World Health Organization

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Prequalification Team Inspection services
WHO PUBLIC INSPECTION REPORT
WHOPIR
Finished Product Manufacturer

Part 1	**General information**
Manufacturers details	
Name of manufacturer	**Guilin Pharmaceutical Co Ltd.**
Corporate address of manufacturer	Shanghai Fosun Pharmaceutical Industrial Development Co., Ltd., Building A, No.1289 Yishan Road, Shanghai 200233, P.R. China
Contact person	Mr. Jun Yu Guilin Pharmaceutical Co Ltd.
Inspected site	
Name & address of inspected manufacturing site if different from that given above	Guilin Pharmaceutical Co Ltd-Injections, No 43 Qilidian Road, Guilin, Guangxi, 541 004, China North latitude: N25º14'42.31", East longitude: E110 º 20'22.58"
Unit / block / workshop number	1. INJ- I: Production line of sterile Artesunate (AS) API and Production line of Artesunate for injection (30mg, 60mg, 120mg, 180mg) 2. INJ- II: Sodium Chloride Injection (2.5ml, 5ml,10ml) Arginine/Sodium Bicarbonate injection (3ml, 9ml) 3. INJ- VI: Sodium Bicarbonate Injection (0.5ml, 1ml, 2ml) 4. INJ packaging workshop: INJ-PA1: Co-package center for Artesunate for Injections INJ-PA2: INJ-VI packaging line
Inspection details	
Dates of inspection	18 -22 September 2023
Type of inspection	Routine inspection
Introduction	
Brief description of the manufacturing activities	Guilin Pharmaceutical Co., Ltd. is a member of the Shanghai Fosun Pharmaceutical (Group) Co., Ltd. Enterprise since 2003. As a manufacturer, Guilin is engaged in the following manufacturing activities:

Name of manufacturing center	**Workshop name**	**Production line**	**Abbreviation**
INJ manufacturing center	INJ- I workshop	Production line for Artesunate for injection 1. Drying and filling of sterile Artesunate (AS) API	INJ- I

			2. Production line for Artesunate injection (30mg & 60mg)	
		INJ- II workshop	SVP production line 1. Sodium Chloride Injection (2.5ml&5ml&10 ml) 2. Arginine/Sodium Bicarbonate injection (3ml & 9 ml)	INJ- II
		INJ- VI workshop	SVP production line 1. Sodium Bicarbonate Injection (0.5ml&1ml&2 ml)	INJ- VI
		INJ packaging workshop	Co-package center for Artesunate for injection	INJ-PA1
			INJ-VI packaging line	INJ-PA2

History of previous regulatory inspections: 2021-2023

Authority	Dates of inspection	Scope of inspection
WHO	2021.09	API-I, API-II, OSD-I, INJ-I, INJ-II, INJ-VI
Provincial FDA (GuangXi FDA)	2021.10	OSD-I, INJ-I, INJ-II, INJ-VI
Provincial FDA (GuangXi FDA	2022.07	OSD-I, INJ-I, INJ-II, INJ-VI
Provincial FDA (GuangXi FDA)	2023.07	OSD-I
US FDA	2023.08	OSD-I

Brief report of inspection activities undertaken – Scope and limitations	
Areas inspected	▪ Quality management system

	▪ Sterile assurance ▪ Media fill, process validation ▪ CAPA verification implemented since the last inspection. ▪ Changes implemented since the last inspection. Site areas visited: ▪ Production block: Injection-I, II and VI ▪ Quality control laboratories ▪ Water system ▪ Co-Packaging area ▪ Warehouses
Restrictions	The inspection was restricted to the production of the products listed in the inspection scope.
Out of scope	All other products and workshops were outside of the inspection scope
Abbreviations	**Meaning**
AHU	Air handling unit
ALCOA	Attributable, legible, contemporaneous, original and accurate
API	Active pharmaceutical ingredient
APR	Annual product review
APS	Aseptic process simulation
BMR	Batch manufacturing record
BPR	Batch production record
BTR	Batch testing record
CC	Change control
CFU	Colony-forming unit
CIP	Cleaning in place
CoA	Certificate of analysis
CpK	Process capability
DQ	Design qualification
EDI	Electronic deionization
EM	Environmental monitoring
FMEA	Failure modes and effects analysis
FPP	Finished pharmaceutical product
FTA	Fault tree analysis
GMP	Good manufacturing practices
GPT	Growth promotion test
HEPA	High efficiency particulate air
HPLC	High performance liquid chromatography (or high performance liquid chromatography equipment)
HVAC	Heating, ventilation and air conditioning
IQ	Installation qualification
LAF	Laminar air flow
LIMS	Laboratory information management system
MB	Microbiology
MBL	Microbiology laboratory
MF	Master formulae

MFT	Media fill Test
MR	Management review
NC	Non conformity
NCA	National control authority
NCL	National control laboratory
NRA	National regulatory agency
OQ	Operational qualification
PHA	Process hazard analysis
PLC	Programmable logic controller
PM	Preventive maintenance
PQ	Performance qualification
PQR	Product quality review
PQS	Pharmaceutical quality system
PW	Purified water
QA	Quality assurance
QC	Quality control
QCL	Quality control laboratory
QMS	Quality management system
QRM	Quality risk management
RA	Risk assessment
RCA	Root cause analysis
RO	Reverse osmosis
SIP	Sterilization in place
SMF	Site master file
SOP	Standard operating procedure
URS	User requirements specifications
UV	Ultraviolet-visible spectrophotometer
WFI	Water for injection

Part 2	**Summary of the findings and comments (where applicable)**

1. Pharmaceutical quality system

Guilin Pharmaceutical Co., Ltd. Forms is a subsidiary of the Shanghai Fosun Pharmaceutical (Group) Co., Ltd since 2003 and manufactures APIs and finished product dosage forms which includes tablets, soft capsules, hard capsules, powder for injection and small volume parenteral. All products manufactured at the INJ site, except a new anti-malaria injection, application *MA195* have received registration with the National Medicines Regulatory Authority (NMPA, China). The Active Ingredient, *Artesunate* has been innovated by Guilin with the Artesunate product range recommended as 1st line treatment for malaria.

The Organigram identified the Quality and Production department operating under different leadership with the Qualified Person reporting to the Head of Quality. According to the Organogram, Finished Product release was shared between QA Manager and Qualified Person.

Senior Management demonstrated a commitment to the QMS by granting adequate resources to implement, support and manage the QMS. Quarterly management review meetings for discussion of quality matters i.e., audits, complaints, recalls, APQR's, production were conducted. Management meetings were attended by heads of the various units, with minutes and attendance register available and kept. Meeting minutes of 18 July 2023 (Q2/2023) were reviewed.

Job descriptions were available, addressing inter alia responsibility, qualification, and experience. The Vice President (Head of Quality) was overall responsible for the management of product quality.

The SMF was reviewed.

Product release
SMP for Product release was reviewed and found in order.

Change Control
The SMP for change control was briefly discussed. During the inspection Change controls executed were reviewed and challenged.

Deviation control
The SMP for Deviation controls was briefly discussed. The handling and investigation of specific deviations were assessed. Some gaps were identified which were communicated and addressed in the CAPA response.

OOS investigation
The SMP for OOS/OOT investigations applicable to physical, chemical, instrumentation and microbiology testing was briefly discussed. Microbiological OOS were dealt with separately. An initial investigation for OOS was performed to identify any laboratory error. The procedure required closing of the OOS/OOT within 30 days.

The handling and investigation of specific OOS/OOT were assessed.

CAPA and investigation
The SMP for CAPA investigations was briefly discussed. CAPA investigations were divided into 2 investigational actions i.e., CAPAs following inspections (self-inspections and external inspections) and CAPAs following from any quality activities i.e., deviations, recalls, OOS/OOT, complaints, PQR, and risk assessment.

Quality Risk Management
The SMP for QRM investigations was discussed. Risk Priority Number was determined based on Probability (P), Occurrence (O) and Severity (S). Risk associated with the manufacturing of product in a multipurpose product manufacturing site taking in account HBEL was initiated in 2022 and completed in 2023.

Trend Analysis was done per risk category i.e., OOS, Deviations and reported at quarterly management committee meetings.

Product Quality Review (PQR):
The PQR procedure was in place which detailed the application. Various elements of the quality system and products were reviewed periodically (every 12 months) as per the procedure. Process capability was calculated whereas CpK more than 1.3 was considered robust, CpK less than 1.3 required investigation.

2. Good manufacturing practices for pharmaceutical products

Production of Artesunate sterile powder for injection was performed in a dedicated production block INJ-I with the line and related production equipment dedicated to the filling of sterile Artesunate powders into vials. All process operations were performed under grade A LAF in a class B background area. The API batch size was specified with product packed in Aluminum canisters. The critical operating process with corresponding equipment i.e., vials washing, dehydrogenation tunnel, vials filling, and cap sealing were synchronized. Packaging and labelling were carried out separately. Artesunate API and FPP manufacturing were operational during the inspection.

A new application *MA195* was reviewed during the inspection. Data on three process validation batches packed in a 10ml vial container was available. The manufacturing process simulates the Artesunate powder for injection manufacturing process, *MA 168* already prequalified.

Manufacturing of product performed in INJ-II; a non-dedicated production block was observed. The manufacturing process included an APS process. The production line from compounding, ampoule washing, depyrogenation, filling, inspection and packaging was shared with terminal sterilized SVP products. The filling operations were performed under grade A LAF against a class B background. The critical operations including vials washing, dehydrogenation tunnel, ampoule filling and sealing were synchronized. Tunnel qualification and filtration process control were discussed. Labelling and packaging operations were carried out separately.

Documentation and processes reviewed include:

- The media simulation process of sterile Injection production.
- Air patten tests in the critical filling area.
- The qualification of the ampoule dehydrogenation tunnel in INJ-II following washing.
- Air speed at working level.

3. Sanitation and hygiene

The facilities and procedures for sanitation and hygiene established on site were found to be adequate with the relevant SOP's. Sanitation of clean areas was performed frequently in accordance with a SOP. Disinfectants rotated monthly, with an Ammonia quarterly disinfectant programme. Area type to be disinfected categorised as Stage 1 (solution) or Stage 2 (surface). The SOP on Cleaning and disinfectants identified the 4 Clean class area (Class A/B, C, D) layout and disinfectant stage to be used per each Clean Class. Effectiveness of disinfectants were checked annually in accordance with the Environmental Programme. The disinfectant interchangeable programme for class D was challenged confirming that a disinfectant changeover was implemented.

As per the APQR for INJ-I a Change Control was implemented to refurbish the wall surface of clean room, Class B with PVC. Previously Stainless-steel plates. A risk assessment was conducted.

4. Qualification and validation

A Validation Master Plan (VMP) was in place describing the principles of validation. In general, production and laboratory equipment had to be qualified/calibrated prior to use and after any significant change.

Process validation

INJ workshop I: Media fill testing

An Aseptic Process Simulation (Media fill) and process validation for Artesunate injection were performed in support of the submission of the new PQ application (*MA195)* which was under assessment at the time of the inspection.

Cleaning validation

INJ-I site was dedicated to the manufacturing of Artesunate injections. Toxicology reports were available. HBEL for INJ-II was verified as per information under section Quality Risk Management.

INJ workshop II:

Process validation protocol on specific identified injections, pack size 9 ml was discussed. The 9 ml pack size was introduced following the previous WHO September 2021 inspection. The validation protocol included compounding of the solution, washing of ampoules, depyrogenation of ampoules, sterilization of materials, filling, sealing, leak test and visual inspection. The process validation report was completed following three media fill batches and three PV batches.

INJ workshop II: Media fill testing

SMP for aseptic process simulation was in place. Summary report on Media fills test (MFT) for filling of small-volume injections (10ml) for injection manufacturing center workshop INJ-II was discussed.

Validation for critical area

Validation protocol for disinfection effect of atomizing hydrogen peroxide used in clean room for INJ-II was checked.

Staff validation

SMP addressed company policy on occupational health checks and physical examinations. Contracts were available with the local hospital for required health checks including eye tests. SOP for visual inspectors addressed requirements for annual qualification of inspectors tasked with online visual checking of vials and ampoules for defects. Records for visual inspectors were verified and found acceptable.

Computer validation

Computerized systems and PLC with new interfaces were installed on several pieces of existing equipment. The company used SAP in parallel to its manual inventory system for material management.

A SMP detailing the company policy on data integrity was available. An assessment of the company data integrity related to computer records and computer systems was contracted to an external consulting company. A list of all critical IT systems, usage, and validation status were available. Data

integrity policy together with applicable SOPs addressed company electronic data, Data disaster recovery, Data backup and retrieval.

Validation of the laboratory instruments and software was performed.

5. Complaints

SMP for handling of customer complaints was established. The handling of two market complaints were challenged and found acceptable.

6. Product recalls

Product recall followed the principles described in the applicable Recall SMP. Recalls were categorized into three levels depending on criticality with specified timeline requirements for completion. The SOP provided appropriate instructions to recall/remove products from the market.

7. Contract production, analysis, and other activities

No external contracts applicable for manufacturing of injections and corresponding testing or routine testing operations.

8. Self-inspection, quality audits and suppliers' audits and approval

For purpose of Sterile FPP manufacturing, Guilin has entered into various Technical Agreements with suppliers of material and consumables. The current technical agreement, company performance and latest inspection reports for the supplier of the 0,22 filters used during product manufacturing was reviewed and found acceptable following CAPA implementation.

Technical agreement with the supplier of *Arginine* substance, was evaluated. The agreement addressed GMP requirements. QA agreement was signed and as per the annual inspection schedule for contract acceptors a supplier's audit was timely executed.

Self-inspection for Utilities and Water was conducted. Audit plan for the inspection was prepared according to the SOP. Audit team included representation from QA, QC, Production etc. A typed report summarising various handwritten reports were completed as per an inspection template.

9. Personnel

Guilin employs approximately 1200 employees of which 300 were technical staff. The responsibilities of staff and their specific duties were recorded in written job descriptions. Personnel interviewed during the inspection were aware of the principles of GMP. Organization charts and job descriptions were available.

Job descriptions and responsibilities and CVs of the Quality Assurance Manager and QA Assistant Manager were reviewed.

10. Training

Training was managed according to the SMP. Training was divided into induction training, cGMP, on the job training and external training. Training was evaluated through questionnaires and a passing grade were set. Assessment records following training were available. For purposes of Laboratory

training, SOP on qualification verification and laboratory staff competence was checked. Training received by staff members were verified and found acceptable.

11. Personal hygiene

Changing and washing before entry to production areas followed written procedures. Direct contact was avoided between the operator's hands and starting materials, primary packaging materials and intermediate or bulk products. The level of hygiene observed, and the measures taken to maintain hygiene requirement were found to be satisfactory.

12. Premises

Documented layouts of the facilities were available. Generally, the premises were located, designed, constructed, and maintained to suit the operations to be carried out. Production premises were designed to allow production in a unidirectional flow supported by the requisite cleanliness levels.

The Artesunate powder for injection was produced in INJ-I which was dedicated to the product.
In INJ-II manufacturing of the solutions used in reconstituting Artesunate powder for injection, Sodium Bicarbonate Injection (terminally sterilized), Sodium Chloride (terminally sterilized) and Arginine (aseptic sterilization). In addition, the Arginine +Sodium Bicarbonate constitution solution was produced by an aseptic process and manufactured on a shared production line for Sodium Chloride Injection.

Penicillin API, OSD and injections were previously manufactured on site in three dedicated blocks. Penicillin production ceased with manufacturing being contracted out and the Penicillin manufacturing block decontaminated. The area was being recommissioned for purposes of manufacturing for the domestic market, storage of spare parts and archiving of documentation. During the inspection it was observed that commissioning of PEN-I API was not completed with the change still ongoing. A follow-up on this change will be required during the next onsite inspection.

The facility had 3 warehouses applicable to the manufacturing of injections:

- Automated warehouse (storage of excipients, APIs) with temperature-controlled areas according to product storage requirements
- Label warehouse: for printed labels (labels with product name and code), and
- Packaging warehouse: for packaging materials (primary and secondary packaging). All warehouses applicable to INJ manufacturing were visited by the inspectors.

Incubation rooms

The incubation rooms at temperature 20-25^{0}C and 30-35^{0}C were visited. Temperature was continuously monitored, and daily printouts were available and verified. The incubation registers for the two rooms were in place and checked. Temperature mapping was completed.

Water system

Feed water to the plant was municipality grade water. The PW, WFI and steam system was briefly visited. P&IDs for PW and WFI were in place. The CAPA for WFI was checked.

SMP for Pharmaceutical Water Management address the sampling and testing frequency requirements for Purified Water and Water for Injection. Water Trending for 2022 was available for assessment. Annual Water Trending was conducted on water points.

Steam trending.
SMP for Pharmaceutical Water Management addressed the sampling and testing frequency requirements for pure steam. Water and steam Trending for 2022 was available for assessment.

All production lines and workshop activities reviewed were identified as to its content or purpose with appropriate cleanliness status identified.

13. Equipment
The equipment used in the manufacturing, processing, and packaging was checked and discussed. The equipment was placed in a suitable location to facilitate operations for their use, cleaning, and maintenance. Production equipment reviewed was identified as to its purpose and status.

The production lines included power filling lines designed using RABS when necessary. SVP ampoule lines were not dedicated. The equipment was in operation and appeared running well at the time of inspection.

Equipment Validation/Qualification
Vial Labelling Machine – INJ-I
Requalification of labelling machine to be conducted periodically. Requalification records were available for 7ml vial size (July 2023) and 5ml vial size (1 August 2023). Parameters that were checked for purposes of qualification included challenge test on camera, sensitivity test, speed, and position of label etc.

Depyrogeneration tunnel INJ-I
Annual requalification of Depyrogenation tunnel, INJ-I report was reviewed and discussed.

Depyrogeneration tunnel and filling equipment of INJ-II
The production INJ-II SVP ampoule line included an aseptic filling line designed using open RABS. The line was not dedicated. The equipment was in operation during the inspection and appeared to be running well at the time of inspection.

The validation protocol and report for the Depyrogenation process for ampoule for 10 ml for INJ-II and Performance Requalification Protocol/Report on Depyrogeneration Tunnel, were checked.

Step-in incubation room
The qualification of the Step-in incubation equipment/room was spot checked for "Installation, operation, performance report for biochemical culture room" according to SMP-QA for *Periodic review and validation*, temperature mapping for 20-25^{0}C/30-35^{0}C were performed.

Autoclave Qualification
Workshop INJ-I

Two autoclaves in workshop INJ-I were respectively used for sterilization of vial caps/stoppers and clothing/components. Requalification of an autoclave for the sterilization of clothes and components, Aluminum canisters, filters, consumables were inspected. A comprehensive report was available for review.

Workshop INJ-VI

Qualification of the autoclave workshop INJ-VI for sterilization of 0,5ml/1ml/2ml ampoules, loading patterns were assessed. Potential mix-ups between sterilized and unsterilized material were prevented by area layout, interlocking doors preventing simultaneous opening and unidirectional movement of material.

Compressed air

SOP for analysis of compressed air, the sampling and testing were checked and discussed.

Nitrogen trending

Trending report for inert gas, Nitrogen, for 2023 was reviewed. Specifications were specified in SOP the sampling and testing were checked and discussed.

14. Materials

Incoming materials were purchased from approved suppliers, sampled, and tested according to specifications and testing procedures. Receipt, warehousing and issuing (to production) of materials were managed with WMS (Warehouse Management System).

Finished Product Release was addressed by SMP, required oversight and sign off from all the sections. Finished products were held in quarantine until their final release and stored under appropriate and monitored conditions.

Control of endotoxin content for starting material, *Arginine* substance, supplied by the approved supplier was evaluated. CoA issued by supplier lists endotoxin content. All CoA specifications were retested including endotoxin content.

15. Documentation

In general, the documentation was designed, prepared, reviewed, and distributed according to a documented procedure. Quality system documents were regularly reviewed and kept up to date.

Approved, signed, and dated testing procedures and specifications were available for starting material, packaging materials and for finished products.

SMF addressed the policy on allocation of batch numbers with the SOP providing a list of all product codes. Product batch numbering provided information on the product code, year, month, and specific batch. In the case of batch numbering for injections, the specific shift number was also included.

SMP on record management provided for BMR and BTR wasto be issued using either a manual or an electronic process. The issue of BMR/BTR through a dual DMS system was addressed through CAPA and found acceptable.

During the inspection, the Inspectors reviewed several BMRs of PQed products for process validation, production instruction, IPC, FPP release, CoA verification and EM etc.
Specific records reviewed include:

- BMR for Sodium Bicarbonate
- Cleaning validation for INJII.

16. Good practices in production

Clean areas for the manufacture of sterile products were classified according to the expected required characteristics of the environment. The production lines of INJ I, II and VI for API compounding, the machine set up for the powder filling line and ampule production line and areas were inspected. CAPAs to the deficiencies made in the previous September 2021 inspection were checked for implementation.

17. Good practices in quality control

The QC laboratories were separated from production areas. The laboratories have been designed and equipped with facilities for chemical, instrumental, microbiological and stability chambers. A new LIMS system was under development.

Premises:

Chemical/instrumental laboratory premises were located on the second floor of the laboratory building. The laboratory had adequate space for the orderly placement of equipment and materials and to perform tests. Appropriate specifications were established. Access to laboratory premises was restricted to authorized personnel.

Microbiological laboratory premises were separated from chemical laboratory and was located on the third floor of the laboratory building. The Microbiological Laboratory layout involved separate rooms/areas that provided for media preparation and sterilization, testing of sterility, endotoxin, microbial limit etc. The layout of the laboratory was reconstructed following the 2021 WHO inspection to accommodate requirements on segregation between the clean and the contaminated laboratory activities. The laboratory had adequate space for the orderly placement of equipment, materials and to perform tests. The sterility test area was separated from all other microbiological activities.

Sample receiving.

Testing samples were received on the first floor of the laboratory building. Receiving and allocation to analysts were conducted formally and recorded as per SMP. Samples were stored for a maximum of 30 days. Special sample storage area maintained at 30^0C was available. Logbooks for received API, raw materials, IPC samples and finished products were available and checked.

Issue of CoA following testing of *Artesun* was challenged. Tests were conducted as per the Pharmacopeial requirements.

Laboratory equipment

Most of the laboratory equipment was linked with Empower 3 software, with some standalone instruments such as UV, ICP, IR and AAS as information was saved in real time on a separate laboratory server and the general company server.

Calibration of analytical weighting balance was assessed. Daily weight checks were performed in-house for a high and low weight, with calibration conducted by an external contractor every 6 months for accuracy, reproducibility, and minimal weight. Weights used for daily checks were standardized by an external contractor and corresponding calibration certificates were verified.

Calibration of dissolution apparatus with latest qualification reports were checked. Mechanical and chemical calibration was performed. Equipment usage log and maintenance records were available.

Calibration of HPLC with latest qualification report was checked. Calibration parameters included:

- Pump (leakage test and flow rate)
- Reproducibility and linearity of the injection volume
- Detector
- Injector

Calibration and system suitability tests for IR apparatus were verified. Daily calibration was performed against reference standard. Usage log available. Data collected on product *Sulfadoxine,* was verified. Reference standard run and product runs were checked.

SOP for Empower 3 software system management, was checked and discussed.

Microbiology laboratory equipment

Full set of data was available and was checked for calibration of balances, incubators, fridges, laminar air flow benches. Standard weights were externally calibrated according to the External calibration program.

Autoclaves:

The laboratory was equipped with five autoclaves, with two used for the condemnation of media and organism and the other three for the sterilization purposes. A horizontal double door autoclave was used to load media from Preparation with unloading from the Microbial limit test area. The annual validation report of the sterilization autoclave was reviewed. The results were within limits.

Laboratory incidents

SOP for Laboratory abnormities was applicable to QC, IPQC and Microbiological Laboratory. Laboratory Incidents register, 2022 was reviewed. Most incidents related to instrument and system suitability failure which were identified prior to testing.

Stability monitoring

Stability was performed according to the SOP with samples stored in a Walk-in stability chamber. Temperature and humidity mapping was carried out periodically. Temperature and humidity were monitored electronically with the recording of Temperature and RH. Stability chambers were equipped with alarm systems. One batch of product was placed on a stability program yearly. It was noted that stability samples of finished product were placed in the stability chamber in their primary packaging material. The stability study report for Sodium Bicarbonate 1ml ampoule, at storage condition of 30 ± 2°C for 48 months was verified.

Reference material

Working reference standards were packed in amber colour vials under LAF. Working standards were standardized against pharmacopeial standards. Usage of reference materials were recorded. Reference material was stored at 2 – 8 °C.

Expiry dates for Pharmacopeial reference standards were checked online. For purpose of Good Laboratory Practise, a continuous log recording expiry date of chemicals and reference standards was implemented.

Retention samples

Retention samples were stored in the area with access control. Retention samples were stored in the same packaging as for commercial use as per the SOP. Retention samples (OSD and Injectables) were kept one year after the batch assigned expiry date. Samples were visually inspection annually.

Part 3	**Conclusion – Inspection outcome**

Based on the areas inspected, the people met, and the documents reviewed, and considering the findings of the inspection, including the observations listed in the Inspection Report ***Guilin Pharmaceutical Co Ltd***, located at ***No 43 Qilidian Road, Guilin, Guangxi, 541 004, China*** was considered to be operating at an acceptable level of compliance with WHO GMP Guidelines.

This WHOPIR will remain valid for 3 years, provided that the outcome of any inspection conducted during this period is positive.

Part 4	**List of GMP Guidelines referenced in the inspection report**

1. WHO good manufacturing practices for pharmaceutical products: main principles. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-eight Report Geneva, World Health Organization, 2014 (WHO Technical Report Series, No. 986), Annex 2. ***Short name: WHO TRS No. 986, Annex 2***
   https://digicollections.net/medicinedocs/documents/s21467en/s21467en.pdf

2. WHO good manufacturing practices for active pharmaceutical ingredients. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957), Annex 2. ***Short name: WHO TRS No. 957, Annex 2***
   untitled (digicollections.net)

3. WHO Good Manufacturing Practices: water for pharmaceutical use. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fifty-fifth Report. Geneva, World Health Organization, 2021 (WHO Technical Report Series, No. 1033), Annex 3.
   Short name: WHO TRS No. 1033, Annex 3
   9789240020900-eng.pdf (who.int)

4. WHO guidelines for sampling of pharmaceutical products and related materials. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Thirty-ninth Report. Geneva, World Health Organization, 2005 (WHO Technical Report Series, No. 929), Annex 4.

Short name: WHO TRS No. 929, Annex 4
https://digicollections.net/medicinedocs/documents/s21440en/s21440en.pdf

5. Guidelines on heating, ventilation and air-conditioning systems for non-sterile pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fifty Second Report Geneva, World Health Organization, 2018 (WHO Technical Report Series, No. 1010), Annex 8. **Short name: WHO TRS No. 1010, Annex 8**
https://www.who.int/docs/default-source/medicines/norms-and-standards/guidelines/production/trs1010-annex8-who-gmp-heating-ventilation-airconditioning.pdf?sfvrsn=c77698e2_0

6. Supplementary guidelines on good manufacturing practices: validation. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fortieth Report. Geneva, World Health Organization, 2006 (WHO Technical Report Series, No. 937), Annex 4.
Short name: WHO TRS No. 937, Annex 4
https://digicollections.net/medicinedocs/documents/s20108en/s20108en.pdf

7. WHO good practices for pharmaceutical quality control laboratories. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957, Annex 1.
Short name: WHO TRS No. 961, 957), Annex 1
https://digicollections.net/medicinedocs/documents/s18681en/s18681en.pdf

8. WHO Good Practices for Pharmaceutical Products Containing Hazardous Substances. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957), Annex 3.
Short name: WHO TRS No. 957, Annex 3
https://digicollections.net/medicinedocs/documents/s22358en/s22358en.pdf

9. WHO good manufacturing practices for sterile pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-Fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 6.
Short name: WHO TRS No. 961, Annex 6
https://digicollections.net/medicinedocs/documents/s19959en/s19959en.pdf

10. WHO guidelines on transfer of technology in pharmaceutical manufacturing WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-Fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 7.
Short name: WHO TRS No. 961, Annex 7
https://digicollections.net/medicinedocs/documents/s18677en/s18677en.pdf

11. Model guidance for the storage and transport of time-and temperature-sensitive pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-Fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 9. ***Short name: WHO TRS No. 961, Annex 9***
https://digicollections.net/medicinedocs/documents/s18683en/s18683en.pdf

12. General guidelines for the establishment maintenance and distribution of chemical reference substances. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-First Report Geneva, World Health Organization 2007 (WHO Technical Report Series, No.943) Annex 3. ***Short name: WHO TRS No. 943, Annex 3***
https://digicollections.net/medicinedocs/#d/s21438en

13. WHO good practices for pharmaceutical microbiology laboratories. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-Fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 2.
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