

MEMORANDUM

To: Kelly Madalinski, Port of Portland
Marcel Hermans, Port of Portland
Date: October 5, 2011

From: Elizabeth Appy, Anchor QEA,
Peter Hummel, Anchor QEA,
John Verduin, Anchor QEA
Project: 050332-01

Re: Wheeler Bay 2011 Repair—Green Remediation Plan

This memorandum provides the Green Remediation Plan for the Wheeler Bay repair activity to be completed during the 2011 work window as required by the U.S. Environmental Protection Agency (USEPA).

BACKGROUND

USEPA Region 10 developed a “Clean and Green Policy” in 2009 applicable to all Superfund cleanup projects in the Region with the goal to promote the application of green or sustainable practices and technologies to remedial actions. While this policy does not “fundamentally change how and why cleanup decisions are made,” it “calls for more sustainable methods of implementing those cleanups.” (USEPA 2009)

The objectives of the policy include the following:

- Protect human health and the environment by achieving remedial action goals
- Support sustainable human and ecological use and reuse of remediated land
- Minimize impacts to water quality and water resources
- Reduce air toxics emissions and greenhouse gas production
- Minimize material use and waste production
- Conserve natural resources and energy

This policy details cleanup practices that are encouraged, such as use of renewable energy and energy conservation; use of cleaner fuels and emissions reduction strategies; water

conservation and efficiency; incorporation of sustainable site design; reuse and recycling of materials; support greenhouse gas emissions reduction technology; and others (USEPA 2009).

Port of Portland Environmental and Sustainable Practices

The Port of Portland (Port) recognizes that the activities associated with the broad and diverse services it provides affect the environment. In 2000, the Port Commission adopted the Port's environmental policy: "The Port will achieve its mission through responsible environmental stewardship and the implementation of proactive Environmental Programs. The Port will integrate environmental considerations into all aspects of its strategic planning and business decision-making." Attachment A lists the environmental awards received since the adoption of the Port's environmental policy.

The Port designed and established a series of Environmental Programs to eliminate or control the significant environmental aspects and impacts, achieve specific objectives and targets, and manage environmental issues in the context of the Port's business needs through the development of a Port-wide Environmental Management System. The current Environmental Programs are: Water Resources, Natural Resources, Waste Minimization, Air Quality, and Energy Management.

The primary goals of the Port's Environmental Programs are to:

1. Eliminate or control the Port's significant environmental aspects and impacts,
2. Achieve specific objectives and targets,
3. Manage environmental issues in the context of business needs,
4. Provide consistency across business lines,
5. Identify trends that may impact business needs and proactively deal with the trend,
and
6. Help shape the regulatory climate within which the Port operates.

The Port's Environmental Programs have been highly successful in achieving these goals on a continuing basis for more than 10 years. The implementation of proactive Environmental Programs serves as the cornerstone to successfully integrating environmental considerations into all aspects of the Port's strategic planning and business decision-making. Examples include standard environmental elements (e.g., recycling of waste products or unused

material) in contracts; contractor and employee sustainable travel requirements and guidance; procurement standards for office supplies, equipment, and corporate fleet vehicles; a Leadership in Energy and Environmental Design (LEED) platinum headquarters, and developing a sustainable procurement policy. The success of these Environmental Programs is demonstrated year after year, through the attainment of substantial and measurable improvements in environmental performance. Attachment B includes the previous 3 years of the Port's objectives and target results.

Summary of 2011 Wheeler Bay Repair

Activities associated with the 2011 Wheeler Bay repair work are expected to occur over a short duration in mid-October. The specific construction activities, equipment (two John Deere 160 excavators [or equivalent] will be used), and sequence expected to occur includes the following:

- Install erosion control silt fence between the location of additional riprap and the water's edge.
 - Implement Contractor's Health and Safety Plan (CHASP), Environmental Protection Plan (EPP), and the Construction Quality Control Plan (CQCP) as required.
 - Construct access road utilizing existing gate above work site.
 - Move and store the existing woody debris for re-use.
 - Using a John Deere 160 Track Hoe, prepare the area to receive riprap and select fill working from the west limit to the east.
 - Install geo-fabrics as required.
 - Utilizing a second track hoe to reach down and place the materials at the bottom of the slope, the first track hoe will transport and place the rock riprap and select fill into final position.
 - Utilizing a track hoe, make spot repairs placing select fill over exposed demarcation fabric and repair fabric as necessary.
 - Upon completion of the riprap areas, re-install the stabilization woody debris anchoring them to the slope by re-attaching them to the existing anchors.
 - Cleanup as required. Crew will consist of a track hoe, labor, and truck.
 - Hydro-seed disturbed access area.
-

GREEN REMEDIATION PLAN FOR WHEELER BAY REPAIR WORK

This section details the green remediation measures and technologies identified in USEPA's "Clean and Green Policy" and their applicability to the Wheeler Bay repair project planned to occur during the current work window.

100% use of renewable energy (green power), and energy conservation and efficiency approaches including EnergyStar equipment

The use of EnergyStar equipment, where available for limited project activities (i.e., field office activities), and fuel consumption minimization efforts will be included in the construction contract, where practicable and feasible (see Attachment C). The Port currently purchases certified renewable energy credits equaling 100 percent of the Port-wide electric energy. The contractor will be required to document its plan for using energy efficient equipment (if applicable) or describe why it is not feasible, and its plan for minimizing fuel consumption (e.g., selecting suitably sized and typed equipment to reduce fuel consumption, and schedule activities to minimize the number of vehicle/truck trips to the site) (see Attachment C). EnergyStar equipment is currently not available for construction equipment.

In addition, the following measures will be used to minimize energy consumption:

- The Port will use energy efficient cars and carpooling as well as trip-pooling to the extent possible if traveling to the site. The Port has a fleet of hybrid cars that can be used by employees and is also in the process of getting an all-electric Nissan Leaf in operation.
 - An existing building at Terminal 4 will be used for the field office and no trailers will need to be brought on site to manage the project. As noted above, the Port currently purchases certified renewable energy credits equaling 100 percent of the Port-wide electric energy.
 - The field office is equipped with EnergyStar office equipment.
-

Use cleaner fuels, diesel emissions controls and retrofits, and emission reduction strategies

The technical specifications for this project require the contractor to use ultra low sulfur diesel fuel, which is legally required for all applicable equipment. Additionally, requirements regarding cleaner fuels and emission reduction strategies will be part of the construction contract, where practicable and feasible. The contractor will be required to complete a submittal that documents their use of cleaner fuels, diesel emissions controls, and emission reduction strategies, or if not used detail why these items are not practical or feasible to use (see Attachment C). The contractor will also track the gallons of fuel used on the project and will record the meter readings pre- and post-project.

Utilize water conservation and efficiency approaches including WaterSense products

Water may be used for dust control during project construction. The need for dust control is anticipated to be very low for the project given the time period the work will be conducted (likely to see more rain in October) and based on the 2010 repair where dust control was not necessary. If dust control activities are necessary, water conservation measures will be part of the construction contract, where practicable and feasible. The contractor will be required to document its plan for using water conservation measures, or describe why they are not feasible (see Attachment C).

Incorporate sustainable site design

The following sustainable site design features have been incorporated in the 2011 repairs:

- The intent of the 2011 repair is to use a minimal amount of material to address the current extent of exposed demarcation fabric.
- This repair will help to reduce the need for future repairs.
- Disruption to areas that are not in need of repair is being minimized. This will result in less input of imported materials to restore the site.

Utilize reused or recycled industrial materials within regulatory requirements

On-site material, consisting of a stockpile of gravel from the 2010 repair activities, will be reused for the filter material for the 2011 repair activities. By re-using this material, the

number of truck trips to the site will be reduced by half. Rock, large woody debris, and other materials, where possible, will be reused on this project further reducing truck trips.

In addition, the field office contains recycling bins to encourage office recycling activities.

Recycling or reuse of materials generated at or removed from the site

As mentioned under the previous item, on-site materials will be reused where possible on this project. The technical specifications that will be part of the construction contract (see Attachment D) will require the contractor to recycle waste products or unused material, where possible.

Use environmentally preferable purchasing

The technical specifications that will be part of the construction contract (see Attachment D) will include a submittal requirement that the contractor use local materials (in this case rock, the only imported material), and preferentially select suppliers that have explicit green business policies to the extent practicable.

Support greenhouse gas emission reduction technologies

The technical specifications that will be part of the construction contract (see Attachment D) will include a requirement for the contractor to use cleaner engines, cleaner fuel, and cleaner diesel control technology on diesel-powered equipment with engines greater than 50 horsepower, where practicable and feasible, as well as a requirement to minimize idling on diesel equipment, including the use of California Air Resources Board (CARB) Section 2485 Airborne Toxic Control Measures, to the extent practicable. If these measures are not practicable and feasible to implement on this project, the contractor will provide appropriate documentation detailing why it is impractical or not feasible (see Attachment C).

Use of “green concrete” (coal combustion products replacing a portion of traditional cement)

This technology is not applicable to this project, as concrete will not be used.

Ensure methane gas recovery from landfills

This measure is not applicable as this is not a landfill project.

Use of Environmental Management System (EMS) practices such as reducing the use of paper by moving to fully electronic transmittal of project documents and implementation of waste reduction and recycling programs at all work sites

The Port has implemented EMS practices and uses this system to support its environmental programs. (See also: <http://brightworskadvisors.wordpress.com/2011/09/14/the-port-of-portland-on-super-compliance/>). In addition, where possible, project deliverables shall be submitted electronically to reduce the volume of paper used. For example, the Port has an electronic contract-administration system and provides deliverables to USEPA in electronic format when possible.

DOCUMENTATION

The Closure Report will include a summary of all actions implemented consistent with the Wheeler Bay 2011 Repair – Green Remediation Plan and USEPA’s “Clean and Green Policy.” Where practicable and feasible, the measures associated with Green Remediation Plan will be documented by the contractor and consultants and provided as an exhibit to the project Closure Report.

ATTACHMENTS

Attachment A: Port Environmental Awards 2000-2011

Attachment B: Port Objectives and Target Results 2009-2012

Attachment C: Form A

Attachment D: Special Procedures

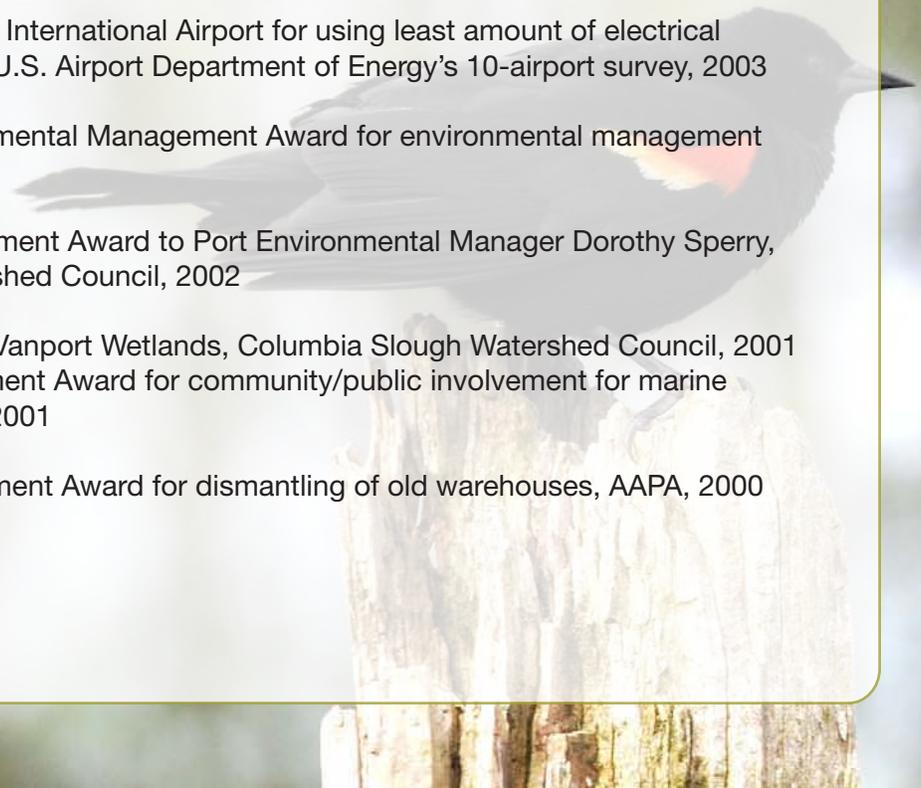
ATTACHMENT A:
PORT ENVIRONMENTAL AWARDS
2000-2011

Environmental Program Awards

- Green Building Award, City of Portland's Businesses for an Environmentally Sustainable Tomorrow, 2011
 - State of Oregon Sustainability Award, 2011
 - Phoenix Award Grand Prize for Brownfield Redevelopment, 2011
 - American Council of Engineering Companies (ACEC) Engineering Excellence Grand Award, 2011
 - BetterBricks Award, Northwest Energy Efficiency Alliance, 2011
 - Smart Environments Competition recipient, International Interior Design Association/Metropolis Magazine, 2011
 - Honorable Mention, Architectural Design, McGraw Hill Northwest Construction's Best of 2010 Awards Competition, 2010
 - Green Power Leadership Award, Environmental Protection Agency (EPA), 2010
 - Environmental Outreach, Education, and Community Involvement Award for Airport Futures, Airports Council International – North America (ACI-NA), 2010
 - Top Ten Most High Tech Green Buildings in the World, Forbes Magazine, 2010
 - Top 50 Green Energy Purchasers, EPA, 2010
 - Agency of the Year, National Association of Minority Contractors-Oregon, 2009
 - Recycler of the Year, Association of Oregon Recyclers, 2009
 - Leadership Award for Portland International Airport Wildlife Hazard Management Plan, Columbia Slough Watershed Council, 2009
 - Environmental Enhancement Award for Port Natural Resources Program, American Association of Port Authorities (AAPA), 2008
 - Stakeholder Awareness, Education, and Involvement Award for Port Environmental Outreach and Communication Program, AAPA, 2007
 - Outreach, Education, and Community Involvement Award for Environmental Outreach and Communication Program Airports Council International – North America (ACI-NA), 2007
 - Comprehensive Environmental Management Award for environmental programs, AAPA, 2006
 - Businesses for an Environmentally Sustainable Tomorrow (BEST) Award for water efficiency, City of Portland Office of Sustainable Development, 2006
- 

Environmental Program Awards

- Julian Prize for Terminal 6 Auto Warehousing Corporation expansion porous pavement project, American Public Works Association, 2006
- Comprehensive Environmental Management Award for checking and corrective action program, AAPA, 2005
- Stewardship and Conservation Award for most improved water management and conservation planning efforts, Oregon Water Resources Commission, 2005
- Honoree, Oregonians Working for Healthy Watersheds Ceremony, 2005
- Special Award for Innovation for the Portland International Airport food waste collection program, Association of Oregon Recyclers, 2005
- Best Award for Portland International Airport food waste diversion pilot project, City of Portland Office of Sustainable Development, 2004
- Comprehensive Environmental Management Award for environmental objectives and target program, AAPA, 2004
- Green Power Partner for purchase of renewable energy, Environmental Protection Agency, 2004
- Industrial Pretreatment Award for Portland International Airport, City of Portland Bureau of Environmental Services, 2004
- Wetlands Project Award for Vanport Wetlands, Oregon State Land Board, 2004
- Comprehensive Environmental Management Award for natural resource assessment and management plan, AAPA, 2003
- Recognition for Portland International Airport for using least amount of electrical energy per square foot, U.S. Airport Department of Energy's 10-airport survey, 2003
- Comprehensive Environmental Management Award for environmental management system, AAPA, 2002
- Leadership and Achievement Award to Port Environmental Manager Dorothy Sperry, Columbia Slough Watershed Council, 2002
- Achievement Award for Vanport Wetlands, Columbia Slough Watershed Council, 2001
- Environmental Improvement Award for community/public involvement for marine tenant program, AAPA, 2001
- Environmental Enhancement Award for dismantling of old warehouses, AAPA, 2000



**ATTACHMENT B:
PORT OBJECTIVES AND TARGET
RESULTS 2009-2012**

2009-2010 Environmental Objectives and Targets Results

Last year, the Port of Portland set 13 environmental targets to be fulfilled through our five environmental program areas. Focused on energy, air, waste, water and natural resources, these targets provided concrete goals for staff to reach throughout the year. Targets were designed to be challenging and to support a culture of continuous environmental improvement. Our progress on the targets is reported below. Your feedback is always welcome on our work.



Objective: Reduce Energy Consumption and Purchase Renewable Energy

Completed Targets:

- In 2009, we continued our purchase of certified renewable power, covering nearly 60 percent of our electricity usage with renewable energy credits. A target to evaluate the feasibility of purchasing the equivalent of 100 percent of all Port electric energy from renewable sources was completed by the end of the fiscal year. The results of this target set the stage for moving to 100 percent certified renewable power in August of 2010.

Incomplete Targets:

- In addition to purchasing certified renewable power, the Port also tries to reduce energy consumption. Last year's target was to reduce consumption by at least 500,000 kilowatt-hours per year. While it was not fully met, we did pursue several measures at the PDX baggage tunnel and central utility plant for a savings of more than 180,000 annual kilowatt hours. Other areas for improvement were identified and will be pursued in 2010-2011. Further, the Port will carefully monitor energy performance from our new headquarters building, which features countless energy conservation measures, including geothermal heating and cooling, an ecoroof, and an Energy Star roof membrane.



The Living Machine wastewater treatment system might look like your typical indoor planter, but the healthy mix of plants in the Port's sunny entryway mimics wetland processes to treat and recycle gray- and black-water for reuse in the building's cooling tower and toilets.

New Building Reflects Port Environmental Goals

The big story of 2010 was the completion of the Port's new headquarters, which boasts green building components both tried and true and cutting edge. From the 10,000 squarefoot ecoroof, designed to complement the PDX Wildlife Hazard Management Program, to the geothermal heating and cooling system, which stretches 300 feet below the ground, "HQ," as it's affectionately known, is an energy miser. The building is estimated to use 36 percent less energy and 75 percent less water than a comparable office space; actual building performance will be carefully tracked over time.

Water conservation measures range from modest-but-effective low-flow fixtures to the Living Machine® wastewater treatment system, which recycles water from sinks, showers and toilets through a series of constructed wetlands for reuse in the building's cooling tower and toilets. Building materials came from easily renewable or recycled sources, and more than 90 percent of the wood used in the building is Forest Stewardship Council-certified. The Port plans to seek Leadership in Energy and Environmental Design platinum certification.



The commitment and craftsmanship from over 2,500 workers helped finish the Port's new long-term parking garage and headquarters on time and under budget.

Small Businesses, Big Impact

The Port's new building was made possible by the participation of both established and emerging companies throughout the metropolitan region, and more than 70 small, local businesses were involved with the project.

Overall, construction generated more than 2,500 jobs and more than 1 million hours of work in a time when our region faced high unemployment levels. Small business utilization was about 26 percent on a goal of 15 percent, with contracts totaling more than \$41 million going to small businesses. The building also served as a training site for people new to the construction industry. Twenty percent of the project's labor hours were performed by apprentices, with 8 percent performed by apprentices who are people of color or women.

Inclusion of small businesses in our projects strengthens the Port supply chain, enhances government and community relations, and reinforces our commitment to our community and to diversity. This past year, the Port was named Agency of the Year by the National Association of Minority Contractors-Oregon for our efforts to be inclusive of minority contractors in our construction projects.



Objective: Minimize Impacts to Air Quality

Ongoing Targets:

- Reduce Port direct and indirect greenhouse gas emissions 15 percent below 1990 levels by 2020.
- Reduce diesel particulate matter from Port-controlled operations by 25 percent from 2000 baseline levels by 2015.

These targets will be met through numerous strategies over the next few years. In 2009-2010, successes included third-party verification of our greenhouse gas emissions inventory; reaching Climate Registered Status from The Climate Registry; an increase in biodiesel and ultralow sulfur-diesel usage, which has reduced off-road vehicle emissions by 10 to 20 percent; and participation in the Sustainable Aviation Fuels Northwest project with partners like Boeing Corp., Seattle-Tacoma Airport, and others.



Objective: Reduce Waste Generation and Hazardous Materials Use

Incomplete Targets:

- A target to develop and implement a mixed plastics (rigid and vinyl plastics) recycling program for Port facilities was partially completed. The all-plastics program is available to Port employees at some facilities but will not be extended to all areas until 2011. In the interim, the program collects hard-to-recycle materials for a potential plastics-to-oil project from the local company, Agriplas.
- Reducing administrative waste is an ongoing goal, and 2009-2010 saw numerous changes to how office supplies are ordered and distributed. A program that encourages Port employees to reuse office supplies and minimize the purchase of new supplies is mostly complete, with some additional work to tailor the program to the new office space. Considerable effort went into the office move, with more than 100 tons of materials diverted from the landfill to either be recycled or reused. Employee communications continually promote a culture of conservation.
- A draft Sustainable Purchasing Program has been created and is awaiting management review.



Objective: Minimize Impacts to Water Resources

Completed Targets:

- We continued our efforts to retrofit toilets throughout Port properties. At Portland International Airport, an additional 30 toilets were equipped with dual-flush, low-flow valves, which reduce water usage by one to three gallons per flush.
- Water consumption was also reduced through the installation of another four Evapotranspiration Managers, which use real-time weather data to adjust watering schedules and amounts.



Objective: Minimize Impacts and Seek Opportunities to Enhance Natural Resources

Completed Targets:

- We continued our partnership with Friends of Trees by sponsoring additional tree plantings in neighborhoods near PDX. The \$15,000 sponsorship helped with Friends of Trees' largest neighborhood tree planting to date. Port employees participated in the planting.
- A new public awareness and education display on invasive species control and reduction strategies was developed and is now prominently showcased at Portland International Airport.
- The Port supported a City of Portland effort to enhance the south bank and in-water areas of the Columbia Slough at the confluence of the Willamette River. The Port provided \$16,500 in funding for the upland habitat improvements.

Incomplete Targets:

- We're continuing a project to control invasive species in an area at Smith and Bybee Wetlands Natural Area that abuts a Port mitigation site. This two-year project is approximately 25 percent complete, with a goal of establishing native plantings by July 2011.



A new multi-use trail overlooks the Troutdale Reynolds Industrial Park, a former brownfield purchased and redeveloped by the Port. The site is home to FedEx Ground and includes open space and mitigation areas.

New Policy Helps Define Sustainability

Like many organizations, the Port wanted to create a sustainability policy to incorporate environmental stewardship, economic health, and social equity into our work. But the Port, and especially employees who were consulted on the policy, wanted to ensure that the outcome was more than just words and that it reflected the Port's public mission to connect cargo and people to points worldwide.

A working definition was created with considerable input: "The Port is operating sustainably when we make business decisions that support long-term economic health, integrate community concerns into our work, and reflect a deep and broad commitment to environmental stewardship." The policy guides Port employees to choose least-impact approaches that balance nature and commerce when developing and managing aviation and marine facilities and industrial parks. Further, the policy promotes continuous improvement and efficiency, where decisions are made on sound science and in partnership with others.

The sustainable natural resources policy was shaped by two projects conducted over the last year in Port operating areas. Airport Futures is a joint process with the city of Portland to create a long-range airport master plan and land use plan for Portland International Airport; stakeholders developed goals designed to make PDX the most sustainable airport in the world. On the marine side, the Port partnered with the International Institute for Sustainable Seaports on a survey of best sustainability practices being implemented by ports worldwide to learn more about innovations within the industry.

2009-2010

Port of Portland Environmental Objectives and Targets Results

To learn more about the Port of Portland's environmental programs, please visit www.portofportland.com or call 503.944.7047.



Take a peek
at our
green side
www.portofportland.com

LESS WASTE MORE WORLD



PRESORTED
FIRST-CLASS MAIL
US POSTAGE PAID
PORTLAND OR
PERMIT NO. 994

Box 3529 Portland Oregon 97208

PORT OF PORTLAND 

2010-2011 Environmental Objectives and Targets Results

Ten years. More than 200 annual targets. A decade of challenging ourselves to think about how we can reduce impacts from aviation and marine-related activities. In the 2010-2011 program year, keeping with this tradition to continuously improve our environmental performance, the Port of Portland set 15 environmental targets for our staff to work toward. Like previous years, we pursued our goals by marshalling the resources and expertise of Port staff and outside partners. While we didn't meet all our targets, we came close, and we are dedicated to those areas where we still have work to do. As always, your questions, comments and suggestions on these and on future goals are welcome.



Objective: Reduce Energy Consumption and Purchase Renewable Energy

Completed Targets:

- Our goal was to evaluate the feasibility of purchasing 100 percent of all Port electric energy from renewable sources. We didn't just evaluate – we acted. By selecting a cost-effective option in the energy market, we were able to move to 100 percent certified renewable power credits in July 2010, covering our Port-wide electricity usage, or approximately 75 million kilowatt hours of electricity. This landed us on the Environmental Protection Agency's list of top 50 renewable energy purchasers nationwide; in October 2010, the Port received the EPA's Green Power Leadership Award for our commitment to renewable energy purchases.
- Like past years, we wanted to reduce Port-wide energy consumption by at least 500,000 kilowatt hours over the year. We targeted and completed lighting retrofit projects that resulted in a savings of 401,200 kilowatt hours annually – plus a financial savings of about \$20,000. Energy-saving technology, like premium energy-efficient electric motors, was also used in the design and construction of the new Portland International Airport Inline Baggage Screening System, which helped us meet our 500,000 kilowatt hour goal. This project qualified for funding from the Energy Trust of Oregon rebate program.



Objective: Minimize Impacts to Air Quality

Ongoing Targets:

- A multi-year target to reduce greenhouse gas emissions shows all signs of being met several years ahead of schedule. Our goal to reduce Port direct and indirect greenhouse gas emissions 15 percent below 1990 levels by 2020 prompted us to find numerous conservation and reduction strategies over the past three years. We will continue seeking out new emission reduction methods.
- A target to reduce diesel particulate matter from Port-controlled operations 25 percent from 2000 baseline levels by 2015 is in process. Steps so far include using cleaner-burning fuel, including ultra-low sulfur diesel and B20 biodiesel blend. While ULSD is the norm for passenger vehicles, its use in industrial settings is less common. The Port has also retrofitted cargo handling equipment, and the entire fleet of parking shuttle buses runs on compressed natural gas.





Objective: Minimize Impacts to Water Resources

Completed Targets:

- As the saying goes, you can't manage what you don't measure. Accordingly, we conducted three water efficiency evaluations in our aviation and marine operating areas to identify future opportunities for new landscaping irrigation water conservation efforts.
- Previous audits have identified landscaping irrigation systems as areas with meaningful water conservation potential. This past year, we installed four Evapotranspiration Managers, which use real-time weather data, to existing irrigation systems at Port marine and industrial properties. The systems allow for more precise landscaping irrigation and result in reduced water usage.

Incomplete Targets:

- Low-flow toilets, which reduce water usage by one to three gallons per flush, are ubiquitous at Port facilities, most noticeably at Portland International Airport. But we still have facilities that are in need of an upgrade to the dual-flush, low-flow valves. Due to limited staff resources, a target to retrofit an additional 162 toilets with the water-saving valves was not fully met within the program year. However, we are continuing our efforts to meet this target, and will pursue the retrofits over the next fiscal year.



Objective: Reduce Waste Generation and Hazardous Materials Use

Completed Targets:

- Long-standing efforts to salvage and reuse surplus materials were turned into a formal Port-wide policy in 2010. By better documenting the steps we take to salvage, reuse, and recycle surplus and unwanted items, and by communicating those steps to staff, we're able to ensure that material with continued value stays out of the landfill. This initiative was bolstered by several recycling fairs for tenants over the course of the year.
- We ask a lot from our traveling public, but it's nothing we don't ask of ourselves in our operating areas. This is true of our organic waste collection and composting program, which was extended into our marine and industrial development facilities this past year, fulfilling one of our Waste Minimization targets. This project joins existing organics collection receptacles in our headquarters, where food waste is composted in an on-site worm bin and funneled into the Portland International Airport food waste collection program.
- We can't reduce our waste streams alone, so the Waste Minimization Team had and met a target to develop public education and outreach materials to help PDX users learn more about the Port's environmental initiatives and specific PDX waste minimization efforts.

Bugs as Barometers: Invertebrates Help Measure Wetland Mitigation Success

Since 2008, the Port has worked with The Xerces Society, a Portland-based nonprofit dedicated to conservation of invertebrates and their habitat. A target this past year continued this partnership.

As part of a larger study being conducted by The Xerces Society, the Port offered up Port-owned wetland mitigation sites for research on wetland invertebrates, including insects such as dragonflies, mayflies, caddis flies, and beetles. Scientists from the organization have conducted field surveys throughout the Willamette Valley as part of an effort to develop a biological assessment tool for evaluating the health and function of Pacific Northwest wetlands.

Celeste Mazzacano, Ph. D., a staff scientist with the organization, said the biological assessment tool has potential statewide. "We'll be doing additional research to test the consistency and robustness of the indicators we've developed." The project has received support from groups like the Environmental Protection Agency and Oregon Watershed Education Board.

For the Port, the tool will be a valuable resource for monitoring wetland mitigation sites and helping to determine whether mitigation efforts have improved wetland biological function. Plus, the results so far have been useful for and gratifying to Port natural resources staff. Dr. Mazzacano reported, "The Port's Randall mitigation site was our dragonfly bonanza—the winner for dragonfly and damselfly diversity."



Good News for Air Quality

Perhaps the biggest story from the Air Quality Program is the anticipated completion of an ambitious target to reduce greenhouse gas emissions 15 percent below 1990 levels by 2020. A full nine years ahead of schedule, our initial data indicate that this goal was met, primarily through the purchase of renewable energy credits to offset the Port's electricity uses throughout our operating areas.

On a smaller level, other strategies contributed to the reduction goal, including improved fleet efficiency and idle reduction programs. More than 90 percent of the Port's fleet vehicles are hybrid engine, for example. For areas outside of Port control, electrified aircraft gates at Portland International Airport and shore-side power at marine Terminal 2 both helped to reduce emissions. The Port continues to monitor greenhouse gas emissions through The Climate Registry; we're now in our third year of reporting.

Looking to the future, the Port was part of Sustainable Aviation Fuels Northwest, a regional effort to explore and study aviation biofuels. Alongside partner groups Boeing, Alaska Airlines, Seattle-Tacoma International Airport, Spokane International Airport, and Washington State University, the Port helped complete a study on the feasibility and challenges of creating an aviation biofuels industry in the Pacific Northwest.

The study was designed to be comprehensive, following aviation biofuel development from planting to harvest, through refining and transport, to actual use by airlines. The study concluded that an aviation biofuels industry can be commercially viable in the Pacific Northwest, in part because of the region's diverse agricultural sector. The study emphasized, however, that the development of such an industry must address key issues with existing fuel sources, including greenhouse gas emissions, other environmental impacts, and energy security.



Objective: Minimize Impacts and Seek Opportunities to Enhance Natural Resources

Completed Targets:

- This past year, the Port partnered with the Xerces Society to make Port properties available to a macroinvertebrates sampling program. The goal, as part of an effort partially funded by the Oregon Watershed Enhancement Board, was to evaluate the function of created versus natural wetlands. Scientists from Xerces Society collected data from numerous Port properties, including West Hayden Island and Bobcat Marsh in Hillsboro.
- Our partnership with Friends of Trees continued in 2010-2011, with a sponsorship of \$15,000 and a community tree planting in neighborhoods close to Portland International Airport. Not only did Port employees participate, but the event, in the words of one employee, was "the most positive and rewarding event I have attended" representing the Port.
- Natural Resources staff developed a pilot project to begin the process of converting a Port-owned herbaceous wetland area near Portland International Center from primarily non-native, invasive Reed Canarygrass to native scrub/shrub habitat. By July 2011, invasive species had been removed and new plants were establishing themselves. Continued monitoring is essential to ensure the new plants do well over the summer.
- The Port has supported many efforts to conserve Oregon's native turtle population. This past year, we provided a \$5,000 matching sponsorship to help develop a conservation plan for Western Pond and Western Painted Turtles in the Portland metropolitan area. The plan is being developed with inter-agency support from the City of Portland, Metro, Oregon Department of Fish and Wildlife, Bureau of Land Management, U.S. Fish and Wildlife, and the U.S. Forest Service.

Ongoing Targets:

- We're continuing work on an effort to secure funding for a Lower Willamette/Columbia Strategic Dredged Material Placement Study that will analyze areas suitable for dredged material placement and in-water habitat creation and restoration. Natural Resources staff developed a pilot project to begin the process of converting a Port-owned herbaceous wetland area near Portland International Center from primarily non-native, invasive Reed Canarygrass to native scrub/shrub habitat. By July 2011, invasive species had been removed and new plants were establishing themselves. Continued monitoring is essential to ensure the new plants do well over the summer.

Environmental Program Awards

Over the past year, we've received some very special recognition, like LEED Platinum certification of our new headquarters building at Portland International Airport. Established by the U.S. Green Building Council (USGBC) and verified by the Green Building Certification Institute, LEED is the nation's preeminent program for the design, construction, and operation of high performance green buildings.

The building was also recognized by numerous local and state agencies and entities, confirming what Port staff experience every day: that green buildings are great places to work. The 205,000-square foot office building incorporates many state-of-the-art green technologies, with special emphasis on natural light, indoor air quality, and waste minimization. The innovation we're most frequently asked about is the Living Machine® system, an on-site ecological wastewater treatment alternative that treats 100 percent of the building's wastewater for reuse in the building's toilets and cooling tower. If you've ever visited the Port building, you've walked right by it: it's the innocuous-looking planter in the first-floor lobby, and it's helping us use less water each and every day.

Port executive director Bill Wyatt, who occupies an open workspace the same size as the employees he oversees, said, "The LEED platinum certification and the awards we've receive affirm the goal we set out at the beginning of the project: that the building reflect this region's commitment to sustainability."

Out in the field, the most notable award received was for a complex effort to redevelop the Troutdale Reynolds Industrial Park, which turned a former brownfield site into a productive hub for freight and jobs. The Port and its partners, Alcoa and FedEx Ground, received the national Phoenix Award grand prize for environmental improvement in March.

Awards received during the 2010-2011 program year:

- Green Building Award, City of Portland's Businesses for an Environmentally Sustainable Tomorrow, 2011
- State of Oregon Sustainability Award, 2011
- Phoenix Award Grand Prize for Brownfield Redevelopment, 2011
- American Council of Engineering Companies (ACEC) Engineering Excellence Grand Award, 2011
- BetterBricks Award, Northwest Energy Efficiency Alliance, 2011
- Smart Environments Competition recipient, International Interior Design Association/Metropolis Magazine, 2011
- Honorable Mention, Architectural Design, McGraw Hill Northwest Construction's Best of 2010 Awards Competition, 2010
- Green Power Leadership Award, Environmental Protection Agency (EPA), 2010
- Environmental Outreach, Education, and Community Involvement Award for Airport Futures, Airports Council International – North America (ACI-NA), 2010
- Top Ten Most High Tech Green Buildings in the World, Forbes Magazine, 2010
- Top 50 Green Energy Purchasers, EPA, 2010



2011-2012 Environmental Objectives and Targets

In addition to day-to-day attention to responsible environmental management, the Port of Portland sets annual environmental goals to help guide our efforts over the fiscal year. Activities are recommended by environmental program managers and by staff working throughout our operating areas. Unless otherwise specified, all targets are due to be completed by June 30, 2012.



Objective: Reduce Energy Consumption and Purchase Renewable Energy

FY 2011-12 Targets:

- Complete a Port-wide “Carbon Footprint Reduction and Energy Management Strategy and Master Plan” to identify opportunities that conserve and/or produce energy; reduce the Port’s carbon emissions; and guide future Port decisions on energy management.
- Continue purchasing certified renewable energy credits equaling 100 percent of Port-wide electric energy as part of a three-year commitment ending August 2012.
- Continue annual goal to reduce Port-wide energy consumption by at least 500,000 kilowatt hours per year.



Objective: Reduce Greenhouse Gas Emissions



FY 2011-12 Targets:

- Reduce diesel particulate matter from Port-controlled operations 25 percent below 2000 baseline levels by 2015.
- Reduce Port direct and indirect greenhouse gas emissions 15 percent below 1990 levels by 2020.



Objective: Reduce Waste Generation and Hazardous Materials Use

FY 2011-12 Targets:

- Reuse, recycle, or compost 90 percent or more of all material from the Port headquarters building by June 30, 2013, to achieve “Zero Landfill Waste Generation Status.”
- Conduct a waste audit of the Port Navigation base and dredge to establish a baseline of waste generation and identify opportunities to reduce landfill-bound waste from the facility.
- Develop a chemical product procurement program at PDX to improve environmental, safety, and compliance performance and reduce management costs for products purchased by the Port of Portland that require an MSDS.





Objective: Minimize Impacts to Water Resources

FY 2011-12 Targets:

- Conduct research and assess potential materials, techniques, and technologies that support efforts to more efficiently use pavement deicer at Portland International Airport. Develop program recommendations that can reduce amount of deicing materials used while reducing impacts to nearby waterways.
- To promote practices that protect water quality and improve water conservation, develop comprehensive outreach and education materials on stormwater and water conservation for Port tenants and targeted public audiences.
- Update Port-wide irrigation design standards and specifications to minimize water consumption.
- Evaluate effectiveness and durability of asphalt sealcoat products that contain no or low PAHs (polycyclic aromatic hydrocarbons) for potential use at Port marine and industrial facilities.
- Partner with airport rental car companies to improve infrastructure and establish a maintenance program for the PDX rental car Quick Turnaround (QTA) Facility, with the goal to reduce water usage at the facility by 20 percent per vehicle.
- Conduct a water quality monitoring pilot project that evaluates the feasibility and effectiveness of using buoy-based monitoring instead of crew-based monitoring for Clean Water Act-compliance during dredging and other in-water projects.



Objective: Minimize Impacts and Seek Opportunities to Enhance Natural Resources

FY 2011-12 Targets:

- Conduct egg mass surveys of northern red-legged frogs and northwest salamanders at four Port wetland areas to determine if and where these species breed on Port property, and, if so, how the Port can make appropriate land management decisions.
- This three-phase target, a product of the Airport Futures planning project, sets forth a 25-year management plan for Port-owned sections of Government Island in the Columbia River. The first phase, to be conducted by June 30, 2013, will prepare the island for the establishment of a 50-acre upland grassland mitigation site. Target will focus on site preparation, planning, and monitoring.
- Seek out and fund projects that promote habitat enhancements to the Columbia Slough and improvements to the City of Portland's urban tree canopy as outlined in a 25-year plan, developed as part of the Airport Futures planning project, for environmental improvements around Portland International Airport. The first year, ending June 2012, includes a budget of \$50,000 for selected projects.
- Extend partnership with Friends of Trees by sponsoring and participating in tree plantings in neighborhoods adjacent to or near Port facilities to help offset impacts from Port operations. Tree plantings will take place in the winter of 2012 and will include an employee service opportunity.
- Convert the composition of a .6-acre reed canary grass-dominated herbaceous wetland to a native scrub/shrub environment, by June 30, 2013. This continues a pilot project, the PIC Wetland Conversion Plan, which was designed to reduce invasive species on Port property and reduce wildlife hazards currently posed by the open water attractant.
- In coordination with organizations such as The Nature Conservancy, Oregon State University, Metro, the City of Portland, U.S. Fish and Wildlife, and others, establish engineering and ecological habitat roof standards and requirements for industrial buildings that focus on Streaked Horned Lark habitat.



ATTACHMENT C:
FORM A

FORM A

Northwest Earthmovers, Inc. & Port of Portland

Terminal 4 Wheeler Bay 2011 Repairs

Green Remediation Plan

<p>FORM A Northwest Earthmovers, Inc. & Port of Portland Terminal 4 Wheeler Bay 2011 Repairs Green Remediation Plan (submittals will be quantified to the extent practicable given the scope of the project)</p>	<p>Documentation of Green Practices (specify if practices are not applicable or infeasible)</p>
<p>1. Energy Efficiency</p>	
<p>1.1. Renewable energy or Green Power used (specify below):</p>	<p>The Port currently purchases certified renewable energy credits equaling 100 percent of the Port-wide electric energy. Renewable energy is not applicable to this project for NEI.</p>
<p>1.2. Hybrid-electric vehicles used</p>	<p>The Port has a fleet of hybrid cars that can be used by employees and is also in the process of getting an all-electric Nissan-Leaf in operation. NEI has not yet found Hybrid-electric vehicles as a practicable for use in our industry.</p>
<p>1.3. Carpooling practiced</p>	<p>Carpooling for NEI office staff to attend site meetings will be practiced when schedules of the individuals allow for it. The Port will also maximize the use of carpooling and trip-pooling where feasible.</p>
<p>1.4. Trips eliminated through phone or email communication</p>	<p>NEI will endeavor to use telephone and email communications on this project.</p>
<p>1.5. Energy star equipment use in field office</p>	<p>An existing building at Terminal 4 will be used for the field office and no trailers will need to be brought on site to manage the project. As noted above, the Port currently purchases certified renewable energy credits equaling 100 percent of the Port-wide electric energy. The Port field office is equipped with EnergyStar office equipment.</p>
<p>1.6. Reduction in heat use within field office</p>	<p>An existing building at Terminal 4 will be used for the field office and no trailers will need to be brought on site to manage the project. As noted above, the Port currently purchases certified renewable energy credits equaling 100 percent of the Port energy needs.</p>
<p>2. Greenhouse Gas Emissions, cleaner engines, cleaner fuels, reduce idling</p>	
<p>2.1. Ultra-low sulfur diesel fuel used</p>	<p>NEI only uses Ultra-low sulfur diesel. Ultra Low Sulfur diesel (ULSD) – as of Dec 1, 2010, all diesel fuel sold in the U.S. must be ULSD. ULSD is a cleaner-burning diesel fuel that contains 97% less sulfur than low-sulfur diesel (LSD).</p>

<p>2.2. Alternative fuels - biodiesel, natural gas, and liquefied petroleum or propane used.</p>	<p>In addition the diesel currently being purchased by NEI is also a B20 Bio-diesel. B20 bio-diesel contains up to 20% renewable biomass, and using B20 results in lower emissions of almost every pollutant e.g. carbon dioxide, sulfur oxide, and carbon monoxide. NEI anticipates using 200 gallons of fuel. As part of NEI's equipment maintenance program, used engine oils are recycled and used to heat the company repair & maintenance shop during the winter.</p>
<p>2.3. Diesel exhaust retrofit device(s) - diesel oxidation catalysts, diesel particulate matter filters, selective catalytic reduction, closed crankcase ventilation, and exhaust gas recirculation technologies used.</p>	<p>The equipment NEI plans to use on this project will have TIER 3 engines. Tier 3 engines provide improved engine efficiency, thus reducing fuel consumption and exhaust, over the traditional diesel engine. The cost to retrofit the Tier 3 engine based on discussions with the John Deere dealer is \$15,000 to \$50,000. In addition, the time to complete the retrofit would extend past the October fish window (estimated at 4 to 6 weeks). Therefore, retrofitting the equipment is not justified for the project. NEI also investigated the possibility of leasing TIER 4 equipment from a local John Deere and Caterpillar dealer. According to these vendors, there is not comparable equipment within the Portland area. The nearest equipment is in California. The costs to mobilize the equipment as well as the added emissions to transport the equipment from California do not justify the use of leased TIER 4 equipment.</p>
<p>2.4. Minimize equipment idling.</p>	<p>The equipment NEI plans to use on this project have automatic idle controls which reduce the RPM of the engines. Operators are also instructed to shut off the machinery if it is not expected to be used within the next 5 minutes time. These controls and practices reduce fuel consumption and exhaust.</p>
<p>2.5 Routine maintenance of equipment - oil changes, checking tire pressure to maintain high fuel efficiency.</p>	<p>NEI Oil change and routine maintenance schedule is based upon 150-250 hours of usage. This is more frequent than the manufacturer recommended frequency of 300 - 500 hours of usage. NEI does this to maximize the useful life of the engines. This practice also ensures that the best possible engine efficiency is obtained, thus reducing fuel consumption and exhaust.</p>
<p>3. Utilize water conservation and efficiency approaches</p>	
<p>3.1. Water conservation methods - using gray water and/or captured rainwater for dust control, using tarps and mats to cover unvegetated/unarmored soils instead of water for dust control used.</p>	<p>Due to the time of year for this project, the use of water for dust control is not anticipated. If dust control becomes necessary water will be conservatively sprayed to hold down the dust using a water truck.</p>
<p>4. Incorporate sustainable site design</p>	

4.1. Areas of property left undisturbed	NEI will only disturb the areas necessary to perform the project. The project site has been minimized such that only 20 percent of the site below elevation 30 feet will be impacted by construction.
5. Utilize reused or recycled industrial materials within regulatory requirements	
5.1. On-site material used (specify below): <u>Filter layer gravel</u> <u>Anchored large woody debris</u> <u>Other (specify)</u>	All materials used for the bank repair project are existing on-site, with the exception of the rock rip rap. There will be approximately 30 cy of select fill found onsite used. And 2 woody debris trees removed and reanchored.
5.2. Material diverted from landfill.	This project does not require any material to be sent to a landfill or material recycled to be used as part of the construction process. If there is waste material discovered, appropriate measures will be used to recycle.
6. Use environmentally preferable purchasing	
6.1. Local materials used (specify below): <u>Rock rip-rap</u> _____ _____	Cemex Quarry is located approximately 20 miles from the project. NEI plans to have the rip rap delivered in transfer trucks to reduce the number of delivery trips to the project. Transfer Truck trips 2-3 ea vs SOLO Truck trips 4-6 ea.
6.2. Suppliers with green business practice policies.	CEMEX: accepts concrete debris and demolished asphalt paving materials for recycling purposes. Has a paperless conservation policy. GeoTK: Erosion control products. Provides some material containing recycled material. Example would be bio-bags, and porous paver products.
7. Environmental Management Systems (EMS) Practices	
7.1. Paper use reduced through electronic transmittals	NEI is reducing paper use by emailing submittals in lieu of hard copies.

**ATTACHMENT D:
SPECIAL PROCEDURES**

SECTION 013500 – SPECIAL PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section includes general requirements and procedures for compliance with certain USEPA Green Remediation practices.

1.2 DEFINITIONS

- A. Equipment that is Not in Active Use: Equipment that is on standby for more than 5 minutes.

1.3 SCOPE OF WORK

- A. The Contractor shall follow green remediation practices to the extent practicable.
- B. The Contractor shall document green remediation practices or specify how these practices are infeasible.

1.4 SUBMITTALS

- A. Report on Green Remediation - Wheeler Bay Bank Repairs, Port of Portland

1.5 REFERENCES

- A. USEPA. 2009. U.S. Environmental Protection Agency, Region 10 Superfund, RCRA, LUST, and Brownfields Clean and Green Policy. <http://yosemite.epa.gov/R10/extaff.nsf/%20programs/greencleanups>. Accessed online September 28, 2011

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 GREEN REMEDIATION ITEMS

- A. The Contractor shall use technologies and practices that are sustainable in accordance with USEPA Region 10 Green Cleanups (<http://yosemite.epa.gov/R10/extaff.nsf/programs/greencleanups>). The Contractor shall report on the use of these technologies and practices through Form A to the extent possible, including the associated quantities of materials

reduced, reused, or recycled as a direct result of these practices, for the repair work after project completion.

- B. The Contractor shall use cleaner engines, cleaner fuel, and cleaner diesel control technology on diesel-powered equipment with engines greater than 50 horsepower, where practicable and feasible. The preference is for clean diesel technologies and alternative fuels, such as biodiesel or natural gas powered vehicles. Cleaner engines include non-road engines meeting Tier 4 or cleaner standards and on-road engines meeting 2004 On-Highway Heavy Duty Engine Emissions Standards, or cleaner, whether the equipment is owned or rented. If biodiesel is used, sources of biodiesel made from recycled cleaner fuels, such as recycled oil waste from restaurants, should be used, if available. The Contractor should provide reasonable justification for not meeting the minimum requirement for cleaner fuels, if impractical. Cleaner diesel control technology includes USEPA or California Air Resources Board (CARB) verified diesel particulate filters (DPFs) or diesel oxidation catalysts (DOCs).
- C. Diesel-powered equipment should be used where available and/or practicable instead of gas-powered equipment. The Contractor shall minimize idling to control air pollution and reduce fuel usage. This shall include turning off all diesel engines on construction equipment greater than 50 horsepower when not in active use. The Contractor should use, to the extent practicable, CARB Section 2485 Airborne Toxic Control Measures to limit diesel-fueled commercial motor vehicle idling, including use of machines with automatic idle-shutdown devices and auxiliary power systems that meet CARB equipment specifications to power cab heating and air conditioning when equipment is unengaged.
- D. The Contractor shall perform routine, on-time equipment inspections and maintenance such as oil changes and checking tire pressure to maintain proper fuel efficiency.
- E. The Contractor shall schedule activities taking into account minimizing the number of vehicle/truck trips to the site.
- F. The Contractor shall purchase and use local materials to the extent practicable.
- G. If water usage is necessary (e.g., for dust suppression), water conservation measures will be utilized where feasible and practical.
- H. Where feasible, the Contractor shall recycle all scrap construction materials, wastes from the construction office, and other materials generated during the course of construction activities.
- I. Practices such as reducing the use of paper by utilizing electronic transmittal of project documents and implementation of waste reduction and recycling programs at the work site shall be implemented. Workers will also be encouraged to minimize waste where possible; e.g., using refillable water bottles instead of single-use bottled water.

END OF SECTION 013500