



DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
SAYLORVILLE LAKE PROJECT, 5600 NW 78TH AVENUE
JOHNSTON, IA 50131-1941
<http://www.CorpsLakes.us/Saylorville>

REPLY TO
ATTENTION OF

CEMVR-OD-S

25 April 2011

MEMORANDUM FOR FILE

SUBJECT: Standard Operating Procedure (SOP) 22 for Boundary Management

1. Purpose: To establish procedures and policy for monitoring and maintenance of the Saylorville Lake Project boundary.
2. References:
 - a. EM 1110-1-1002 Engineering and Design, Survey Markers and Monumentation; Chapter 5 Boundary Monuments
 - b. EP 1130-2-540 Project Operations - Environmental Stewardship Operations and Maintenance Guidance and Procedures Chapter 2 paragraph 2-3B Boundary Surveys and Marking
 - c. ER 1130-2-540 Environmental Stewardship and Maintenance Policies Chapter 2 paragraph 2-2G Boundary Surveys and Marking
 - d. EP 310-1-6a Sign Manual – Property Markers
 - e. EM 1110-1-1002 Survey Marker and Monumentation
 - f. Corplakes Gateway
<http://corplakes.usace.army.mil/employees/envsteward/boundary.html>
 - g. Job Hazard Analysis – Boundary Maintenance
3. Applicability: This SOP applies to all staff and volunteers assigned to boundary management tasks at Saylorville Lake. The standards will be achieved as funding and staffing levels allow.
4. Procedures:
 - a. Boundary line and monumentation standards on fee owned federally managed lands

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(1) Boundary Corner Monuments: All corner monuments will be marked with at least two (2) orange carsonite style flexible boundary marker signs. The carsonite posts will be located on the property line adjacent to the monument approximately three (3') feet on each side of the monument. Where possible, three (3) witness trees at each corner shall be referenced by a ten (10") inch "X" facing the monument, notched well into the outer bark, but not into the cambium layer, and painted yellow. In housing areas, only one (1) "X" reference tree per monument shall be marked and will be placed on the (GOVERNMENT SIDE OF THE LINE ONLY). Reference markings shall be approximately two to three (2-3') feet above ground level.

(2) In-line signage: Orange carsonite style flexible boundary posts shall be driven into the ground along the government boundary line with the decal facing outward towards the adjacent property. All posts shall be driven 18" to 24" into the ground. One post shall be placed at every point where a roadway or other public access point intersects the boundary line. At least one carsonite boundary post shall be placed at the approximate midpoint of each course (line between monuments) that is less than three hundred thirty (330') feet. Courses longer than three hundred thirty (330') feet will require one (1) sign per three hundred (330') feet. Any course less than fifty (50') feet in length will not require the placement of a sign along its length. If on a particular piece of boundary a fence line, road right of way, or other semi permanent structure is defining the property boundary; in line signage will only be necessary every 500 five hundred feet or as needed to maintain line of site. Project staff will post additional in line signage in overgrown areas or where terrain prohibits being able to see clearly from one sign to the next.

(3) Boundary line clearing: Employees are to review the Job Hazard Analysis (JHA) prior to beginning boundary work each season and insure that adequate protective measures are in use for preventing poison ivy reactions and safe operation of tools such as saws. Government property lines shall be cleared of vegetation to a width of five feet (5') and to a stump height not to exceed three inches (3"). Boundary clearing for fence constructed on the boundary line will be on case by case basis with management coordination. All woody vegetation will be cut from the fence, even if intertwined. If a fence on fee lands is in complete disrepair the boundary will be cleared as if it were not fenced. All overhanging vegetation along the cleared boundary path will be cleared to a height of seven feet (7'). Trees of a diameter at breast height of four inches (4") or more will not be removed, but branches will be trimmed to the seven foot (7') height clearance. Brush and other debris from clearing operations shall be removed from the cleared line and placed on adjacent Government property. Previously fallen debris, i.e. logs, tree limbs, etc. up to twelve inches (12") in diameter, laying on or across the Government property line, will be cleared from the property line to a width of five feet (5'). Logs greater than twelve inches (12") in diameter, laying on or across the Government property line, may be left in place, as long as smaller protruding limbs are removed from the five foot (5') wide swath. Hand tools and power hand tools shall be used to perform much of the clearing operation.

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Heavy equipment will be allowed at the discretion of the Operations Project Manager. In housing areas, no clearing shall be performed on the adjacent landowner's side of the property line. A five (5') foot wide line will be cleared, where not already cleared, completely on the Government side of the boundary line. Extreme care will be taken in cases where the boundary line is adjacent to a home site or developed lot. Pruning of any trees and shrubs (that may overhang the Government property line) is to be only what is essential to obtaining the necessary line of sight.

(4) Boundary Fencing: In accordance with applicable regulations, boundary fencing will be used as a management tool to delineate project boundaries where alternative management practices are not sufficient to ensure the safety of the project employees and visitors. Where economically justified, fencing may be used to prevent unauthorized use and trespass, to protect against environmental degradation and to preserve desirable wildlife habitat. Where fence already exists along project boundary it will be monitored for condition and as necessary work orders will be submitted for replacement or repair. In general newly installed fence will be webwire style without barbed strands, but the fence design shall be appropriate to meet the need.

(5) GIS Database: A Geographic Information System (GIS) Database will be maintained by project staff. This database will include shapefiles that contain monuments, corner sign posts, points on the line, fence on the line, and encroachments. Encroachments may be documented with a camera also and referenced to a point on the map. This database will also be uploadable to the GPS unit for use with boundary surveillance while in the field. Any requests for additions to these maps, or for maps describing boundary should be directed to project staff assigned to boundary management duties. Any maps produced at the project identifying project lands shall bear the standard MVR caveat that the map is not intended to accurately convey boundary lines and land ownership. A locked map where users can view the various layers but are not able to make edits will be made available to all project staff on a shared drive. Federally owned and managed boundary will be brought into this system first, followed by outgrant and easement areas. Rock Island District Survey Section is currently working on digitizing project boundary lines based on original survey notes. Once completed this will be the master file to be used on all Saylorville Lake maps which contain a boundary line. The boundary line shapefile would be available to other local/city/county/state entities who would wish to use the file in their own GIS.

b. Monitoring of federally managed sections of boundary

Inspection: In accordance with ER 1130-2-540 all federally managed sections of the boundary will be inspected on a bi-annual basis. A boundary monitoring log including a map will be used to document each year's boundary walking activities. Boundary monitoring will normally occur during the late fall/winter or early in spring before leaf out.

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(1) During these inspections rangers will locate each monument and inspect the boundary line for visibility and continuity of signage and any encroachments. If conditions do not permit actually locating each monument (i.e. excess snow on the ground) then it must be noted in the Boundary Monitoring Log what monuments were not able to be located. The boundary monitoring log will be maintained by the project personnel assigned to boundary management on a shared drive. At the end of each fiscal year a summary report will be generated and attached to that years Boundary Monitoring Log, hard copies of this will be filed with the boundary management file folders. Missing monuments and signs will be documented and work orders submitted for reinstallation or repair. On adjacent lands experiencing development or rapid land use change it may be necessary to monitor boundary on an annual or even more frequent basis. Safety is of primary concern when walking boundary lines. It is inherently more dangerous due to the remoteness of sections of boundary and interaction with adjacent landowners. Any staff involved with boundary surveillance should reference their Job Hazard Analysis (JHA) and pay particular attention to sections that cover working in rough terrain, cold weather and communication.

(2) Encroachments: All encroachments once discovered will be recorded and photographed. With any encroachment the first priority will be to accurately establish the boundary line. If sufficient monumentation and signage is in place it may not be necessary to have Rock Island District Survey Section come out and re-survey the area. If the encroachment does require a survey crew the boundary management POC will contact and coordinate the survey with the Rock Island District Survey Section and lake management to assess priorities and cost. Each encroachment will be recorded in the Saylorville Lake Field Incident Reporting System as an encroachment and the FIR will be updated as necessary. A letter will then be sent to the person responsible for the encroachment. The letter will identify the encroachment, define the corrective action to be taken, and state the length of time allowed for prescribed action. All encroachment letters are to be approved and signed by the Operations Project Manager. If further action on the part of the government is required to resolve the encroachment the best course of action will be considered on a case by case basis. Options include issuing a citation to the violator, for more severe cases a citation with a mandatory court appearance may be appropriate. In the latter case it may be necessary to coordinate with Rock Island District legal counsel and real estate division as well as the U.S. Assistant Attorney that would handle the case. Enforcement of any encroachments will be in accordance with Title 36 Chapter III part 327 of the Code of Federal Regulations.

c. Monitoring of non-federally managed sections of boundary

In areas where federal lands have been leased to other entities to manage, the responsibility for boundary surveillance remains with the lessee. Corps personnel may assist in walking boundary or with resolving encroachments as they are available.

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It may also be possible to leverage other corps resources (survey crews, maps or GIS/photo data) to resolve encroachments on leased lands; these decisions will be made on a case by case basis by the Operations Project Manager.

d. Coordination and education of adjoining property owners/developers/government

(1) A tri-fold informational flyer will be distributed to adjacent landowners and made available to the general public. This will include sections that cover: how to identify government land (photos of monuments and signage), proper use of public land, illegal use of government lands (encroachments), and contact information. The flyer will be distributed door to door in areas that have had historical problems with encroachments as time allows or via U.S. mail. The flyer will accompany any letters that are sent out of the office in regards to boundary inquiries and encroachments from private landowners. Copies of the flyer will also be available from the project office and visitors center. A copy of this brochure will also be posted to the Saylorville Lake website and available for the public to view and download. This flyer along with a copy of this SOP may also be uploaded to the Natural Resource Gateway to serve as reference material for other corps projects.

(2) The boundary POC is to review schedules and agenda items for planning and zoning (P&Z), city council and county board of supervisor meetings to assess if pending items impact lands adjacent to Corps property. If relevant topics are addressed the POC will attend and/or monitor as appropriate to represent the government interests and provide information and update the team leader and management on significant issues. The POC will also provide information as appropriate for other agencies managing federal lands.

JEFFREY W. ROSE, II
Operations Project Manager