

**PMA/PORTS/16-0750**

**Infrastructure Support Services**



Managed by  
Portsmouth Mission Alliance, LLC  
for the Portsmouth/Paducah Project Office  
of the United States Department of Energy

**Image Quality Statistical Plan  
at the  
Formerly Operating  
Portsmouth Gaseous Diffusion Plant  
Piketon, Ohio**



This document is approved for DOE/DOE Contractor Personnel Only  
and Internal Distribution Only

per review by:

Gregg Peed Date: 06/13/2016  
PORTS Classification/Information Office



**Image Quality Statistical Sampling Plan  
for the  
Infrastructure Support Services Contract  
at the  
Portsmouth Gaseous Diffusion Plant  
Piketon, Ohio**

PMA/PORTS/16-0750

Date Issued-June 2016

Prepared for the  
U.S. Department of Energy  
Portsmouth/Paducah Project Office

Portsmouth Mission Alliance, LLC  
Managing Infrastructure Support Services  
At the Portsmouth Gaseous Diffusion Plant  
Under contract DE-EM0004062  
for the  
U.S. DEPARTMENT OF ENERGY

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**APPROVALS**

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for the Infrastructure Support Services Contract  
at the  
Portsmouth Gaseous Diffusion Plant  
Piketon, Ohio**

PMA/PORTS-16-0750

Date Issued — June 2016

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## ACROYNMS

ANSI	American National Standard Institute
AQL	Acceptance Quality Limit
ASQ	American Society for Quality
DOE	U.S. Department of Energy
ERMS	Electronic Records Management System
.jpeg or .jpg	Joint Photographic Experts Group
IQSSP	Image Quality Statistical Sampling Plan
NARA	National Archives and Records Administration
OCR	Optical Character Recognition
pdf	Portable Document Format
PORTS	Portsmouth Gaseous Diffusion Plant
PMA	Portsmouth Mission Alliance
PPI	pixels per inch
RMFO	Records Management Field Officer
.tiff	Tagged Image File

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## EXECUTIVE SUMMARY

Portsmouth Mission Alliance, LLC (PMA), Records Management and Document Control (RMDC), through the Infrastructure Support Services (ISS) contract DE-EM0004062 is responsible for the records management function for the U.S. Department of Energy (DOE) at the Portsmouth Gaseous Diffusion Plant (PORTS) site. PMA RMDC (hereafter denoted RMDC) serves as the Portsmouth site-wide Records Custodian for legacy (historical) records and for newly-generated records for DOE prime contractors and their subcontractors. RMDC operates the Records Storage Area to manage primarily unclassified, government-owned records that PMA will generate or receive during the term of the ISS contract, and legacy records whose custodianship was assumed by PMA at the inception of the ISS contract. If needed, RMDC can also process classified records and the Records Storage Area can be used to contain classified records.

RMDC receives records from ISS operations and DOE contractors in all formats on a daily basis. RMDC works with records owners to ensure they are utilizing the same quality review standards as RMDC, prior to submittal to RMDC. When electronic records are received or generated by RMDC by converting hard copy records into electronic format, RMDC will perform a quality check. In lieu of a 100% quality check, DOE has indicated that a statistically-based approach is acceptable to reduce the time and effort to perform the quality checks prior to accepting the records into the PMA Electronic Records Management System (ERMS), Documentum.

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## **1 PURPOSE**

This Image Quality Statistical Sampling Plan (IQSSP) has been developed and based on American National Standard Institute/American Society for Quality (ANSI/ASQ) Z1.4--2003, *Sampling Procedures and Tables for Inspection by Attributes*. RMDC is committed to maintaining an efficient and economical Records Management Program.

## **2 SCOPE**

This IQSSP applies to all records received in or converted to an electronic format for storage in the PMA ERMS—Documentum. The records are generated or converted to a format that meets DOE and National Archives and Records Administration (NARA) requirements. Prior to final acceptance and destruction of the hard copy of any record, RMDC conducts quality checks to ensure the electronic file meets acceptance criteria.

## **3 SAMPLING PLAN**

### **3.1 RECORDS REQUIREMENTS**

RMDC staff members are to perform image quality statistical sampling on electronic records transferred to or generated by RMDC in accordance with this DOE approved plan and NARA requirements to ensure:

#### **3.1.1 Overall NARA Format Requirements**

- Compressed files use lossless file compression technique (not lossy).
- A preferred file format is used: Tagged Image File Format (TIFF), Joint Photographic Experts Group Jpeg2000 (JP2); Portable Network graphics (PNG), Portable Document Format/Archival PDF/A.
- Embedded fonts are identified publically as being legally embeddable in a file.

#### **3.1.2 Quality Control Standards Per NARA Requirements**

- No security settings (e.g., encryption, passwords, and/or permissions) are included/embedded that would prevent opening, viewing, or printing a record.
- Minimum resolution for temporary non-photographic records is 300 pixels per inch (ppi). Minimum resolution for permanent records is 400 ppi.
- Optical character recognition (OCR) process has been properly completed.
- Electronic copy and hard copy (where available for comparison) are identical.

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- Page count is consistent and not broken.
  - Pages are rotated correctly.
  - Classification and all text and other markings are clear and legible.
  - Poor quality pages are stamped "Poor Quality Original."

### **3.1.3 Overall NARA Requirements For Digital Photographs Only**

- Captioning shall include an index including: Photo #, date taken, program category, site, facility if applicable, and detailed description/caption including names where possible.
- Digital Image Photographs: Digital camera files must be captured as 6 megapixel files or greater with a minimum pixel array of 3,000 pixels by 2,000 pixels. Records produced at this resolution and size are comparable in quality to 35-mm film photographs, which is the minimum quality level for still pictures currently accepted by NARA 36 CFR 123 5.42.
- Digital photographs are in portable document format (.pdf), tagged image file format (.tiff), or joint photographic experts group (.jpeg or .jpg) format.

These requirements represent the attributes by which the unit of electronic records will be considered conforming or nonconforming (acceptance criteria). The unit for this sampling plan is an individual document (e.g., form, report, photograph) or an individual page in a document that is most practically compiled into the selected lot (batch size) for acceptance sampling.

## **3.2 SAMPLING METHOD**

ANSI/ASQ Z1.4-2003 requires that an Acceptance Quality Limit (AQL) be established. The AQL represents the worst tolerable process average when a continuing series of lots is submitted for acceptance sampling. The PMA Records Manager has established the initial AQL to be 1%, meaning that electronic records lots that pass inspection may still have as much as 1% of the units that would not meet one or more of the acceptance criteria. This level may be adjusted later based on collected information from the IQSSP.

Per ANSI/ASQ Z1.4-2003 the inspection level, which determines the relationship between the lot and sample size, will be Level II. A single sampling plan has been chosen for this work.

Based on the estimated number of similar electronic records submitted to or generated by RMDC that can be practically compiled for sampling, the lot size selected from Table 1 of the ANSI/ASQ Z1.4-2003 is 1,201 to 3,200 pages (expected).

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Based on a single sampling plan for normal inspection, per Section 9.2 and Tables I, and II-A-of ANSI/ASQ Z1.4-2003, the sampling criteria are as shown in Table 1, below:

**Table 1. Sampling Criteria**

<b>AQL=1%</b>	<b>Normal</b>	
<b>No. of Units</b>	<b>Sample Size</b>	<b>Ac/Re<sup>3</sup></b>
1,201-3,200	125	3/4

Currently, the sampling plan is limited to *normal inspection*, but based on monitoring of lot acceptance, the plan may be expanded in the future to include *tightened* and *reduced inspection*.

The sample size of 125 units from 1 lot will be selected by random number generator from the lot.

The Ac/Re value means that if the number of nonconforming units is less than or equal to the acceptance number of three (3), the lot will be accepted. If the number of nonconforming units is equal to or greater than the rejection number four (4), the lot will be rejected.

Rejection of the lot will mean that a 100% quality inspection will be conducted on the lot. The lot will be returned to the organization from which it was received to perform the 100% inspection. When the lot is returned to RMDC, the lot will be re-sampled. If the lot was generated by RMDC through hard copy conversion to electronic, RMDC will perform the 100% inspection and re-sampling.

### **3.3 SAMPLING CHECKLIST**

A sampling checklist will be used by RMDC Clerks to document the following (see Attachment 1, *Example Document Page Unit Checklist*).

- Inspection Date/Location and Inspector information.
- Units' compiling Lot.
- Units' samples randomly selected.
- Units' samples quality attributes evaluated, and Accept or Reject.
- Lot Accept or Reject

The sampling checklist may be modified in software application, format, unit description and content, and applied electronically or manually in hard copy, as needed, to most effectively document completion of this sampling plan.

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### **3.4 ADDITIONAL CONSIDERATIONS**

RMDC will apply this sampling plan as a standard operating practice, but may find in some cases where documents are received or generated in small or irregular groups that it is more practical to complete 100% inspection to better utilize available resources and maintain effective document flow.

RMDC will sometimes receive both the hard copy record and the electronic conversion or RMDC will have the legacy hard copy record and make the electronic conversion. In these cases, RMDC will apply this sampling plan, and compare the hard copy record to the electronic conversion to evaluate quality requirements.

The contents of legacy boxes (e.g., from former United States Enrichment Corporation operations or DOE contractors no longer at the PORTS site) are often unknown. A variety of types of media and paper and sizes of documents may be encountered. These types and sizes may pose particular problems in converting to electronic format, resulting in quality problems, and may need to be copied prior to converting to get the most legible final electronic record.

The hard copy may not be available for some legacy records. RMDC will evaluate the acceptability of as many quality requirements as possible, and identify in an error log those that could not be verified or corrected in the absence of the hard copy record.

When converting to electronic format is not the most ideal solution, RMDC will work with the DOE Records Management Field Officer (RMFO) and other DOE staff as required to ensure the record is maintained in the most optimal form.

RMDC Clerks converting documents keep track of quality problems using an error log. The error log is evaluated periodically by the Records Manager and Quality Assurance Manager to look for trends in quality problems. If trends are identified, then the sampling plan may be modified to conduct more stringent quality checks on types of records that pose problems.

Adjustments will be documented in a revision to this IQSSP.

## **4 REFERENCES**

ANSI/ASQ Z1.4-2003, *Sampling Procedures and Tables for Inspection by Attributes*

DE-EM0004062, *Portsmouth Infrastructure Support Services Contract*

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**ATTACHMENT 1  
EXAMPLE SAMPLE CHECKLIST**

## Image Quality Sampling Checklist For Records Received In Electronic Format

Date/Time:                      Location:                      Inspector Name/Contact No.:                      Document Numbers Comprising Lot:                      to

Document(s) NARA Quality Attributes Checked On Sample Page	Document(s) Comprising Lot Of 1201 to 3200 Pages (List In Document ID Section Below*)														
	Document No. / Page Count / Cumulative Page Count/ Randomly Selected Sample Page(s) No. (Normal Sampling – 125 Pages From Lot):														
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	<b>Y Acceptable / N Unacceptable Quality Attribute (Per Attribute, Per Sample Page(s) Selected):</b>														
<b>OVERALL NARA FORMAT REQUIREMENTS FOR ALL DOCUMENTS:</b>															
1. Compressed files use lossless file compression technique (not lossy).															
2. A preferred file format is used: Tagged Image File Format (TIFF), Joint Photographic Experts Group Jpeg2000 (JP2), Portable Network graphics (PNG), Portable Document Format/ Archival PDF/A.															
3. Embedded fonts are identified publically as being legally embeddable in a file.															
<b>QUALITY CONTROL STANDARDS PER NARA REQUIREMENTS FOR ALL DOCUMENTS:</b>															
1. No Security settings (e.g., encryption, passwords, and/or permissions) are included/embedded that would prevent opening, viewing or printing.															



<b>Attributes</b>			
<b>Accept Lot with 3 Unacceptable, Reject Lot with 4 Unacceptable</b>		Accept: <input type="checkbox"/>	Reject: <input type="checkbox"/>
<b>*Documents In Lot ID</b>			
ID No.	Title	Source (e.g., Company, Organization, Author)	Date
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

**Image Quality Sampling Checklist For Records Received In Electronic Format (Con't.)**

Document(s) NARA Quality Attributes Checked On Sample Page	Document(s) Comprising Lot Of 1201 to 3200 Pages (List In Document ID Section Below*)													
	Document No. / Page Count / Cumulative Page Count/ Randomly Selected Sample Page(s) No. (Normal Sampling – 125 Pages From Lot):													
	16. /	17. /	18. /	19. /	20. /	21. /	22. /	23. /	24. /	25. /	26. /	27. /	28. /	29. /
	<b>Y Acceptable / N Unacceptable Quality Attribute (Per Attribute, Per Sample Page(s) Selected):</b>													
<b>OVERALL NARA FORMAT REQUIREMENTS FOR ALL DOCUMENTS:</b>														
1. Compressed files use lossless file compression technique (not lossy).														
2. A preferred file format is used: Tagged Image File Format (TIFF), Joint Photographic Experts Group Jpeg2000 (JP2)], Portable Network graphics (PNG), Portable Document Format/ Archival PDF/A.														
3. Embedded fonts are identified publically as being legally embeddable in a file.														
<b>QUALITY CONTROL STANDARDS PER NARA REQUIREMENTS FOR ALL DOCUMENTS:</b>														
1. No Security settings (e.g., encryption, passwords, and/or permissions) are included/embedded that would prevent opening, viewing or printing.														



<b>Total No. Unacceptable All Attributes</b>			
<b>Accept Lot with 3 Unacceptable, Reject Lot with 4 Unacceptable</b>		Accept: <input type="checkbox"/>	Reject: <input type="checkbox"/>
<b>*Documents In Lot ID</b>			
ID No.	Title	Source (e.g., Company, Organization, Author)	Date
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			
27.			
28.			
29.			
30.			