



**WHO PUBLIC INSPECTION REPORT
(WHOPIR)
API Manufacturer**

Part 1: General information

Name of Manufacturer	Lupin Ltd (Tarapur)
Unit number	T1
Production Block	<ul style="list-style-type: none"> • Fermentation, MPP-1, DSP-1, DSP-2, CSP-1, CSP-2A, CSP-2B, SRU, MPP-4, MPP-4 SRU.
Physical address	Lupin Ltd (Tarapur) - Thane, T-142, M.I.D.C. Tarapur, 401 506 Thane, Maharashtra, India
Contact person and email address.	Mr Rajeev Patil Telephone: +91 22 66 40 2370 ○ Office : +91 22 66402370 ○ Mobile : +91 9820106282 Email : rajeevpatil@lupinpharma.com
Dates of inspection	16, 17 and 18 February 2011
Type of inspection	Routine Inspection
Active Pharmaceutical Ingredient(s) included in the inspection	Active Pharmaceutical Ingredients against Tuberculosis (TB).
Summary of the activities performed by the manufacturer	Manufacturing (chemical synthesis and fermentation), packaging, control and release of Anti- Tuberculosis (TB) active pharmaceutical ingredients.

Part 2: Summary

General information about the company and site

The site inspected was the T1 facility of Lupin Limited, located at T-142 MIDC area, Tarapur, 401 506 Thane, Maharashtra, India, hereafter called Lupin Tarapur (T1). The company corporate office was located at 159 CST Road, Kalina, Santacruz (E) Mumbai, 400098 India.

According to the Site Master File Document No. SMF/T1-01 effective 05/01/2008 and the presentation given at the opening meeting, Lupin Limited was established in April 1968. Lupin Tarapur, established in 1992, is located 120km from Mumbai on a 157,000m² plot with a built up area of 141,000m². The site had 3 facilities: T1 (*Fermentation and synthetic APIs*), T2 (*Generic*

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APIs) and T3 (*under development*). T1 which was the focus of inspection had the following blocks and areas:

1. Fermentation Block: Fermentation process to produce the broth.
2. MPP-1 Block: Generally used for synthesis of exhibit batches.
3. DSP-1 Block: Downstream processing - separation from the fermentation biomass, isolation and concentration.
4. CSP-1 Block: Isolation; conversion; Reaction.
5. CSP-2A Block: preparation of intermediate.
6. CSP-2B Block: crystallization, purification and powder processing.
7. SRU-Block: Solvent recovery facility.
8. DSP-2 Block: Chemical Synthesis of two APIs.
9. MPP-4 Block (formerly DSP-3): multipurpose plant.
10. MPP-4 SRU Block: Solvent recovery facility for MPP-4 block.
11. Admin Block-1: Warehouse, QA, QC and R&D Lab.
12. Effluent Treatment Plant.
13. Explosive Tank Farm.
14. Non-explosive Tank Farm.

The site was supplied potable water from MIDC water supply which was stored in an underground tank and pumped either directly to the manufacturing blocks or to the water treatment plant to produce DM water and purified water to be used during the various stages of synthesis. The site also generated its own Nitrogen and compressed air.

According to the company presentation and the SMF, the site employed a total of 664 people distributed as follows:

<u>Department</u>	<u>Staff</u>
○ Manufacturing	304
○ Quality Assurance/Quality Control	114
○ Process Development	48
○ Engineering	117
○ Supporting Services	63
○ R&D (Micro)	18
○ TSD and Projects	08
Total	664

History of WHO and/or regulatory agency inspections

According to the SMF and company presentation, the site was licensed by the local authority under licence No. KD/96 (valid up to 31.12.2011) and KD-466 (valid up to 22.11.2011) and had been approved by US FDA (1997, 2005 and 2009), Korean FDA (2010) and UK MHRA (2010). This was the third inspection by WHO-PQP; the first inspection was in March 2008 and the second was in September 2009.

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Focus of the inspection

The inspection focused on the production and control of three APIs in T1 Facility. The inspection covered all the sections of WHO GMP for Active Pharmaceutical Ingredients, including:

- Quality Management
- Personnel
- Buildings and Facilities
- Process Equipment
- Documentation and Records
- Materials Management
- Production and In-Process Controls
- Packaging and Identification Labelling of APIs and Intermediates
- Storage and Distribution
- Laboratory Controls
- Validation
- Change Control
- Rejection and Reuse of Materials
- Complaints and Recalls

Inspected Areas

Day 1: 16 February 2011

On arrival, the inspectors were directed into the conference room, introduced themselves and exchanged business cards with the key staff of the site. The inspectors explained the procedure for the WHO Prequalification Programme, the procedures and standards used for inspection and timelines for the processing the report and company responses to the inspection observations. The recently developed WHO guidelines and the procedures for prequalification of APIs were explained. The tentative inspection plan was discussed and confirmed. The company made a presentation about the company and the site to be inspected. The presentation highlighted the company profile, the description of the site, a summary of manufacturing capacities, location of production of the various APIs, the site inspection history status of CAPAs and changes since the last WHO inspection. A copy of the presentation was obtained and filed in the company file.

The major changes highlighted include the following:

1. Facility: Expansion of the warehouse and Microbiology laboratory.
2. QC: new computer software and revision of specifications of two APIs following queries from WHO.
3. QA: created documentation cell for storage of documents, new software for training, eBMR for issuance of BPRs and new batch numbering system.
4. Equipment: several new production and QC equipment installed.

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The company presented the process flow charts for the APIs in focus.

The inspection of aspects of the Quality Management System followed.

Quality Management System review:

- Personnel Policies: Organization charts, Job descriptions, Training, Health and Hygiene. It was noted that the position of QA Manager for block T1 was vacant. A total of 223 new staff had joined the company since 01.01.2010.
- Documentation and record system:
 - SOP Index/SOP preparation, approval and control.
 - Master and Batch production and control records.
 - Batch numbering system:
 - There were at least 4 SOPs controlling the batch numbering system. SOP No. PR5-005-08 effective 01.01.2010 for block CSP-1; SOP No. PR8-005-13 effective 01.01.2010 for block CSP-2B; SOP No. PR4-202-05 effective 01.01.2010 for block DSP-2 and SOP No. PR11-013-01 effective 05.12.2009 for SRU (recovered solvents in T1) the batch number had the following format: XX YYYY ZZZ where XX were the last 2 digits of the calendar year of manufacture; YYYY were the last 4 digits of the material group/SAP code; ZZZ was the serial number of the batch starting with 001 to 999. Whereas the batch numbering system for recovered solvents could link it to the material or process from which it was recovered, it did not identify the stage of processing from which it was recovered. This was consequently addressed.
- Change control

The SOP No. QA-041-03 effective 01.01.2011 on change control was reviewed. It defined temporary and permanent changes related to systems, raw materials, specifications, analytical methods, facilities, equipment, processes, laboratory, packaging materials computer software, etc. The regulatory impact of the changes was reviewed before approval by quality assurance. Changes had to be implemented within 3 months and closed out within 7 days after the last activity. Selected examples of changes were reviewed from log Nos. QA/LOG/016 and QA2/LOG/11024:

- QA1/CCPCOM/0030: A permanent change.
- QA1/CCPCOM/035, QA1/CCP/COM/0038, QA1/CCP/COM/0043: Temporary changes.
- QA1/CCP/COM/0049: A permanent change.
- QA1/CCP/COM/0074 and QA1/CCP/COM/0075: Permanent changes.
- QA1/CCP/COM/0083: A permanent change.
- QA1/CCP/COM/0117: A permanent change.
- QA1/CCP/COM/0120: A permanent change.
- QA1/CCP/COM/0130: A permanent change.
- QA1/CCP/COM/097: A temporary change.
- QA1/CCP/COM/1001: Permanent change.
- QA1/CCP/COM/1004: A permanent change.
- QA1/CCP/COM/1008: A temporary change.

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- AQ1/CCP/COM/1009: Temporary change.
- QA1/CCP/COM/1011: A permanent change.
- QA1/CCP/COM/1016: A permanent change.
- QA1/CCP/COM/1019: A temporary change.
- QA1/CCP/COM/1021: A permanent change.
- QA1/CCP/COM/9065:
- QA1/CCP/COM/9074:

- **Deviations SOP and Register:**

The SOP (No. QA-019-02, effective 1 January 2011) and other documents related to deviations management (deviations registers, deviations forms and files about detailed investigations) were reviewed during the inspection. Deviations were checked and approved by various responsible persons. A trending of deviations was not conducted according to SOP QA-019-02 (cf. observations). During the inspection, deviation registers for 2010 and 2011 plus three deviation reports were reviewed in detail:

- Deviation QA1/DEV/COM/0008
- Deviation QA1/DEV/COM/0016
- Deviation QA1/DEV/COM/0036
- Deviation Trends for 2009 (2 APIs)

- **OOS SOPs + Registers**

The SOP (No. CQA-004-09) and other documents related to the management of out of specification results (OOS results) were reviewed during the inspection. In a case of an intermediate with impurities above the specified limit, the investigation confirmed the OOS, but a justification of the use of raw material that was not within specifications (impurities too high), and issuing of temporary changes for the use of these materials, was not in compliance with the GMP philosophy. If a process constantly delivers material, which is not within established specifications, either the process should be improved or, if scientifically justified, specifications should be adjusted within the qualitative requirements for the specific material.

Four examples of OOS investigations were reviewed in detail. Relevant documents were collected in files and were traceable with regard to actions, people and data etc.

- SOP CQA-004-09 (effective 16 march 2010)
- Registers 2010 and 2011
- OOS 10008
- OOS 10016
- OOS 10017
- OOS 10025

- **Complaints handling system SOPs + Register**

The SOP No. CQA-011-01 was reviewed. Complaints were coordinated by the corporate office. Complaints had to be acknowledged within 7 days and responded to within 30 days. The register Nos. QA2/LOG/0064 for 2010 and QA2/LOG/1121 for 2011 were reviewed and the following cases were selected for detailed review:

- TRP-10-A004.

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- TRP-10-A006.
- TRP-10-A007.
- TRP-10-A008.
- TRP-11-A001.
- TRP-11-A002.

- **Product recall system SOPs + Register**

Procedure (SOP QA-058-02, effective 01 March 2010) and forms for conducting API recalls were reviewed during the inspection and found to be satisfactory. Since no recall had been conducted before the inspection, no records about recalls were reviewed.

- **Handling returned APIs: SOP + Records.**

The procedure (SOP QA-010-09, effective 01 January 2011) for the management of returned APIs described the criteria, under which a returned API may be returned to the warehouse stock. The files of two cases of returned products in 2009 and 2010 were reviewed during the inspection and found to be satisfactory. Other related documents that were reviewed:

- Registers for 2009 and 2010
- Return QA1/RGS/0004
- Return 05/2009

- **Product Quality Review SOP and reports**

The procedure (SOP QA-025-03 effective 27 October 2009) for conducting product quality reviews (PQRs) contained the relevant points according to GMP regulations. Reviews were performed annually following calendar years. They had to be finished within the first three months of the following year. Conducting PQRs was intended for products which had been manufactured as well as for quality issues related to products which had not been manufactured in the review period. The Product Quality Reviews for 2008 for the APIs under focus were reviewed during the inspection and found to be satisfactory. As far as checked during the inspection, relevant information about manufactured batches and the other relevant systems were included and sufficiently detailed. The relevant points were discussed in the main part of the PQRs; additional information was included as annexes (e.g. analytical data, graphical representations).

- QA/APR/RMP/2010. This identified the two key starting materials: one from an in-house fermentation process and another procured from other approved vendors which were not identified in the PQR. It covered 8 material codes for the packed API. The reference numbers of the BPRs used were summarized. Results of major IPCs were trended and evaluated. The limits of the pH of the top aqueous layer during the first wash used in the PQR and BPR were different from those stated in the dossier. It was noted that several batches of the in-house APISM whose results were OOS were used in batches for domestic market. One batch of an API that had been rejected because of high residual solvent content was redried and sold on the domestic. Other batches with different backgrounds were reprocessed as one batch and sold on the

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domestic market. An approved BMR was used for reprocessed and second crop batches. Reprocessed batches were approved by R&D and QA and put on stability.

There were 33 changes (12 permanent and 21 temporary). Changes in specification of the APISM and the API related to queries from WHO-PQP assessors were noted. There were 5 returns and no recalls.

- PQR for another API 2010
- PQR for another API 2008
- PQR for another API not conducted for 2009

At the end of the day, the team reviewed progress of the activities of the day and agreed on the tentative programme for the next day. Feedback was deferred to the following day.

Day 2: 17 February 2011

After providing the company with a summary of the observations from the previous day, the inspectors proceeded to inspect the following areas:

Inspection of Receiving and storage areas + procedures:

- Receiving, quarantine, sampling and storage of solvents (transport tankers and storage tank farms: cleaning and identification) starting materials, packaging materials and components. Raw materials were stored in different locations (warehouse, tank farms, drum yard). Processes for receipt, sampling, testing and release of raw materials were defined. Fresh solvents were accompanied with CoA and certificate of cleanliness of the tanker. They were sampled, tested and approved before and after adding to the tanks and allocated a new batch number. In the MPP-4 tank farm (MPP-4 SRU) a number of deficiencies were noted but these were resolved through CAPAs.
- A short tour the site through T2 and a view of T3 under construction was made. Facilities in this area were newer and in a better state of repair.

Review of the Compressed Air system and other gases (e.g. N₂)

- Installations for generation and distribution of compressed air and Nitrogen were inspected.
 - There were non-lubricated centrifugal Air compressors serving the site and where appropriate filtered through 0.2µ filters. There were on line monitors for dew point/moisture with dry and wet alarms and air was fully tested every 6 months. A new compressed air receiver dedicated for fermentation block was under installation.
 - There were 2 Nitrogen generation plants. There were on line monitors for dew point/moisture (-40⁰C) with dry and wet alarms and air was fully tested every 6 months.
- Review of information in SAP followed. It was common for all Lupin sites and Tarapur code was L002.

The codes for the key starting materials for the APIs under focus were noted.

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- Finished APIs warehouse + distribution records. Finished APIs were stored in a temperature controlled area in the warehouse. It was noted that the labels in English and Russian on a drum of one API did not have the same figures for gross and net weight.
- Vendor approval, qualification and maintenance system.

Inspection of Production activities:

- Dispensing: Booth was fitted with HEPA filters which were monitored by magnehelic gauges. Some raw materials were dispensed in dispensation booths in the warehouse. Other materials (e.g. liquid raw materials or solvents) were dispensed directly into the reactors. In the warehouse there was a dispensed raw materials store for pre-dispensed materials.
- Production workshops:
 - production equipment, documentation and instructions, sanitation cleaning and maintenance, batch records, calibration, contamination control, in process controls were reviewed following the process as follows:
 - Fermentation block, DSP-1, CSP-1 and CSP-2B.

At the end of the day, the team reviewed progress of the activities of the day and agreed on the tentative programme for the next day. Feedback was deferred to the following day.

Day 3: 18 February 2011

After providing the company with a summary of the observations from the previous day, the inspectors proceeded with the inspection of the final purification, powder processing and packaging of one of the APIs. The cleanliness around centrifuges and dust collection in the powder processing areas required attention.

Review of the Water generation and distribution system

- Water system drawings and summary of specifications and capacities
- Requalification/Monitoring the water system (Sampling and trend analysis)
- Inspection of Water Generation and Purification System installations

Potable water was filtered through a multigrade filter (MGF), ultra filtration (UF), double RO system and stored in a purified water tank before distributed to CSP-1 through a loop. The MGF was back-flushed every 24 hours while the UF was automatically fast or back flushed every hour. The RO system had a CIP system supplied with hot water for sanitisation. The return loop had a UV lamp and heat exchanger for sanitisation of the loop. Installations were under way to extend the purified water loop to MPP-1, MPP-4 and DSP-2. This constituted a mother loop which supplies sub-distribution tanks which in turn supply distribution loops for the individual blocks.

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The inspection of the production workshops followed with:

- DSP-2. The pipes for the various solvents and liquids were colour coded. The design of the ML line presented a dead-leg of approximately 750mm. The powder processing area did not have a dust extraction system. The drums used to hold materials at different stage of processing were colour coded: Blue for wet powder; Green for dry powder and Yellow for sifted powder.
- MPP-4: this had 2 streams: Stream A (7 series) was a multipurpose while stream B (8 series) was dedicated to one API. The API under WHO-PQ interest was synthesized in stream A. The level of cleanliness was best in this block compared to other blocks inspected.

In general, manufacturing equipment was suitable for its intended use. Identification number and status were indicated. Log books about use, cleaning and maintenance were available. Centrifuge areas in buildings DSP-1, CSP-2B and DSP-2 were, to varying extents, very difficult to clean. These rooms were constructed and centrifuge installed in a way, that proper cleaning was intrinsically hindered. Some equipment in the areas was not removable to facilitate cleaning. Surfaces were not always smooth and easy to clean. Crusts of product were observed around the centrifuges that did not seem to originate only from the last batches. In tray dryer VTD-1401F, which, according to its log book, had undergone a batch to batch cleaning, large amounts of API powder were observed.

In the clean area of building CSP-2B (sifting, blending and packaging), API powder was observed in several places, that should be clean and not spoiled with product (e.g. air locks, sealed space between double windows, dust extractor pipes). It was recommended that sufficient effort is put in regular cleaning of premises.

- Packaging and in process controls.
- Review of BMRs/BPRs/Testing records - selected batches.

Quality control laboratory

- Sample receipt, storage and allocation.

On the last day of the inspection a short tour through the quality control laboratory with checks of several documents was done. The general flow of analytical samples, including the allocation of analytical numbers and analysts, was discussed briefly. Registers for number allocation and a competency matrix (instrument based, dated 01 January 2011) were reviewed. Training records for analysts were not reviewed in detail. The signatures list for analysts that was presented during the inspection was dated from 4 January 2010 and therefore did not have the signatures of several analysts who had joined the company since then and were working in the quality control laboratory.

The samples from all the drums of each batch for the finished API were made into one composite and divided into 3 portions: one for analysis and the other 2 kept as reserve samples.

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Two batches of finished APIs were selected for review of testing and release procedures and were found to be satisfactory. From the manufacture of one API, three examples of raw material testing and release were chosen for review during the inspection. While testing and release of materials were satisfactory, testing and release of one recovered solvent was not performed according to GMP regulations. The company's representatives presented analytical results, which, according to their information, were the test results for the recovered solvent used in the manufacture of one API. There was no evidence that the analytical results originated from the batch under review. In addition, two batches of the recovered solvent were used during manufacture, but only one batch was tested. The test results from 29 January 2011 were not in accordance with the established specifications for the recovered solvent (parameter for other impurities too high) and not all relevant parameters were tested. There was no formal release document for the material, because the test of the recovered solvent was regarded by the company as an in-process control. These issues were resolved through CAPAs following this inspection.

- Laboratory materials management (Samples, Reagents, Stock Solutions, Reference and Working Standards).

During the inspection topics like establishment, storage and organization of Reference and Working Standards were discussed. Reference and Working Standards were stored in a fridge including the door of the fridge but the thermometer was placed in the main chamber of the fridge. Records, raw and electronic data for the preparation and standardization of selected WS were reviewed with only minor observations. The vials of the prepared WS were not numbered to facilitate traceability and accountability.

The documentation of the characterization of the working standard was reviewed during the inspection and found to be satisfactory.

Other QC related aspects reviewed included the following:

- Instrumental laboratory
 - Infrared photo spectrometer I109 (former I054) calibration
 - Register for HPLC I106
 - Column register (column 11HC0024)
- Laboratory materials management (Samples, Reagents, Stock Solutions, Reference and Working Standards)
 - Refrigerator for reference standards
 - reference standard for APIs
 - Working standard and their characterization
- Starting materials and finished API specifications, testing and release.
 - Finished product analysis of selected API batches
 - Raw material analysis of selected batches
 - Analysis of selected batches of bulk solvents by tank delivery, including tanker certificate
 - Raw material analysis of selected batches of recovered (recovered in house)

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Closing meeting:

At the end of the day, the team reviewed progress of the activities of the day and the entire inspection, gave feedback for the inspection and received reactions from the management of the company. The inspection was formally closed in the closing meeting.

2.1 QUALITY MANAGEMENT

Generally the systems were adequate and people were generally knowledgeable. Improvements in production are necessary. A general system for conduction of product quality reviews was in place. PQRs for two of the APIs under focus were conducted for 2010. The PQR for one of the APIs was not yet conducted for 2010; the PQR for 2009 was missing, as the company did not perform review because no production was done for the API during 2009.

2.2 PERSONNEL

Personnel were generally knowledgeable and motivated to conduct activities assigned to them. A competency matrix for analysts in the quality control laboratory was available. Specific training of analysts was not reviewed during the inspection. The signatures list in the quality control laboratory was not updated since January 2010, although several new analysts were hired.

2.3 BUILDINGS AND FACILITIES

In general, buildings and facilities were suitable for the manufacture of APIs. The construction of areas and installation of centrifuges in buildings DSP-1, CSP-2B and DSP-2 were done in a way that did not facilitate proper cleaning. In some clean areas more effort should be laid on cleaning and prevention of dust.

The water system had long dead legs in some places, but this was planned to be addressed during the on-going extension of the water distribution loop. Apart from the pressure differentials in the controlled areas, the HVAC system was not fully evaluated.

2.4 PROCESS EQUIPMENT

Process equipment was, in general, suitable for the manufacture of APIs. Not all storage tanks for raw materials (solvents, i.e. MPP-4 SRU) were cleaned and inspected in regular intervals. Some storage tanks showed signs of leakage and were rusty on the outer surface.

2.5 DOCUMENTATION AND RECORDS

In general, the documents reviewed during the inspection, were sufficiently detailed and allowed traceability to persons, materials, actions, premises and equipment. Master production instructions and records were not reviewed during the inspection. Labelling of recovered

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solvents and related records needed to be improved. This was addressed through CAPAs following this inspection.

2.6 MATERIALS MANAGEMENT

In general, starting materials were sourced from approved vendors. They were sampled and tested by QC before release. Storage of materials was generally adequate. Some production rooms in MPP-4 were used as storage areas for intermediates and final APIs, thus congesting the areas. The control and update of the AVL and codes, plus the release of not fully tested batches of APIs through temporary change controls should be re-evaluated. These were addressed through CAPAs following this inspection.

2.7 PRODUCTION AND IN-PROCESS CONTROLS

Production processes were generally adequate but dust control and cleaning procedures in some workshops required attention. Production and in-process control procedures were guided by well documented instructions in the BPR.

A system for investigation of deviations was in place. Deviations were registered in a log book and uniquely numbered; associated investigations were recorded and documented in detail. As appropriate, additional documents or reports were linked to the original deviation.

2.8 PACKAGING AND IDENTIFICATION LABELLING OF APIs AND INTERMEDIATES

Only a few aspects of packaging were inspected. They were generally adequate except the labelling of recovered solvents which required attention. This was addressed through CAPAs following this inspection.

2.9 STORAGE AND DISTRIBUTION

Finished APIs were generally well stored at the site. Some distribution aspects related to API batches manufactured (e.g. examples of starting materials selected from SAP and complaint batches of APIs) were reviewed. Generally, packaging could support adequate storage and transportation and records maintained could support traceability.

2.10 LABORATORY CONTROLS

The inspection included a tour through the quality control laboratory. The main topics covered were flow of analytical samples, sample allocation, reference standards, checks on the equipment (GC, HPLC, IR, pH meter) and documentation of analytical work / results including raw and electronic data. The control and release of recovered solvents was discussed in detail. The QC facilities and procedures were generally adequate, except the testing of recovered solvent and

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records to facilitate traceability of used chemicals and WS. These were addressed through CAPAs following this inspection.

2.11 VALIDATION

This area was not inspected in detail.

2.12 CHANGE CONTROL

Elaborate procedures for change control were in place. Changes were generally adequately documented, well evaluated and implemented. The frequency and use of certain type of temporary changes and deviations should be monitored and checked.

2.13 REJECTION AND RE-USE OF MATERIALS

There were procedures and specifications for recovered solvents and materials. Recovery of solvents and materials and their use needed to be better controlled and documented. Use of one of the intermediates when it was OOS and reprocessing of materials with different backgrounds needed to be reevaluated. It was noted that reprocessed material were always re-designated for distribution on the domestic market and to what was termed "un-regulated" markets.

2.14 COMPLAINTS AND RECALLS

In 2010 no manufactured APIs had to be recalled from the market. There was a procedure in place for the performance of recalls. Customers could be identified using the SAP system. Responsibilities, time lines and parties to be informed were defined, reconciliation and documentation were described.

Handling of returned goods was described in an SOP. Reasons for returning the products by customers and the condition of returned containers were recorded. As appropriate, further actions like analytical testing and reprocessing were initiated. A register for returned APIs was available.

2.15 CONTRACT MANUFACTURERS (INCLUDING LABORATORIES)

This area was not inspected in detail.

Part 3: Conclusion

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, as well as the corrective actions taken and planned, **T1 facility of Lupin Limited**, located at **T-142 MIDC area, Tarapur, 401 506 Thane, Maharashtra, India**, was considered to be operating at an

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acceptable level of compliance with WHO GMP guidelines and in particular, WHO Good Manufacturing Practice for Active Pharmaceutical Ingredients.

All the non-compliances observed during the inspection that were listed in the full report as well as those reflected in the WHOPIR, were addressed by the manufacturer, to a satisfactory level, prior to the publication of the WHOPIR

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