FY 2012

Contaminated Sites Program

Division of Spill Prevention and Response

Annual Report

August 2012

Site cleanup and restoration work at the Kincaid Park site, a former shooting range in Anchorage. Late summer of 2011. – Eileen Olson and Robert Weimer, Project Managers

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
Annual Summary of Contaminated Sites
August 2012

Forward

This report is generally intended for use by the Contaminated Sites Program (CSP) staff of the Alaska Department of Environmental Conservation (DEC) as a tool for measuring accomplishments, reporting on projects and activities, planning future workloads and managing the program. As such, a working knowledge of the program is assumed and both detailed and general background information has been omitted.

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
Annual Summary of Contaminated Sites
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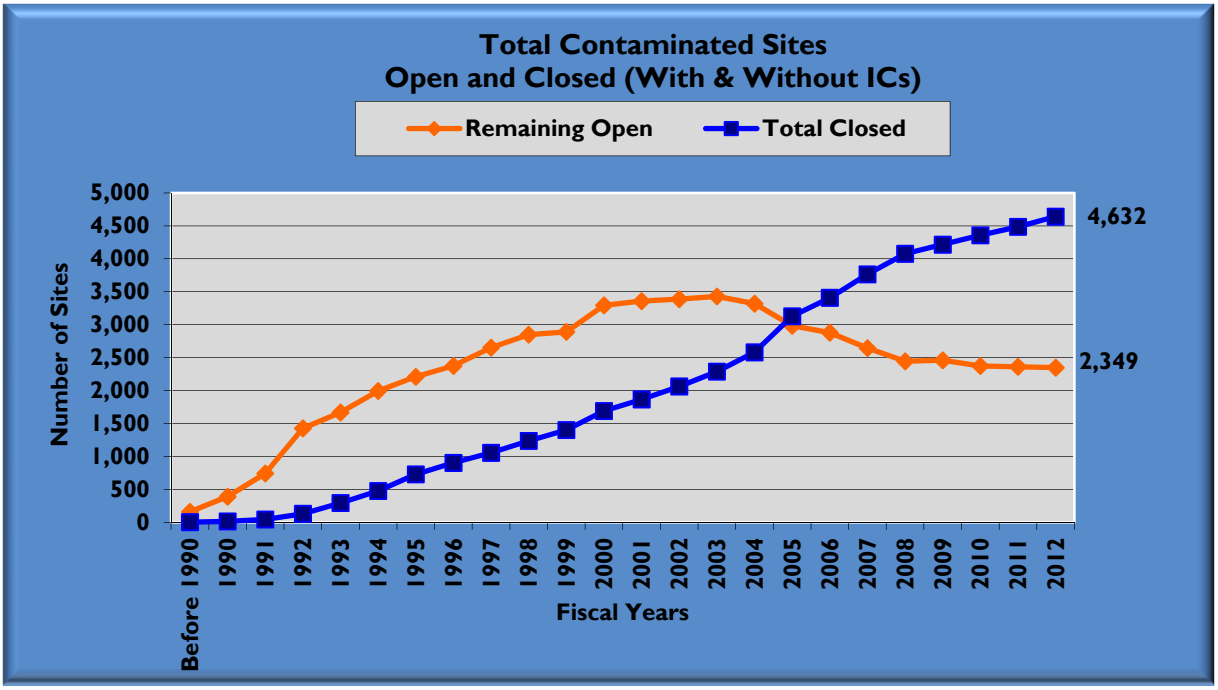
Executive Summary

The Contaminated Sites Program carried out a focused effort in 2012 to raise the level of achievement toward performance measures, particularly site closures. A key component of the effort consisted of systematic targeting of stalled sites. Although the stalled sites effort is still nascent, the preliminary impact on site closures in FY 2012 was positive. Project managers not only surpassed the 129 closures achieved in FY 2011, they exceeded the program's performance measure goal of 150 closures by four additional closures. In addition, the LUST site closure goal of 41 was exceeded for a total of 45.

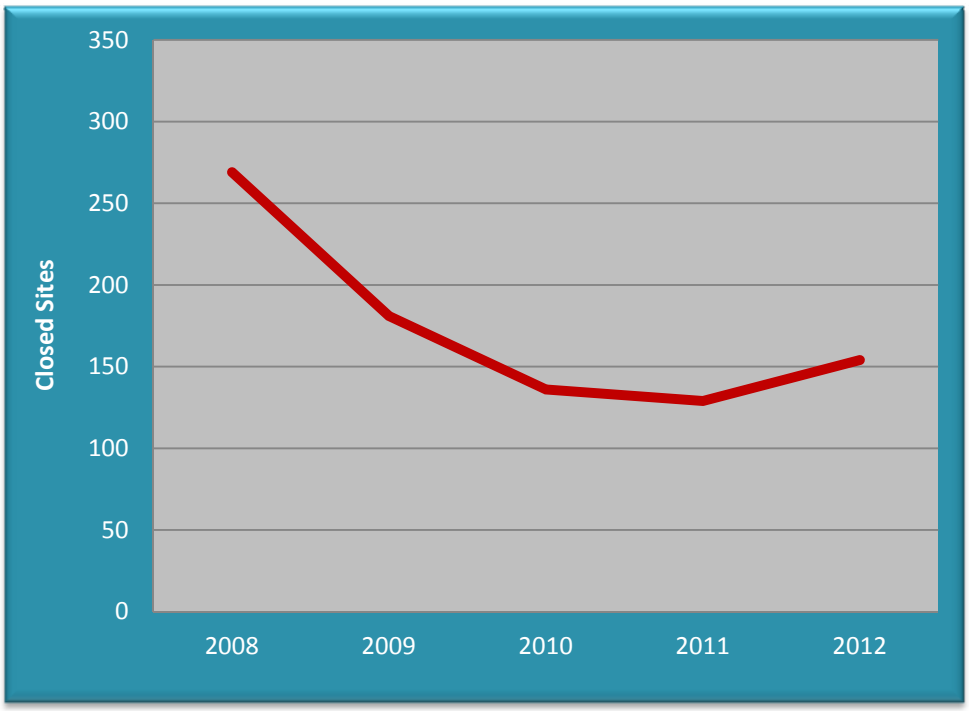
In other areas, the program continued to expand its outreach to Alaska Native villages and other rural communities. In addition, contaminated sites staff began a collaboration with the department's Solid Waste Program to address contamination issues resulting from coastal erosion, as part of the Coastal Impact Assistance Program. The program also continued to increase its field presence overall with a greater number of site visits than in past years.

Now, a look at the numbers. To date, 66% of contaminated sites documented in the database have either been closed or closed with institutional controls.[1] Ten years ago there were more than 3,300 open sites inventoried; since then, 2,696 sites were added to the database and 3,500 sites were closed. As of June 30, 2012, there were 2,348 open sites. The graph below provides historical data going back to 1990.[2]



[1] Data generated using the CS Database open and closed sites report.
[2] Data generated using the CS Database open and closed sites report.

Although the absolute number of open sites has decreased considerably in 10 years, the rate of site closure also continues to decrease. The five-year average for fiscal years 2008 through 2012 is 143 site closures annually. The following graph illustrates this trend.[3] A concerted push to achieve closures in 2012 is also reflected.



Five-Year Site Closure Trend (by Fiscal Year)
Includes sites closed with and without institutional controls

During FY 2012, CSP made a concerted effort to examine the underlying causes for the falling closure rate, and tested strategies to address the challenges. As can be seen by the slight uptick in closures for 2012, the program made some headway addressing stalled sites. Measures included assigning lower priority, languishing sites to new staff as a training opportunity; issuing liens; encouraging large property managers to enforce environmental conditions with leaseholders; increasing our field presence and face-to-face interactions with RPs; rewarding action with the promise of a cleanup complete determination; and identifying funding sources for sites without viable RPs. The effort got underway in earnest about half-way through the fiscal year; therefore, we expect to see additional positive outcomes as the effort continues in FY 2013. The program will look toward greater use of compliance and enforcement tools in the coming year, with the ultimate goal of further exceeding our annual performance measures for closures in FY 2013.

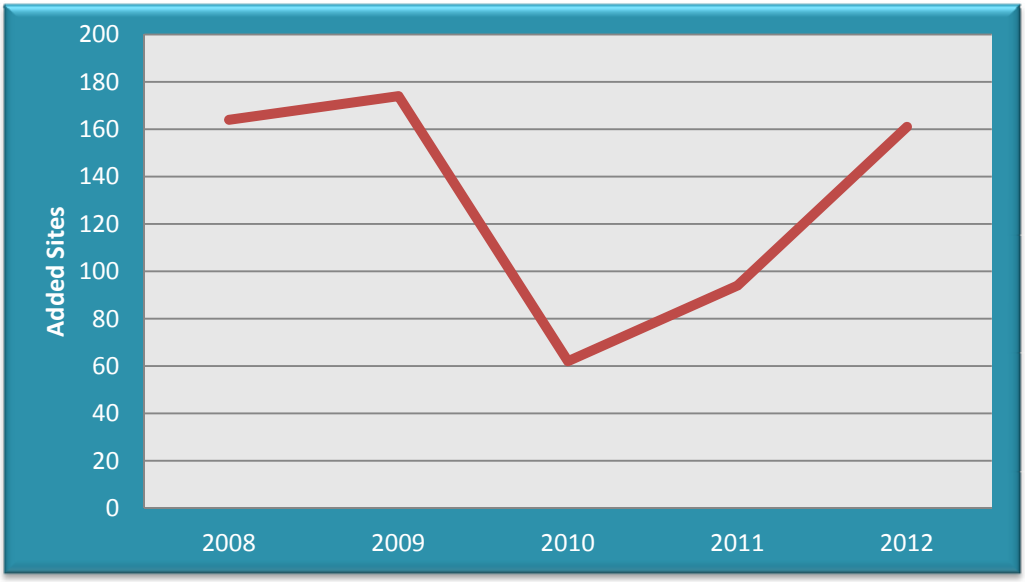
A total of 198 sites were added to the CS database in FY 2012, including 48 sites transferred from PERP.[4] Thirty were later found to be either unconfirmed or non-qualifying (as defined by the CSP database

[3] Data generated by CS Database query using Action with Action Date where Action = Cleanup determination issued between July 1, 2011 and June 30, 2012. Data added to prior year data from End of Year report spreadsheet.
[4] Database query by Action with Action Date where Action = site added to database, and 2nd query by Action with Action Date where Action = site transferred from PERP.

inclusion criteria). Two sites were listed as informational in order to track EPA Targeted Brownfields Assessments. Twenty-two sites added to the database in FY 2012 were also closed during the fiscal year.[5]

A total of 138 sites added in FY 2012 were still open at the end of the fiscal year. About 38% of these open sites are state or private; federal sites constitute about 62%.[6] Diesel is the primary contaminant of concern.[7]

The number of sites added to the database in FY 2012 was the highest in several years. One of the main factors for this spike was the addition of 35 Dutch Harbor sites (associated with Fort Mears) and 14 sites at the FAA Cold Bay Station.[8]



Five-Year Added Site Trend
Includes sites closed with and without institutional controls

Progress toward Annual Performance Measures

The CSP achieved 101% of its total site closure performance measure in FY 2012 and 100% of its risk reduction performance measure. In addition, the CSP achieved 101% of its federal LUST Closure performance measure, which represents a standing 10% of the total inventory of open LUST sites. In FY 2012 there were 414 such sites.[9]

Performance Measure	Goal	Number Achieved in FY 2012
Total Site Closures	150	154
Exposure Pathways Closed	700	712
LUST Closures	41	45

[5] CS Database query - Action by Action date, where action = Site Added to Database, exported to Excel and sorted by status.
[6] CS Database query – Action by Action date where action = Site Added to Database, exported to Excel and sorted by PM, tallied, and sorted by status.
[7] CS Database query – Action by Action date where action = Site Added to Database AND COC = Diesel
[8] Data generated from an Open Sites Report, incorporated with prior-year data.
[9] Data from Open Sites Report.

Discussion

In FY 2012, about 58% of the total site closures were at state and private sites and 42% were at federal facilities.[10] As discussed earlier, sites are closed either with or without institutional controls. About 82% of the FY 2012 site closures were issued without institutional controls.

The FY 2012 number of closed exposure pathways was up by 15 over FY 2011. Exposure pathways are how contaminants reach human or ecological receptors. One example is drinking contaminated groundwater. A "closed" exposure pathway is a measure of risk reduction. Closing a pathway means response actions modified the relative risk of exposure – from current, high potential, low potential or future exposure – to either *de-minimis* contamination or residual contamination managed through the use of institutional controls.

A pathway may also be closed if it is determined to be "incomplete." That means there is no possibility of the receptor being exposed any longer as a result of response actions. Using the contaminated groundwater example, the groundwater ingestion pathway would be shown to be incomplete if concentrations are below regulatory cleanup levels.

[10] Data generated using Main Search Tool—"Action with action date" = Cleanup Complete Determination Issued between July 1, 2011 and June 30, 2012. Sort output by PM, differentiate S&P from FF, and then tally.

TOP 10 PROGRAM ACCOMPLISHMENTS
FY 2012

1. Achieved site closure and reuse at Kincaid Park, where a former shooting range had resulted in widespread lead and antimony contaminated soil.

2. Closed 10 Eareckson Air Station sites on Shemya Island.

3. Confirmed Sawmill Cove benthic community (Alaska Pulp Corporation site) is recovering ahead of schedule.

4. Partnered with the Corps of Engineers to ensure proper removal and treatment of nearly 12,000 tons of lead and petroleum contaminated soil from Northeast Cape.

5. EPA Headquarters awarded DEC Reuse and Redevelopment staff for *"Outstanding Brownfields Teamwork."*

6. Conducted 267 IC compliance reviews; removed institutional controls on 148 sites.

7. Developed the Alaska Groundwater Injury Assessment Model, a framework for natural resource damages assessment, or NRDA.

8. Updated the Exposure Tracking Model to enable more robust workload prioritization.

9. Provided vapor intrusion training in Anchorage to CS and other SPAR staff.

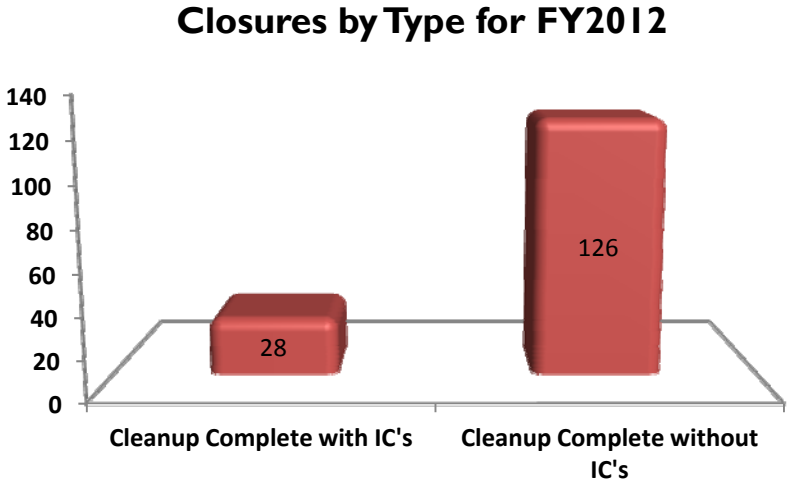
10. Exceeded Performance Measures.
    - Closed 712 exposure pathways (goal = 700)
    - Conducted 238 site visits (goal = 200)
    - Closed 154 total sites (goal = 150); 45 of these were LUST closures (goal = 41)

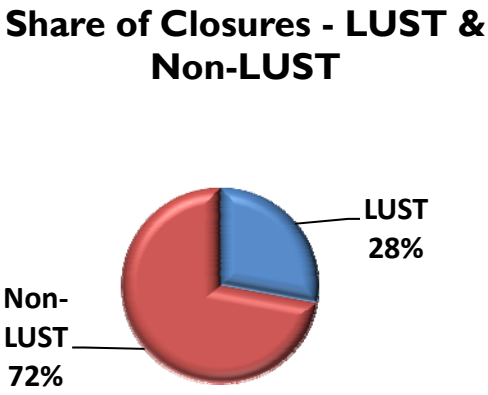
Site Closure Statistics

In FY 2012, 154 sites were closed.[11] About 58% of the total site closures were at state and private sites and 42% were at federal facilities. About 82% of the sites were closed free of any formal institutional controls.

The following table and charts show the total number of open and closed sites at the end of FY 2012, the cumulative number of closed sites to date, and the breakdown between types of closures and which closures were LUST and non-LUST. Closed sites means that the status of those sites changed from active to either cleanup complete or cleanup complete with institutional controls because remedial activity at the site is complete.[12]

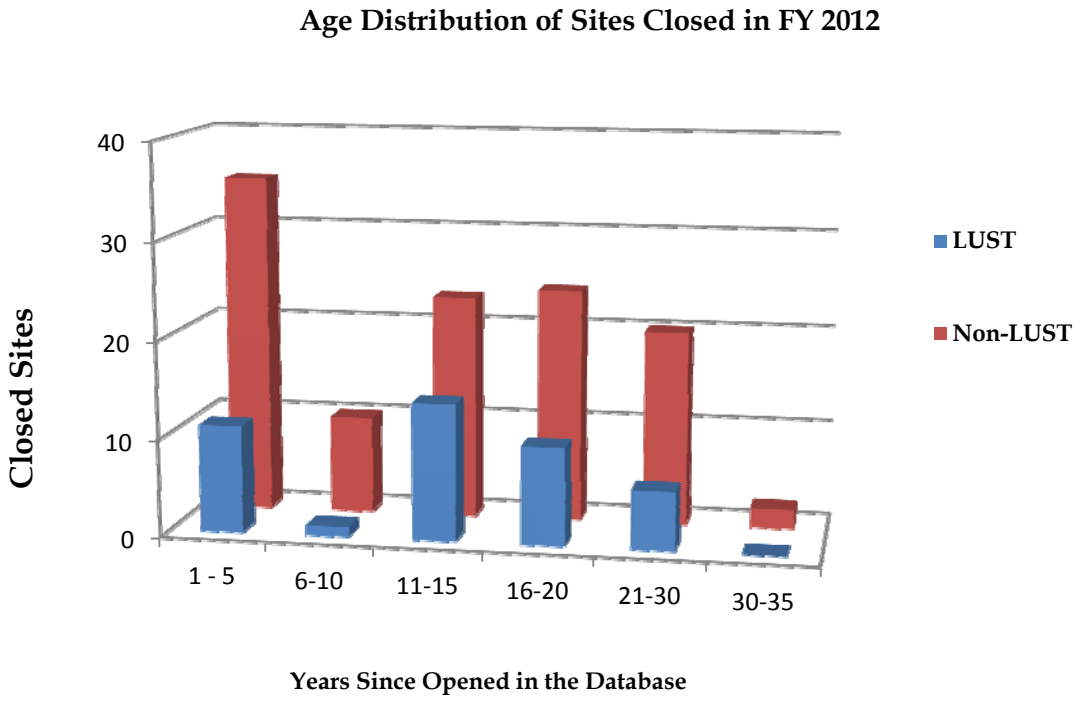
Running Totals at the Close of FY 12			
Type	**LUST**	**Non-LUST**	**Total**
Open	**398**	**1951**	**2349**
Closed	**1666**	**1803**	**3469**
Closed with IC's	**283**	**880**	**1163**





[11] CS Database query – Action by Action Date where Cleanup determination was issued.
[12] Open Sites Report and Closed Sites Report. A few sites are listed as both LUST and non-LUST. For these, they should be quantified as LUST only, to ensure the total is accurate.

The following graph depicts the age class of the contaminated sites that were closed in FY 2012. The age refers to the number of years since the date of release until the site was closed. Based on the age breakdown, 30% of the sites closed in FY 2012 were 5 years old or less, however, 63% of the closed sites were 11 years old or older. For example, two of the non-LUST sites closed in FY 2012 had been open between 31 and 35 years.[13]

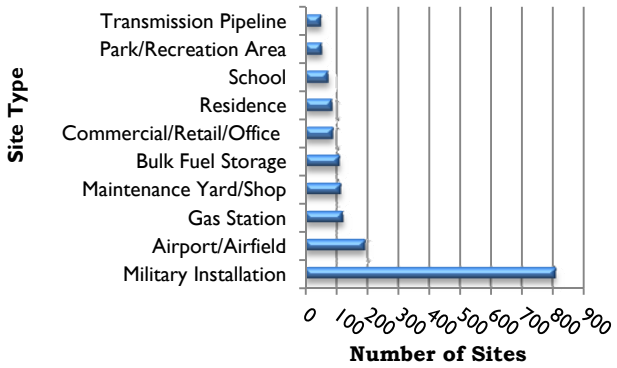


[13] This was generated by a SPAR-IT custom query of the database called "Age Distribution of Sites Closed" and filtered using MS Excel.

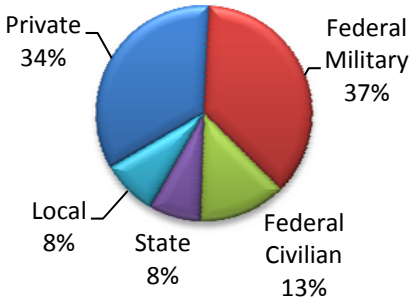
Open Sites Statistics

The table on the left (below) breaks down the tally of all open sites in our database by the 10 most common facility types, while the pie chart on the right provides a breakdown of open sites by responsible party type.[14] About half of our sites have state, local and private responsible parties, while federal military and civilian agencies comprise the other half.[15]

Open Sites: Top 10 Facility Types

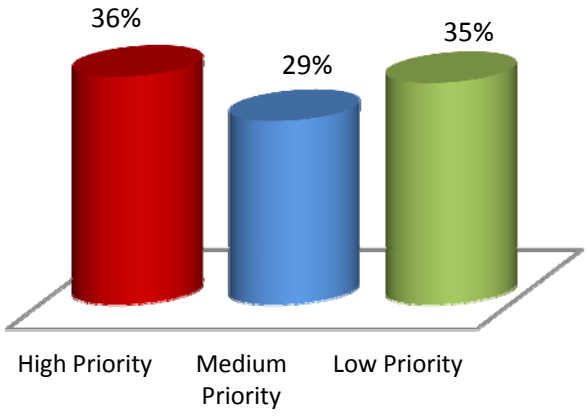


Open Sites by Responsible Party



The chart below shows the distribution of open sites by staff workload priority. The program's workload prioritization system, based on Exposure Tracking Model results and other factors, provides project managers and supervisors with a powerful tool to ensure limited resources are dedicated toward the sites most in need. Delay factors, such as an unwilling RP, may move a site down in priority. Acceleration factors, such as an imminent property transfer, may elevate a site to a higher priority.[16]

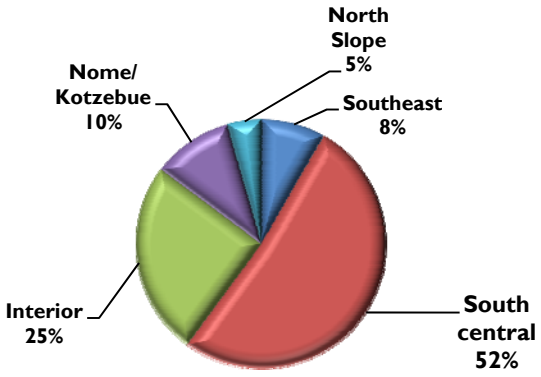
Distribution of Open Sites by Project Manager Workload Priority



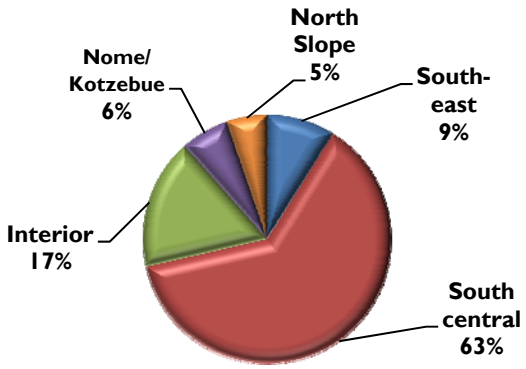
[14] Data generated by a SPAR-IT custom query of the CS Database called, "Open Sites: Top 10 Facility Types"
[15] Data generated by a SPAR-IT custom query of the CS Database called, "Open Sites by Responsible Party"
[16] Data generated via the Workload Prioritization Report in the CS Database

The following charts compare cumulative open and closed sites and their distribution across various regions of the state. The majority of open sites on the database are located in the southcentral part of the state; and correspondingly, southcentral Alaska has the greatest percentage of sites closed.[17]

Distribution of all Open Sites by Region



Distribution of all Closed Sites by Region



Site Transfers from the Prevention and Emergency Response Program

Forty-eight sites were transferred from PERP to the CSP. Of these, the Red Dog Mine Dewatering Module was determined to be non-qualifying because of an agreement that spills within the operating mine boundary be ultimately cleaned up during the mine closure process through the ADEC Wastewater Program. Data for the JBER-Ft. Rich FTR269A confirmed that contaminant concentrations were below cleanup levels; this site was determined to be non-qualifying according to database inclusion criteria.

Of the remaining 46 sites, five were closed during the fiscal year. The remaining 41 sites are currently open. Sixteen are federal, including 13 at the major military bases in the vicinity of Anchorage and Fairbanks; four are local or state government; and 21 are private.[18]

Field Presence

CSP had a strong field presence in FY 2012 with 238 site visits, a slight increase over last year. About 69% of these inspections were not on the road system. Federal site inspections accounted for about 25% of the total; state and local government and private sites accounted for about 75%.[19]

Institutional Controls

Institutional controls (ICs) are required on sites where low level or inaccessible contamination remains. ICs consist of mechanisms (such as a deed notice or compliance order), specific conditions to ensure contaminant exposure does not occur (such as a groundwater use restriction), and periodic reporting to DEC (such as verifying that land use has not changed). Some sites require more than one IC mechanism to provide multiple layers of protection.

As of the close of FY 2012, the IC Unit has made significant progress to evaluate and transfer all sites closed with ICs, consisting of 264 sites managed by project managers in Anchorage. This adds to the 120

[17] Data generated by SPAR-IT custom queries of the CS Database called, "Distribution of all Open Sites by Region" and "Distribution of all Closed Sites by Region".
[18] Data generated by running the Closed Sites Report for FY12 and sorting the results in Excel.
[19] Data generated by user query of CS database, action by action date where action = site visit, sorted by PM and manually tallied.

Fairbanks-managed sites evaluated in FY 2011. Continued efforts for FY 2013 will complete assessment of the state and private sites closed with ICs that remain (mainly Soldotna and Anchorage). When the state and private effort is complete, IC Unit staff will begin a review of Federal Facility sites.

In July 2009 the Contaminated Sites Program updated its closure policy. Advantages of the new policy is that it allows for more staff flexibility in applying institutional controls on contaminated sites by including the contaminant exposure risk in the closure consideration and also makes the ICs that are applied more meaningful, informative, and protective. The policy discourages ongoing monitoring (groundwater, surface water, monitored natural attenuation) being applied as an IC. In most cases if a site has ongoing monitoring, it remains in an active status. The 2009 policy is used as a guidance/comparison during the IC evaluation process to see if sites closed prior to 2009 meet the requirements of this policy.

During the FY 2012 IC evaluation process, there were 148 sites discovered where the ongoing ICs could be removed. This frees up IC Unit staff time to address sites that have issues that require ongoing oversight and follow up.

The criteria that are taken into consideration when deciding whether the ICs can be removed or if oversight will be a requirement are:

- Original closure date
- Contaminant type and concentration
- Contaminated media
- Current site conditions
- Exposure risk
- IC type

Following is a general example of a site where ICs would be removed.

Diesel contaminated soil from a buried heating oil tank remains at a contaminated site due to excavation limitations. Diesel (DRO) is the only contaminant and the small amount of remaining contaminated soil is buried 10 feet below the ground surface. The groundwater is not impacted and is not used as a drinking water source. The site is remote, the source was removed at the time of excavation, and the time period since the original contaminant leakage has most likely allowed for natural degradation of the small amounts of remaining DRO. The original ICs have no follow up required in order to keep track of possible changing land use. After an IC compliance review using the 2009 closure policy, it is found that adding follow up requirements to this site would be unnecessary since the exposure risk from the small amount of remaining contamination is extremely low. ICs can be removed freeing up more time to address sites where the exposure risk is higher.

For FY 2012, a large variance in sites closed with ICs (28 total) and sites closed without ICs (126 total) was observed and is suspected to be a delayed response to the implementation of the 2009 closure policy. In past years the two totals have been much closer in number. We believe this is the beginning of a trend where a larger number of sites will be closed without ICs because project managers have more flexibility in their decision making since they can consider exposure risk. Another factor in the trend is that more sites will remain active until required monitoring is completed.

IN-STATE MEETINGS AND EVENTS FY 2012

Annual Contaminated Sites Program Meeting

A one-day meeting was held in Anchorage in early November. Presentations on the following topics were given by managers and staff: Program Priorities and the Four-Year Plan; Coastal Impact Assistance Program; Site Discovery; Compliance Assistance/Enforcement; Languishing sites, and the cleanup success at Kincaid Park.

State and Tribal Response Program Workshop

CSP's Reuse and Redevelopment staff hosted the third annual workshop for Alaska Tribal Response Programs in Anchorage during the week of the Alaska Tribal Environmental Conference.

PROGRAM-WIDE TRAINING EVENTS FY 2012

Vapor Intrusion Training

Hartman Environmental Geoscience conducted a technical training course May 8-9, 2012 on Vapor Intrusion and the processes for evaluating the vapor intrusion pathway at contaminated sites. The course provided instruction on the use of investigative tools and mitigation approaches necessary to protect human health, and included an overview and analysis of current and emerging technical guidance documents on the topic. This training enhanced the technical capacity of 40 CSP staff and allows us to work effectively with responsible parties and consultants to identify the best approach for their particular site, therefore providing increased benefit to the public.

Staff-Led Sessions on Regulations, Policy and Technical Topics

About once a month, depending on staff schedules, CSP staff participate in and take turns leading 1 hour, statewide teleconference sessions on a range of topics that include regulations, case studies, peer reviews, guidance and policy documents, and high points of recent training courses. Sessions are open to anyone in the program who wants to attend. The goal is to encourage knowledge sharing among staff, and promote CS program consistency and excellence through a better understanding of the regulations and exchange of information and ideas. Below are the sessions held in FY 2012.

DATE	TOPIC	PRESENTER
9/16/2011	Natural Resource Damages	Sally Schlichting
11/4/2011	Environmental Molecular Diagnostics (EMDs)	Jim Fish
12/9/2011	18 AAC 75.355 Sampling and Analysis	Tamar Stephens
1/27/2012	Site Access and Search Warrants	Breck Tostevin, Dept of Law
4/25/2012	McCoy RCRA Training Summary	Bill O'Connell
4/25/2012	AEHS Foundation Conference- Polar Compounds	Grant Lidren
6/1/2012	AEHS Foundation Conference	Janice Wiegers
6/1/2012	Groundwater Pollution and Hydrology Course	Melody Debenham

STATE AND PRIVATE CLEANUP PROGRAM ACCOMPLISHMENTS FY 2012

Flint Hills Refinery, North Pole

DEC has continued to conduct unparalleled oversight and facilitation of the investigation and cleanup of this site. A more robust monitoring well network was established in concert with extensive numerical modeling efforts to better understand contaminant movement. New cleanup technologies and natural attenuation processes were researched for help in selecting the final cleanup approach, anticipated by the end of calendar year 2012.

DEC's Ann Farris inspects pumping operations at the refinery.

A risk assessment was completed, which included a detailed analysis of the toxicity of sulfolane and the uptake of sulfolane into garden vegetables. Three newsletters were issued, and two open houses were held to provide stakeholders the opportunity to meet with technical personnel from the state, Flint Hills, and EPA. Finally, DEC began negotiating with the Flint Hills legal team to craft a Compliance Order by Consent.

ADOT&PF Aniak Multiple Sites- Aniak

Historic spills and leaks from various sites resulted in soil and groundwater contamination at several state-owned sites at the Aniak Airport including ADOT&PF Aniak Building 301, ADOT&PF Aniak Maintenance Shop Former ASTs, ADOT&PF Aniak Runway Apron, and MarkAir Aniak Airport. CIP funding was approved to address complete exposure pathways to petroleum contamination by human and ecological receptors in 2011 at these state-owned sites. Project activities conducted in FY 2012 consisted of excavating approximately 2,200 cubic yards of petroleum contaminated soil from the three ADOT&PF sites and landfarming the soil on Airport Property, along with 1,100 cubic yards of contaminated soil from the former MarkAir site that was excavated during Village Safe Water activities in 2010. CS staff traveled to Aniak during the field effort to document, take photographs, and to coordinate the effort with ADOT&PF. Follow up activities including the tilling of landfarmed soil and potentially additional excavation is anticipated for FY 2013.

Coastal Impact Assistance Program (CIAP)/Waste Erosion Assessment and Review (WEAR)

The CIAP WEAR project is a joint effort by the DEC Solid Waste Program (SWP) and CSP. The objective of the project is to evaluate eroding landfills and contaminated sites, primarily in rural coastal Alaska, that could pose a risk to human health or the environment. Following a detailed review of available information, SWP and CSP staff will be traveling to up to 40 villages in 2012 with additional site visits planned for 2013 and 2014, if necessary. The results of the effort will be a prioritized list of sites at risk from erosion that could then pose a risk to human health or the environment, as well as village specific action plans that outline potential resources available to address the issues.

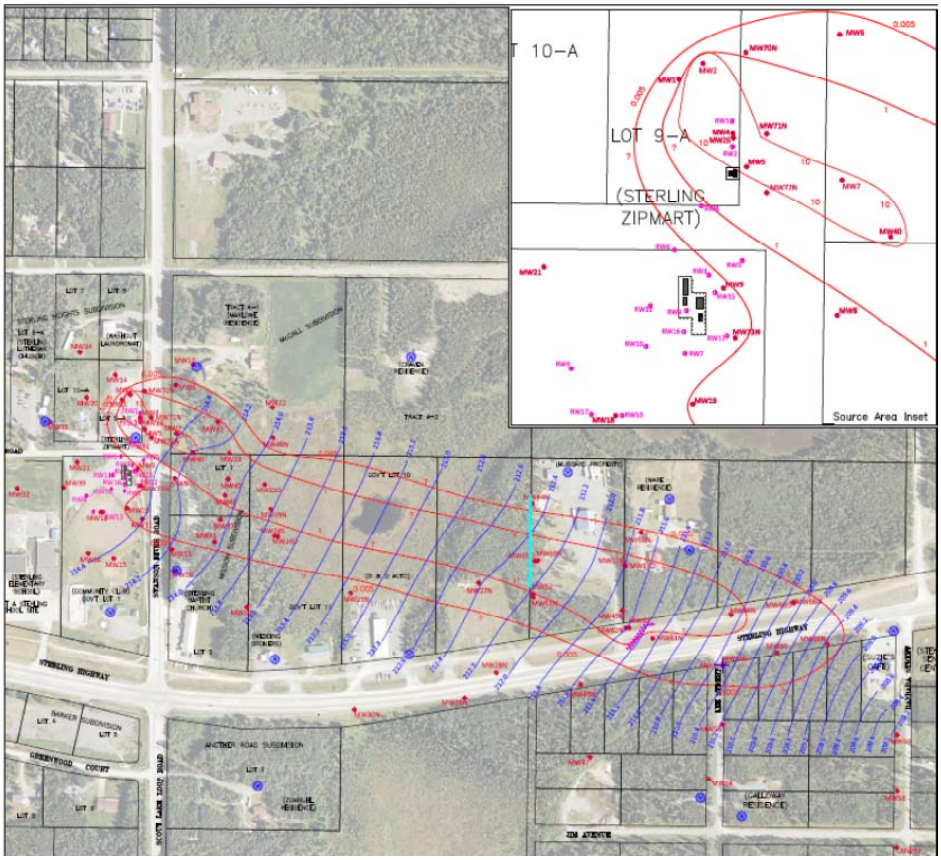
Bicknell Soil Treatment Facility-Juneau

CSP reviewed and is anticipating approval of a Facility Operations Plan for a soil treatment facility in Juneau. The Facility will be operated by Bicknell Inc, who plans to treat petroleum contaminated soil by landfarming on an engineered pad that is covered by a pole barn to minimize accumulation of moisture. No public comments were received by CSP following public notice in May 2012, and operation of the facility is expected to commence in July, 2012.

BP Exploration Alaska North Slope Project

The Prudhoe Bay Unit (PBU) is the largest oil field in North America. Wastes generated at the PBU have historically come from a variety of sources including oil and gas drilling, development, production operations, construction projects, laboratory operations, North Slope cleanup operations, and accidental releases of product. Subsequent to a RCRA Facility Assessment (RFA), EPA determined that certain waste constituents found are classified as hazardous waste. EPA is requiring investigation and/or assessment at some of these areas to ensure protection of human health and the environment.

Activities conducted in FY 12 included hydrologic studies at two sites, Pad 13 and Sand Dunes Landfill, additional investigation at the Tuboscope site, and the refinement of the list of contaminants of potential concern and associated screening levels to be used in the facility-wide risk assessment. This will be an ongoing project and is anticipated to last for several years as there are hundreds of areas of concern at this site.



STERLING ZIPMART, KENAI

Remedial efforts to date have included source removal, and operation of a product recovery system and a soil vapor extraction system (SVES). The system was expanded to include air injection wells and additional vapor extraction wells as well as augmentation of the plume with oxygen release compound (ORC) to enhance natural attenuation. DEC continues to monitor water quality in both groundwater and drinking water wells. Further expansion of the remediation system is planned, which will involve installation of 14 additional air spar wells (sparge-curtain) downgradient of the source, and possible in-situ treatment with chemical oxidation.

ADOT&PF KNIK RIVER REST STOP, PALMER

The Knik River Rest Stop contaminated site was originally owned by the Bureau of Land Management (BLM). The Alaska Department of Natural Resources (ADNR) worked with BLM to clean up the site which has been historically used as an informal shooting range and dump site. Although the effort removed a significant amount of lead contamination from the former shooting areas; results from follow-up sampling by CSP identified several areas that exceeded lead cleanup levels.

Investigation conducted during FY 11 successfully delineated the extent of lead impacts. A geotechnical fabric liner was placed over each of the three impacted areas which were then capped with up to 12 inches of compacted gravel. To further enhance stability of one capped area, topsoil was then placed and hydroseeded with native vegetation. In FY 12, site inspections found the vegetation efforts to be successful and the cap stable. CSP is now coordinating with the State Veterinarian, Dr. Robert Gerlach, and the Department of Health and Social Services (DHSS) to implement a fish monitoring program following the stocking of Reflections Lake by ADF&G. Fish tissue samples will be collected on an annual basis and analyzed for lead to evaluate the potential uptake of lead by sport fish. Previous fish tissue samples did not contain detectable concentrations of lead in sport fish and the Epidemiology Section of DHSS had indicated there is no risk from fish consumption and no reason to limit sport fishing at this time.

KINCAID PARK, ANCHORAGE

Cleanup of lead and antimony contamination to state and federal cleanup standards was completed in October 2011, with site closure granted in May 2012 by both the Environmental Protection Agency (EPA) and DEC's Contaminated Sites Program. With the exception of 78 tons of soil that was shipped out of state as hazardous waste in October 2008, work to evaluate and clean up visible lead and lead-contaminated soil was done between mid-May and mid-October 2011. Contaminated soil was treated with phosphate-rich fertilizer and lime to stabilize lead so that the treated soil could be disposed of at the Anchorage Regional Landfill as non-hazardous waste. An estimated total of 9,031 pounds of lead was removed from the site through the completion of remedial activities in October 2011. This mass of lead was found to be consistent with estimates of the mass of bullets discharged over the life of the range.

CAPITAL IMPROVEMENT PROJECTS- STATE-LEAD AND STATE-OWNED SITES

The CSP continued its efforts to investigate and clean up state-lead and state-owned contaminated sites. In FY 2012, Capital Improvement Project (CIP) funding was expended on state-owned and state-lead contaminated site assessment, cleanup and monitoring projects. The CIP spending strategy was developed and presented to management. It consists of a site prioritization structure, a cost estimation model, and specific funding-allocation recommendations for various stages of cleanup.

Funding was approved for CSP contractors to work on 13 state-lead sites and 23 state-owned sites in FY 2012. Due to factors such as fiscal year overlap and encumbered versus expended funds, it is important to note that there is not a direct relationship to the total amount expended in FY 2012 and the projects that received funding approval. Projects approved for CIP funding in FY 2012 are described briefly below.

State-Lead Sites

314 WENDELL AVENUE – Operate a soil vapor extraction and sub-slab depressurization remediation systems. Continue to collect and analyze indoor air and soil gas for remedial system evaluation, and collect groundwater, surface water, pore water, sediment, and aquifer microbiology samples as part of the Chena River Monitoring Plan.

GAFFNEY ROAD WEST (ROYAL MASTERS LAUNDERETTE) – Continue operations and maintenance of the soil vapor extraction system in accordance with the existing Long term Monitoring and Maintenance Work Plan for the Gaffney Road Area-West. In addition, elements of the remediation system have been upgraded to improve performance. Coordination with the University of Alaska Fairbanks (UAF) on their ongoing research activities related to Gaffney West plume continued during the initial half of FY 12.

M&M ENTERPRISES – Remove the old cap; design and install a new cap for lead contamination. Completed design and permitting; constructed retaining wall and drainage improvements to prepare for installation of a new cap for lead contamination in early FY 13.

SIX MILE GROUNDWATER – Continue long-term groundwater monitoring and monitoring and treatment of drinking water wells. Investigate potential for vapor intrusion. Field work was completed in the summer of 2011 with vapor intrusion investigating ongoing through the end of FY 12.

RIVER TERRACE RV PARK – Continue treatment of lower plume with existing treatment system and long-term groundwater monitoring to evaluate dissolved chlorinated solvent trends.

State-Owned Sites

DEED KASIGLUK-AKIUK OLD BIA SCHOOL TANK FARM – Prepare the site for cleanup by removing tanks and debris, clarifying the extent and magnitude of contamination present, and preparing a corrective action plan.

ADOT&PF FORMER GLENN HIGHWAY MAINTENANCE AND FISH AND GAME FACILITIES – Conduct additional site characterization, groundwater investigation, and limited corrective action.

HUSLIA HUNTINGTON SCHOOL CLEANUP – Inspect and conduct sampling of stockpiles of contaminated soil located at the former landfill to determine if their contaminate concentrations allow for spreading at the former landfill.

HUGHES SCHOOL & COMMUNITY TANK FARM CAP – Create an analysis of brownfield cleanup alternatives (ABCA) and a corrective action plan (CAP) for both properties. These documents are necessary before a cleanup of the subject properties can be initiated.

FORMER TOGIAK SCHOOL SAMPLING – Complete a vapor intrusion evaluation of the remaining buildings at the Former Togiak School property and evaluate for the potential for contamination to migrate to the surface water and sediments of Togiak Bay.

ADOT&PF QUINHAGAK AIRPORT – Complete reporting on the removal of petroleum contaminated soil to eliminate the environmental hindrances and enabling the transfer of the site.

ADOT&PF YAKUTAT AIRPORT – Conducted Phase I Environmental Site Assessment of 60 parcels associated with the Yakutat Airport.

STATE OF ALASKA DIMOND COURTHOUSE AND COMMUNITY BUILDINGS – Conducted additional groundwater monitoring to determine whether these sites have been successfully remediated and can be closed.

STEVENS VILLAGE OLD SCHOOL STOCKPILE – Sample 1,500 cubic yards of soil from two stockpiles and determine if the soil is suitable as cover for the Stevens Village landfill. Sampling was completed in June 2012.

ADOT&PF FORMER NAPA AUTO CAR CARE CENTER – Evaluated the levels of chlorinated solvents in on-site groundwater monitoring wells. This data will be used to support a closure determination.

ADOT&PF LIVENGOOD MAINTENANCE FACILITY – Complete groundwater sampling of five monitoring wells and characterize soil in two areas where spills from aboveground storage tanks occurred. This sampling was delayed until FY 13 to allow DOT time to relocate the tanks.

ADEED CHEFORNAK FORMER BIA SCHOOL TANKS – Conduct soil sampling to further characterize and delineate historic contamination. The work plan has been approved with field work tentatively scheduled for August 2012.

ADOT&PF MANLEY HOT SPRINGS GRAVEL PIT – Consolidate and cap contaminated soil; construct fence to prevent access to the site; collect confirmation soil samples. No work was conducted in FY 12 because the NTP was issued late in the fiscal year.

ADOT&PF MARKAIR – KING SALMON – Recover free product from monitoring wells. Product recovery began in May 2012 and is scheduled to continue until freeze up.

ADOT&PF TUDOR ROAD MAINTENANCE FACILITY – Monitor contaminant trends and evaluate the migration of contaminants to the surrounding area through the storm drain system. One replacement monitoring well was installed and storm water and groundwater samples were collected in 2012.

ADOT&PF YUTE AIR DILLINGHAM – Continue with land farming and sampling of contaminated soil. Sample one potentially impacted drinking water well. Tilling of the landfarm continues in 2012 and the landfarm will be sampled towards the end of the summer to document remaining contaminant concentrations.

ADEED KALTAG – Conduct a treatability study to identify approaches to enhance biodegradation of diesel (DRO) and 1-chloro-octadecane (1-COD) contamination in soils targeted for cleanup. The University of Alaska Fairbanks is performing this work through an inter-agency RSA. Additional delineation of DRO-contaminated soils near the school and former tank farms was also conducted.

ADOT&PF PEGER ROAD MAINTENANCE FACILITY – Collect groundwater samples from monitoring wells and analyze for chlorinated solvent and petroleum contamination. Delineate new sources of chlorinated solvent-contaminated soils discovered in 2010. Private water wells were also sampled in FY 12 for chlorinated solvent and petroleum contamination.

FEDERAL FACILITIES RESTORATION PROGRAM
HIGH PRIORITY SITES AND ACCOMPLISHMENTS
FY 2012

Umiat FUDS Landfill and Road Construction, North Slope Borough

FY 12 saw successful Technical Project Planning team meetings to plan a Remedial Investigation of the landfill, completion of a Geophysical Investigation to verify landfill boundaries, completion of a Hydrology Study to provide information necessary to plan interim and permanent remedies to prevent erosion of contaminant, solid waste, or hazardous waste from the landfill to the Colville River. The draft Remedial Investigation Report was released in March 2012; review by DEC and other agencies is complete. The report will be finalized by fall, 2012. The next step is the development of a Feasibility Study to evaluate interim erosion control measures and permanent remediation alternatives for the Umiat Landfill. DEC, the US Army Corps of Engineers, and the Alaska Department of Transportation and Public Facilities have been actively sharing information and maintaining communication to ensure that the Foothills West road project ("Road to Umiat") and the landfill cleanup activities do not interfere with each other, to freely share information, and to share resources where feasible.

(Above: image shows waste exposed as a result of annual flooding of the Colville River).

(Above: equipment loads super sacks of PCB soil into container).

Umiat Test Well No. 9, North Slope Borough

Polychlorinated biphenyls (PCBs) were used as a tracer in Umiat Test Well No. 9 during well drilling and testing operations in the early 1950's. Site investigations in 1997 and 1998 confirmed that soil was contaminated with DRO up to 54,000 mg/kg, RRO up to 75,000 mg/kg and PCBs up to 1100 mg/kg. The US Army Corps of Engineers conducted an interim removal action in winter of 2009, and remedial actions in winters of 2011 and 2012.

Approximately 3,000 cubic yards of PCB contaminated soil were excavated and removed in 2009 and 2011. An estimated 900 cubic yards was planned for removal in winter of 2012; DEC is anticipating the report in the near future to confirm the actual volume removed. A new site investigation in summer of 2011 identified PCBs in sediment in the main drainage channel below the well head, confirming PCB contamination up to 1,000 feet from the site. Additional characterization of the main channel and side channels of the drainage area will be conducted in the future. Cleanup of the main drainage channel below the site will also be addressed in a future action. *(Photo: Cat train hauling soil to staging area at Franklin Bluffs for transport to a disposal facility in the Lower 48).*

BLM Red Devil Mine, Bethel area

Considerable effort was put forth by CSP staff working with the Bureau of Land Management (BLM) and Environmental Protection Agency (EPA) to resolve technical differences surrounding the site characterization and risk assessment. Some issues were able to be satisfactorily resolved, others were not. CSP staff provided comments to BLM on the draft site characterization report and draft risk assessment. In the Spring of 2012, CSP staff participated in a series of BLM-organized tribal and community meetings in villages along the Kuskokwim River which presented the results of the site characterization efforts. At the request of CSP staff, scoping for development of the Feasibility Study and cleanup alternatives began in June to ensure that all agencies are in agreement as to the framework prior to beginning the evaluation.

USFS Salt Chuck Mine, Thorne Bay

CSP staff and management worked with the Environmental Protection Agency (EPA) on the development of a strategy for negotiation of cost sharing with the United States Forest Service. The US Forest Service refused to discuss this with the State. CS staff reviewed the US Forest Service's removal action report and the EPA's Remedial Investigation work plan. The Remedial Investigation is scheduled to begin in July 2012. *(Photo courtesy of the USFS 2011).*

Indian Health Service/BIA Kotzebue

In FY 2012, staff held several face-to-face meetings and teleconferences with the potentially responsible parties (PRP) involved in the Kotzebue Bureau of Indian Affairs (BIA) - Indian Health Service (IHS) school/hospital pipeline release. IHS was quick to claim joint liability for the historic pipeline release, which is thought to have been ongoing during the late 1950's through the mid 1980's. BIA was far more reluctant, but did eventually claim partial responsibility. At BIA's request, in August 2011 CSP staff sent a PRP letter to the Department of Education and Early Development (DEED) informing them that the release may have been ongoing during the six year period that DEED held title to the Kotzebue School. The next step in the process will be a meeting of the PRPs to begin determining allocation of costs for site characterization and potential remedial actions at the site.

Air Force Galena Base Realignment and Closure

US Air Force contractors completed a 2-year field work effort in FY 2012, investigating more than 60 sites at the former Forward Operating Location at Galena. CSP has three staff members, technical support staff, and several term contractors providing oversight. Remedial Investigation (RI) and site characterization reports will be completed in 2012, and cleanup plans will be proposed in 2012 and 2013. The former air base is now being re-used as a boarding school called "Galena Interior Learning Academy" (GILA), housing up to 300 village and rural students each year. Removal actions completed in 2011 included one heavily contaminated area near the school dormitories and another area near the Airport Ramp, construction of a long term landfarm to treat contaminated soil, and several pilot and optimization studies. More than 15,000 yards of contaminated soil were removed for remediation at the landfarm. Groundwater contamination at Galena affects much of the former air base and soil contamination affects many of the developed areas. Contaminants include a large solvent spill and several major fuel spills from pipelines and tank farms. The four year effort initiated in 2010 will result in long term plans by 2013 for remediation, management, and re-use of the area in the future.

Eielson Air Force Base

CSP staff invested significant effort working with the Air Force and EPA to bring the facility back into compliance with the Federal Facility Agreement and state and federal regulations. In March 2011 EPA and the state issued a letter identifying compliance failures and outlining four priority projects that need to be addressed prior to the 2013 Five-Year Record of Decision Review (FYR). These priority projects were (1) reopening the Record of Decision (ROD) and delineating the co-mingled trichloroethylene and benzene plumes and re-evaluating remedial alternatives at site WP45/SS57; (2) reopening the ROD and evaluating the remedial action objectives and remedy for the polychlorinated biphenyl release at SS67 (Garrison Slough); (3) re-establishing the monitoring well network and installation-wide monitoring program; and (4) investigating recently-discovered contamination under the Source Evaluation Report (SER) process. In late 2011 the Air Force completed horizontal delineation of the WP45/SS57 trichloroethylene and benzene plumes. This was a significant effort as the combined contaminant plumes are over ½ mile long. In addition, four SER documents were approved in 2012. However, sub-standard document quality and planning by the Air Force and its contractors continue to delay work plan approvals for the remaining priority projects. Failure to complete the necessary field work may result in operable units not achieving protectiveness determinations in the 2013 FYR.

Port Heiden

CSP staff provided oversight on the Air Force's continued cleanup efforts at the former Radio Relay Station Site located at Port Heiden. During FY 2012, approximately 17,000 cubic yards of PCB-contaminated soil were removed and disposed of at a permitted disposal facility in the lower 48. An estimated 25,000 cubic yards of PCB-contaminated soil remain on-site for future cleanup/removal.

Port Heiden, loading PCB soil on barge for transport to permitted landfill (2011).

Northeast Cape (St. Lawrence Island)

During 2012, CSP staff worked closely with the Army Corps of Engineers to ensure proper removal and treatment or disposal of over 8,000 tons of petroleum contaminated soil, over 3,800 tons of PB contaminated soil and 34 tons of metal and other solid wastes from sites at this former Air Force facility. Staff also participated in community dialog meetings and Restoration Advisory Board meetings in Savoonga and Gambell to inform residents on the cleanup activities and obtain input on the projects and community concerns.

Aniak White Alice Communications Site

CSP staff, through contractor support, operated, maintained and monitored a sub-slab depressurization (SSD) system to minimize trichloroethylene (TCE) vapor migration from contaminated soil and groundwater into the Joe Parent School building. A feasibility study was also completed to evaluate remedial alternatives to address TCE contaminated groundwater. Operating the SSD system has been effective at creating a negative pressure beneath the building and significantly decreasing TCE concentrations in soil gas directly below the building; however, indoor air TCE concentrations have not decreased at a similar ratio. Staff continued working with the Department of Law (DOL) and the Potentially Responsible Parties for the site towards developing a settlement agreement addressing the past and future cleanup costs and implementation of the remaining cleanup and monitoring activities.

Point McIntyre former Landfill

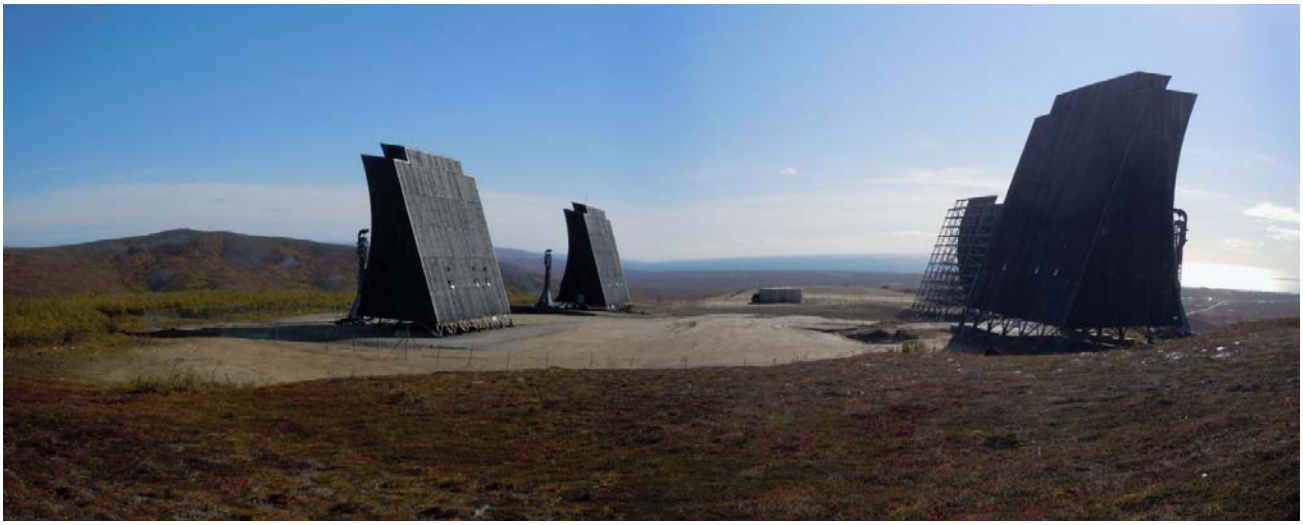
CSP finalized a Record of Decision with the US Navy documenting how the Navy will remove the eroding landfill and relocate the wastes to an on-site landfill further inland and transport any hazardous waste to an appropriate off-site permitted treatment or disposal site. Cleanup is scheduled for FY 13.

Adak – Former Naval Station

During FY 12, the Navy, EPA, and ADEC (the project team) completed the Remedial Investigation/Feasibility Study (RI/FS) report for Operable Unit B-2 (OUB-2) at the Former Adak Naval Complex. The project team has been working on various versions of the OUB-2 RI/FS since 2002. Disagreement regarding reasonably anticipated future land use, munitions and explosives of concern (MEC) clearance depths, and the nature/extent of contamination led to informal dispute on several occasions and numerous iterations of the document. In 2007 the project team agreed that additional site characterization data was required to adequately delineate the nature and extent of MEC contamination. The Supplemental Remedial Investigation was conducted in 2008. The final RI/FS report presents the characterization of the OUB-2 Sites, analysis and determination of Remedial Action Areas, evaluation of potential remedies and identifies the Navy's preferred remedy for each Remedial Action Area.

Anvil Mountain White Alice Site, near Nome

FY 12 saw the completion of a 2-year cleanup of approximately 4,000 cubic yards of polychlorinated biphenyl (PCB) contaminated soil from Anvil Mountain White Alice Site. Anvil Mountain is near Nome, is a popular view point, popular tourist destination, and important landmark for Nome. *(At right: Anvil Mountain cleanup in progress, July 2011).*



Anvil Mountain after site cleanup and restoration completed, late summer 2011. Notice antenna array in background right has had the galbestos covering removed. Galbestos cover will be removed from remaining arrays during summer 2012 prior to Air Force turning the site back to the public domain. Multiple agencies in Nome have requested the Air Force leave the antenna arrays as a landmark; removal of the galbestos removes any potential risks associated with the galbestos.

POLICY, TECHNICAL SUPPORT & BROWNFIELDS PROGRAM ACCOMPLISHMENTS FY 2012

Reuse and Redevelopment (Brownfields)

2010 National Notable Achievement Award – EPA presented DEC Reuse & Redevelopment Staff with an award for '*Outstanding Brownfields Teamwork*.' The award acknowledges the team's dedication to rural Alaska residents in providing technical and other assistance with respect to assessment and cleanup of brownfields.

Completed 'R&R' Cleanup – DEC staff used limited funding and resources to address its first '*brownfield*' cleanup in Kwethluk using its grant funding, working closely with the community to remove both environmental and physical hazards resulting from the destruction of the community center building due to fire. Battling tight timelines and melting ice roads, the site was made ready for redevelopment by the community.

Annual STRP Workshop – Held the fourth Alaska STRP Brownfield Workshop attended by nearly 25 individuals with representatives from tribal grant recipients, EPA Anchorage and Seattle, and other DEC programs.

Increase in Grant Funding – During a time of continued decreasing federal grant funding, the performance of the R&R Program repeatedly results in annual budget increases. In 2010, the DEC R&R program received the largest percentage increase of any STRP recipient nationally, and in FY 12 the award includes an additional increase of 7.4%. A budget increase of nearly 2% for FY 13 was projected by EPA. Most of the funding is intended to direct additional services to rural Alaska and tribes.

DEC Assessments and Project Coordination – Initiated seven investigation and cleanup projects in 2012 with an estimated budget of about $700,000.

Facilitate EPA Assessments – R&R program helped facilitate the procurement of seven EPA Targeted Brownfield Assessments, which are free services provided to Alaska applicants to better assess environmental needs. Projects included Palmer's Matanuska Maid Property, the former Alaska Packer's Cannery in Pilot Point, Pelican Seafood Site, MOA's Muldoon Estates, former buildings in Tetlin and Tazlina, and an inventory of former dry cleaners across the state.

School District Coordination – R&R staff has initiated a project to ascertain the magnitude of environmental concerns at former and active school sites in Rural Education Attendance Areas. The goal is to help school districts better identify, prioritize and budget for necessary future environmental services as part of their ongoing capital improvement projects.

Natural Resource Damage Assessment (NRDA)

In August of 2011, staff issued a final white paper, "Envisioning an NRD Program for Alaska" and gave a presentation of NRD at state and federal levels to the CS program staff. A draft framework for a simplified, state-led approach to conducting damage assessments of groundwater injury at contaminated

sites was completed in June 2012, and commitments secured with three national experts to hold a work session in August of 2012 for SPAR management .

Regulations

Over the course of FY 12, the following changes were vetted internally within CS management and will be proposed for the next revisions package for 18 AAC 75 Article 3:

- Revisions of the Table B1 and Table C compound specific values (no changes proposed at this stage for petroleum)
- Update references to the RAPM, Cleanup Levels Guidance, Cumulative Risk Guidance and Monitoring Well Guidance
- Repeal of 18 AAC 75.350 Groundwater determinations, with a new reference that waters may be reclassified following the process outlined at 18 AAC 70
- Update and expansion to the qualified persons definition under 18 AAC 75.990
- Edits to the Institutional Controls Section
- Add a note to the Site Characterization section requiring shape file data for contaminant plumes
- Minor housekeeping edits

GIS

Significant enhancements to the CS Webmap were made in early 2012 consisting of transition to the ARC GIS Explorer-based platform for the CS Webmap. In addition, college interns were tasked with a project to verify and correct GIS location coordinates for listed sites.

Exposure Tracking Model

During early 2012, the long-awaited and major update to the embedded risk evaluation model was completed through the issuance of a contract with an outside analyst programming firm. The work included development of complete documentation of the application to facilitate in-house maintenance in the future. The result of this effort will now enable vastly improved site prioritization management and greatly assist the program in meeting its performance measures.

Institutional Controls Management

As of the close of FY 2012, the IC Unit has made significant additional progress to evaluate and transfer all sites closed with ICs, consisting of 250 sites managed by project managers in Anchorage. This adds to the 120 Fairbanks-managed sites evaluated in FY 11. Continued efforts for FY 13 will complete assessment of the state and private sites closed with ICs that remain (mainly Soldotna and Anchorage). When the state and private effort is complete, IC Unit staff will begin a review of Federal Facility sites.

Languishing Sites

In FY 12, two additional staff were assigned caseloads to address languishing sites in the Southeast area. As a result, these and other project managers in the section have reviewed and updated ETM rankings, conducted approximately 30 site inspections, and issued letters requesting further action on approximately 45 sites across the state that had been identified as stalled or otherwise seen no recent activity. In addition, cleanup complete determinations were issued on 21 sites for the section as a whole.

Vapor Intrusion Training

After years of effort, in May 2012, the CSP saw the successful execution of cutting-edge training on the emerging science and policy of vapor intrusion from contaminated sites, for all CS program staff, PERP staff, and consultants throughout Alaska.

LOOKING AHEAD:
FY 2013 PRIORITIES
FOR THE CONTAMINATED SITES PROGRAM

1. **Make measureable progress on investigation and cleanup at the following high priority sites:**

   Flint Hills Refinery
   Sterling ZipMart
   Umiat FUDS/Foothills Road
   IHS/BIA Kotzebue
   Eielson Air Force Base
   Galena Air Station
   Red Devil Mine
   Salt Chuck Mine
   Northeast Cape (St. Lawrence Island) Formerly Used Defense Site
   Aniak White Alice Communications Site

2. **CIP:** Implement the $2 million FY 13 Capital Improvement Project appropriation, with a focus on 13 state-lead sites.

3. **Languishing Sites:** Continue the effort initiated in mid-FY 12 to assertively pursue the investigation and cleanup of open sites that are stalled in the cleanup process.

4. **Natural Resource Damage Assessment (NRDA):** Expand and finalize the draft NRDA framework and damage assessment model for groundwater injury.

5. **Regulations:** Vet proposed changes to cleanup criteria and revisions to updated guidance documents adopted by reference with upper ADEC management, and submit public notice for comment. Concurrently, conduct a pre-rulemaking process for revisions to the petroleum cleanup criteria.

6. **Site Discovery:** Carry out a pilot site discovery effort funded through the response fund by identifying one or more abandoned mine sites in Southeast Alaska and conducting preliminary assessment work including historical research, site inspection, and sampling. Use the results to determine the need and feasibility of expanding the pilot effort in FY 14.

7. **GIS:** Complete the coordinate verification effort executed in FY 12. Develop a process to show mapping contaminant plumes, particularly where they cross property boundaries, to better communicate potential health risks and impacts to offsite properties to the public. Develop internal web maps for PM use, conduct training for staff on new GIS platforms, and increase the level of support to staff in site-specific map development.

8. **Institutional Controls:** Complete needed revisions to the internal task tracker function in the CS Database to increase the level of regulatory follow-up required to ensure that ICs are being monitored and maintained. Increase follow-up communications with RPs in this area, and complete required site inspections where applicable.

9. **Enforcement Policy:** Evaluate, clarify and update the CSP's policy on enforcement. Align program enforcement policy with ADEC Enforcement Guidance and gain necessary training and credentials for CS staff.

10. **Coastal Impact Assessment Program:** Increase CSP role in this four-year project through additional field assessment work in Western and Arctic coastal areas to identify eroding contaminated site concerns.

11. **Home Heating Oil Tank Assistance:** Explore strategies, funding mechanisms and other options to address the growing financial impact on the residential homeowner community of environmental cleanup costs from home heating oil tank releases.

12. **Superfund Memorandum of Agreement:** Work with EPA to finalize and implement the MOA.