management approaches. Taking one of the example sites, the Tarnowski Gory industrial plant in Poland used the methodology to analyze aquifer contamination affecting 300,000 people and develop options for both the unsaturated and saturated zones (including in the latter case barrier walls and addition of electron donors to facilitate degradation).

Harbor Sediments

- o The **Rock Bay Site in Victoria, Canada was the site of an MGP plant** for 90 years with other uses and contaminated both the immediate property and the neighboring sediments with PAH's, coal tars, etc. While the remediation was largely excavation and disposal, the implementation challenges and stakeholder issues (both owners and neighbors) made the site quite complex.

- o The **LaChine Canal in Montreal, Canada** is an urban canal in which precise characterization, modeling, and monitoring led to a unique risk management strategy (leaving sediment in place) due to the largely recreational use of the canal. Nonetheless, continuous site monitoring and management will be necessary to assure that no risks arise during unusual weather or other events.

- o A CD with copies of this year's meeting report and report with abstracts of the meeting should be available by late fall.

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