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MONTEREY BAY AQUARIUM RESEARCH INSTITUTE (MBARI)

PROPOSAL FOR TAPE DIGITIZATION TEST SAMPLE

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Contents

Executive Summary 2

Key Project Criteria 3

Selection of the original asset 3

Preparation of the asset for digitizing 3

Cleaning 3

Formatting 3

Ingest 3

3 Point Quality Control 3

Automated Quality Control 3

Digital Asset Delivery 4

Asset Workflow 4

Archival Workflow and and Pricing 5

DCR Pricing and details 5

Key Stakeholders: 6

Conclusion 6

Authorization - Statement of Work 7

Executive Summary

IMES appreciates the opportunity to submit this proposal to Monterey Bay Aquarium Research Institute (MBARI) to participate in the **2020** Budgeting process for content digitization, migration and asset preservation, of the institutes legacy and expanding content library.

Time Line – based on the quantity and volume of elements awarded this could be an 18-24 month project.

Tape Formats include, but Not Limited to the following: Betacam SP and or Digital Betacam, D5 HD and possibly born digital on Hard Drives.

Key strengths of IMES proposal outlined in this document include:

- Ability to provide an in-house solution to convert 29,500 program hours to digital files, encoded to MBARI file spec and deliver to into the MBARI MAM as instructed.
- IMES has extensive experience in managing large volume library digitization and would work with MBARI to ensure the migration of the physical assets from your facility into our media facilities for the duration of the project.
- Flexibility to prioritize digitizing to meet MBARI requirements including changing catalogue priorities for digitization throughout the project to meet market requirements.
- Cutting edge studio facility with a dedicated ingest team equipped to deliver digitizing content to the highest standard in a highly structured and efficient manner.
- Customized physical and digital workflows to ensure the highest quality and low risk of failure including tailored manual and automated quality control of the physical asset prior to digitization and of the digital asset after digitization.
- Continuous delivery via digital networks allowing MBARI to automate as far as possible ingest into the MBARI Cloud solution for maximum efficiency and minimum cost

The file delivery format requested by MBARI shall be:

- ProRes HQ, ffMpeg, H.264, Additionally, they use AVC Intra, and 10 Bit Uncompressed
- Files to be processed in 16 minute intervals – IMES to Create and set up Softtron MovieRecorder 4 environment.
- Proxy File as ProRes HQ or H.264 – Client to Confirm
- 3 Point QC of Files and Check Sums (scope to be defined)

Key Project Criteria

Successful completion of this proposal to digitize 29,500 program hours is broken down into steps, each with key criteria to maximize efficiency and minimize the likelihood of error.

Selection of the original asset

MBARI, will determine the particular assets to be digitized based on their internal requirements and MBARI will set the Priority of these assets.

Preparation of the asset for digitizing

The tape is visually checked for damage and labelling cross referenced against the associated metadata to ensure tape inside the case matches the intended material to be digitized.

Cleaning

Due to their age and potential deterioration through less than optimum storage at times since production, SD tapes are cleaned using industry standard tape cleaner/evaluator (RTI Tapechek 4100) as required. This removes debris and polishes the surface of the tape. The tape is also optically evaluated for physical damage. Where damage is detected, unless it is only at the head of the tape, the tape is marked for special handling at ingest.

Formatting

Where possible the objective is to preserve the original timecode reference of the recording in the digital file. The timecode where file capture is to begin is logged, usually 5 seconds after stable code on the first required segment. The end of the material is then located and where there has been continuous and contiguous timecode present, a timecode end time is logged. Where there are timecode discontinuities, i.e. a multi-segmented recording, then depending on the decision by MBARI, a single file with continuous timecode or multiple files with individual timecode segments will be captured. These elements will be captured as Tape 1 = 01:00:00:00; Tape 2 = 02:00:00:00 and so on. MBARI to confirm if Bars and Tone are required on the file as well as existing, slate details and pre and post black at the head and tail of each asset?

Ingest

Tapes are set up on VTRs aligned to the manufacturers' specification for the format presented for ingest. During ingest any errors detected during ingestion and by the 3 Point QC Stage, will be compared via the source to determine if this is in the source or an ingest issue. Once all details are reviewed, we will correct any artifacts induced in the process or recapture the file as required, and we will make note of any inherent video and audio related flaws, which are source related.

3 Point Quality Control

Post digitization, the resulting file is examined at the Manual 3 Point QC. A trained operator checks beginning, middle, and end of the file, noting any issues and checks each issue against the source tape. Any visual or audible distortion that they believe can be corrected by re-ingest will result in the asset being returned for ingest.

Where the issue is a result of an un-correctable fault, such as physical tape damage, after confirmation by examination of the tape asset, the nature and duration of the problem is recorded against the asset record.

Automated Quality Control

On completion of ingest the resulting digital file(s) are automatically checked using Tektronix Aurora software against a format template to gather critical statistics such as video/audio levels, black frames, file duration, size and checksum information. The resulting report is provided to MBARI for examination and future reference.

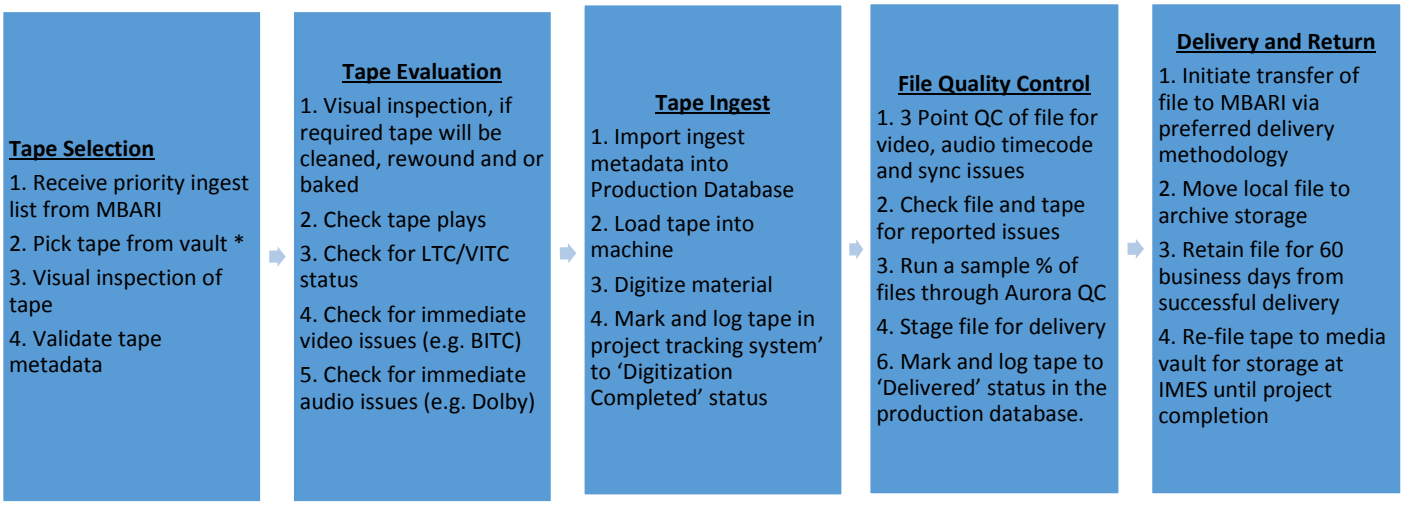
Digital Asset Delivery

Once passed as satisfactory at the 3 Point QC the completed file is queued for dispatch over the internet to MBARI using Signiant Media Shuttle, FTP, Hard Drive, and any other digital delivery means approved by the client, for efficient and secure transport. When receipt of the file at MBARI is logged, the local file is moved to medium term storage. The local file is retained by Iron Mountain for a period of 20 business days after which it is automatically deleted.

Asset Workflow

Below is the proposed physical and digital asset workflow.

Iron Mountain will use File Maker and / or Excel to track the throughput of assets through the process. Should any asset be required during the digitizing workflow, Iron Mountain would, at MBARI direction either remove the tape and send this asset to the recipient designated by MBARI, or if still awaiting ingest, advance that asset through the digital workflow, and then move to the designated recipient



Full Archival Workflow:

- As part of the cost analysis for the D5 Elements, MBARI is to loan IMES up to 4; low head Hour HD D5 Machines for the duration of the project. IMES will handle maintenance on these machines during the project. The equipment loan is reflected in the price noted for the D5 HD Masters. The initial rate was $32.60 per program hour and is now $31.60 per program hour a reduction of $9,000.00 off the original proposal.

- MBARI source tapes are barcoded with an Iron Mountain Barcode and entered into a production FileMaker Database.
- Inbounding to the Production Database includes all information from the asset, scans of the asset itself (pictures of Case/Spine/Label/any Inserts).
- Three-point Visual QC (no report), Tektronix Aurora QC, Operator Notes, Checksums and an "xml export" of the production database is included in delivery.

Full Archival Workflow:

20,500 Digi Beta	$31.60 per program hour	Total = $647,800.00
9,000 D5 HD	$31.60 per program hour	Total = $284,400.00

Total – Project Cost = $932,200.00

This service includes the Full Archival Workflow and data management time to write to Hard Drive, LTO Media, or posting to MBARI FTP or Server. Hard Drive and LTO Media is NOT included.
Client is welcome to supply record media. Physical storage is priced per MBARI's prevailing rates.

In an effort to allow this project to commence, if MBARI can commit to an initial 1st phase of Elements which is approximately one third or 30% of the larger project scope of 29,500, Program hours, would be 8500 program hours. IMES will test batch an initial 20 assets using the Softron workflow to work out any deviations to the process. Once MBARI Signs off we will commence with the initial project of 8500 Assets / Program hours so that a timely delivery can be maintained.

This initial cost would be: $31.60 X 8,500 = $268,600.00

Additional Project Scope:

IMES will invest in the Softtron MovieRecorder 4 set up if MBARI can commit to at least 30% of the work being assigned as noted above. The build out of this environment would be at a least a 4-6 week set up from the date of signature.

DCR Storage Rates:

Digital storage rates on our DCR (Digital Content Repository) start at $0.02/gig and the rates are tied to the amount of data and length of term.
As an example 100TB would be 100,000 GB X $0.02 = $2,000 / Month X 12 = $24,000.00 Per Year.

- DCR File Distribution Fee: 3.55
- DCR File Clip Fee: 7.55

Estimate of DCR Annual Costs: Note – added in a small amount of retrieval and clip requests, just to show some basic costs:

100TB (100,000GB) Data Stored	$2,000.00 Month	$ 24,000 Annual
20 Retrieval orders per Month	$71.00 Month	$ 852.00 Annual
20 Clip Requests Per Month	$151.00 Month	$ 1812.00 Annual

DCR Monthly Estimate: $ 2,222.00

DCR Annual Estimate: $ 26,664.00

If MBARI is interested in learning more about our DCR and its functions then IRM would be ready to come up to Monterey, or invite your team to our Mountain, and provide you with a detailed run through.

Key Stakeholders

MBARI

Nancy Jacobsen Stout - jana@mbari.org
Video Laboratory Manager
Kristine Walz - kwalz@mbari.org
Research Technician

Iron Mountain Entertainment Services

Allan Schollnick – allan.schollnick@ironmountain.com
Business Development Executive
Grant Rammer – grant.rammer@ironmountain.com
Manager, Engineering
Greg Maratea - Gregory.maratea@ironmountain.com
Program Manager
Brian Towle – Brian.towle@ironmountain.com
General Manager East & Regional Sales Director

CONCLUSION

As this proposal demonstrates, Iron Mountain has the expertise, the resources and the experience to meet and often exceed Monterey Bay Aquarium Research Institute's unique requirements. Our professional, proven, cost-effective protection and preservation program has been tailored to address your specific needs.

Iron Mountain can provide you with:

- Responsive local service
- Proven technology including digital archiving and studio services
- Long term entertainment archiving expertise
- Proactive account management
- National and worldwide account capabilities
- Real estate and facilities resources
- Economies of scale
- Highly trained and dedicated professional staff

Customers choose Iron Mountain for one reason above all: value. This value extends beyond asset preservation and management services; it rests with the confidence of knowing you have entrusted your assets to the industry leader. Our customers are secure in the knowledge that Iron Mountain is committed to a long-term business relationship with them as a trusted partner. We are here today to help you with your protection and preservation needs, and we will be here with state of the art solutions to help you address the inevitable challenges of tomorrow.

Authorization/Signatures - Statement of Work

This Statement of Work ("SOW") is the Customer Agreement by and between **MBARI** (“Customer”) and Iron Mountain Entertainment Services, Inc. ("Iron Mountain") (the “Agreement”). In the event of any inconsistency between this SOW and the Agreement, the Agreement shall prevail. The duly authorized representative of Customer has affixed his or her signature below with the effective date being the signature date. This SOW can be accepted by Customer for thirty (30) calendar days from the date shown above. Customer’s acceptance shall be indicated by Customer’s signature below. Iron Mountain cannot be held responsible for delays caused by Customer or for incorrect information provided by Customer.

This Statement of Work constitutes the complete description of the work to be performed. Project-specific pricing is contained in this document. Additional pricing for services to be provided by Iron Mountain is located in the Customer Information Center at cic.ironmountain.com. Please refer to this site for a Glossary with definitions of the terms used in this SOW. Any modification, deletion, or addition must be documented in a Change Order which may result in re-pricing the project. The Change Order must be signed by the duly authorized representatives of Customer and Iron Mountain.

VALUE OF DEPOSITS. Customer declares, for the purposes of this Agreement, that (a) with respect to hard-copy (paper) records, microfilm and microfiche stored pursuant to this Agreement, the value of such stored items is $1.00 per carton, linear foot of open-shelf files, container or other storage unit, and (b) with respect to round reel tape, audio tape, video tape, film, data tape, cartridges or cassettes or other non-paper media stored pursuant to this Agreement, the value of such stored items is equal to the cost of replacing the physical media. Customer acknowledges that it has declined to declare an excess valuation, for which an excess valuation fee would have been charged.

LIMITATION OF LIABILITY: Iron Mountain’s liability, if any, for loss or destruction of, or damage to, materials stored with Iron Mountain (“Deposits” or “Items”) is limited to the value of each Deposit as described above, or as otherwise set forth herein. Iron Mountain’s maximum liability with respect to services not related to storage is the amount paid by Customer for a discrete project or, if the loss is related to service of an ongoing and continuing nature, six months of fees paid by Customer for such service. Other limitations on Iron Mountain’s and/or Customer’s liability are set forth on the following pages.

LIABILITY FOR LOSS OR DAMAGE TO DEPOSITS FOR STORAGE: IM shall not be liable for any loss or destruction of, or damage to, Deposits, including costs resulting from a loss of a deposit constituting a breach of data security or confidentiality, unless such loss or damage resulted from IM’s negligence, gross negligence or willful misconduct. If liable due to IM’s negligence, the amount of liability is limited as described above. Deposits are not insured by IM against loss or damage, however caused. Customer may insure Deposits through third-party insurers for any amount. If, at Customer’s request, Deposits are placed in the custody of third party carrier for transportation, the carrier shall be solely responsible for any loss or destruction of, or damage to, such Deposits while in the custody of the carrier.
LIABILITY FOR NON-STORAGE SERVICES: With respect to services not related to the storage of Deposits, IM shall not be liable for any loss or default unless such loss or default is due to the negligence, gross negligence, or willful misconduct of IM. If liable due to IM’s negligence, the amount of IM’s liability is limited as provided above in Value of Deposits.

Customer	
Customer Address	
Authorized By (Customer)	X
Printed Authorization	
Title	
Signing Date	X
Authorized By (Iron Mountain)	X
Printed Authorization	Brian Towle
Title	Director Business Development and Account Management North America
Signing Date	X

IN WITNESS WHEREOF, the parties have duly executed this SOW as of the date and year first written above.