

HAZARD ANALYSIS CRITICAL CONTROL POINTS ANALYSIS (HACCP's)

The following section covers a very important part of any food business and while some examples have been given it is imperative that all operators do have a good understanding of the subject. If the following parts do not appear clear enough for the reader then further assistance should be sought in order to secure the valuable protection that HACCP's can provide for the food business. Smaller businesses such as shops are now able to obtain a variation of HACCP's and the details of that are available from most government and local government agencies. These reduced variations while providing some records cannot be truly classed as HACCP's in the author's opinion but they can have a value for smaller businesses.

Although all HACCP's have the same final target, that of food safety, a number of different ways can be found of producing the finished article. The lay out used here is based on the type of HACCP that the author was introduced to in the early 1980's by US inspectors for the USAF and that he has further developed and used over the years. Some of the development has taken some elements variously from the FAO/WHO Codex Alimentarius Commission 1993 document, Messrs JS Sainsbury quality manual and from the Camden Food & Drink Research Association documents for which full acknowledgement is given here. The finished version, as developed, proved adequate enough to satisfy all of the requirements of all visiting inspectors (including USAF inspections). Other versions may equally be satisfactory and the reader should examine as many different versions as possible in order that the one that is most easily understood by them is adopted.

The Hazard Analysis Critical Control Points (HACCP) Systems are of American origin having initially been developed during the 1970's by the Pilsbury Corporation for presentation to the U.S. Food & Drugs Authority for consideration as a recommended system for assuring food safety.

The Main points of the system are in Hazard Analysis and the establishment and ongoing maintenance of Critical Control Points.

The objectives of the programme (as edited for presentation here) are to provide a suitable

system of HACCP implementation within an organisation in order to protect both the reputation and good standing of the organisation and also the well being of their customers.

The HACCP system used will probably only be one part of the overall plan of quality being considered and implemented by the organisation and should therefore be incorporated within the scope of any Quality Manual prepared by the company or organisation. In general, HACCP is concerned primarily with *food safety* and not with *food quality*. Logically this is quite right and proper for such a study, but for any commercial organisation it is necessary also to incorporate quality for the overall wellbeing of the organisation. The suggestions in the examples given here therefore may incorporate some aspects of quality along with the food safety aspects and to ensure the viability of the system (and the ongoing good health of the organisation), the HACCP system presented here should be reviewed at regular intervals, and be amended as appears to be appropriate, to increase both the safety and the quality standards put in place by the organisation.

SUMMARY

The Key elements described in this HACCP system are:

1. **A PHYSICAL SYSTEMS ANALYSIS** based upon the use of **FLOW PROCESS CHARTS**, which involves plant and product flow and inspection.
2. **A HAZARD ANALYSIS** based upon the use of **AUDIT SCHEDULES** to list all identified **CRITICAL PROCESS CONTROL POINTS** and **CRITICAL PHYSICAL CONTROL POINTS** along with the necessary identified corrective action, frequency and management responsibilities.
3. **INTERNAL AUDITS** of the system by the organisation (and by third party audit) to ensure that the targets of the system are being maintained to the given standard.
4. To be capable of satisfying audits of both the plant and the system, initiated by either the organisation or customers of the organisation (or their appointed agents) (or both) and government and local government inspectors.

PERSONNEL CONSIDERATIONS.

The preparation of the system does not provide any hard and fast rules about which personnel will be used for which task but it is accepted that benefits may be more forthcoming in the use of a small multidisciplinary team in both the formulation and review.

It is probable that the team will include (but may not be restricted to):

1. **Production Manager.** This manager will be completely familiar with the lines in question and will ideally be responsible for the functions of the lines and associated operative actions.
2. **Plant Engineer.** This manager should be familiar with the operational characteristics, maintenance and repair procedures for the line (s) in question.
3. **Quality Assurance Manager.** This manager should be familiar with the product and the production line (if not actually responsible for them) and should have knowledge of the established hygiene requirements and of both non-conforming product problems and customer complaints records.
4. **Food Technologist.** This manager should be totally familiar with the product formulation, functional characteristics and processing needs, including all thermo bacteriological aspects of pathogen control. They will also need to be familiar with the factory, the product nature and the microbiological history of the product.

Due to the size of many organisations, it is possible that one manager may have to be responsible for more than one of the above work titles (and equally, the expertise of other staff may be employed in the operation of the system). It is also necessary that aspects of production needs and aspects of quality control should not be found to be in conflict; quality control **ALWAYS** takes precedence. One manager will be appointed as Project Leader and, from experience gained in HACCP systems it has been found to be preferable if that person is the Food Technologist.

The use of a plant **microbiologist** is stated (in original documents) to be an advantage to be a member of the team but due to the size of many organisations at present it is difficult to justify the creation of such a post. The functions of that post should in the main be carried out by the Food Technologist. However, as organisations grow, this point should be reviewed.


IMPLEMENTATION


The Physical System Analysis begins with the preparation of an outline flow chart based on the flow of the food materials from the ordering of goods (including the selection of suppliers) and goods inwards up to the final product delivery. Ideally this will be prepared in conjunction with both a scaled layout of the plant and a detailed study of the practical operation of the plant.

The Outline Flow Process Chart is a graphic representation of the sequence of events that occur in the manufacturing process. In order to enable a more graphic representation to be made, the use of symbols may, on occasion, be employed for the various events. In order to prepare for this, symbols are used here. While it is possible to use any symbol to represent the various stages, the ones used here are, in the main, but not entirely, adapted from the ones used and developed by the American Society of Mechanical Engineers.

DEFINITIONS AND PROPOSED SYMBOLS

O OPERATION. An operation occurs when any material in the food manufacturing process is intentionally changed in any of its physical or chemical characteristics; is assembled, dismantled or otherwise prepared for a subsequent event. This will also include data transfer and calculations.

 **INSPECTION.** An inspection occurs when any aspect is examined for identification or measurement of quality, quantity or other factor, which may influence its characteristics. An inspection will verify that an operation has been completed correctly in respect of any measured characteristic.

 **TRANSPORT.** Transport occurs when material is moved from one point to another

except where such movement is an integral part of an operation.

▷ DELAY. A delay, or temporary storage, occurs where process design limitations or imbalance causes the material to await a subsequent event without any other record. A delay is never dictated by a product requirement for the delay (as may occur during the period used for maturing beef or curing pork into bacon for example, these are both a parts of operations). The need for collecting of various materials for a further process in order to manufacture the final product may be included as a delay. This could include for example in the manufacture of sausages, where the binder and seasoning are prepared (weighed, mixed and moistened) as one function and the meat is prepared (minced) as another. The period following the preparation of the one item and the bringing together of the other item is then a delay.

◻ STORAGE. Storage occurs when an object is kept in an identified and documented location, and is retained there for authorised removal and subsequent processing. Although the maturation of meat or the curing of pork into bacon are not ‘delays’ they will both be held in ‘storage’. In the truest sense, they could be classed as ‘operations’ but it is preferable to use judgement on borderline issues and make a written note of why the decision has been taken.

As the processes of manufacture within the business relate to only one kind of product (fresh meat in its various forms), only one flow process chart has been used here. The manufacture of a 'different' product (in that it is sliced instead of diced [although if a machine is involved then the identifying of the machine becomes a part of the process], or has a higher or lower fat content) is not relevant to the process, although it would of course affect the overall quality plan for that product. For example, if sausages or burgers start to be manufactured in a plant that didn't previously produce such items, they will be a ‘different’ product and will require a separate flow chart. Similarly, if a plant has only ever handled beef and lamb and then begins to also handle poultry products, that new process becomes a risk that must be recognized and included. The Q.A. responsibility in identifying that a particular product is being produced and labelled as such would come within the remit of their 'Test Procedures' and should be recorded. Any product which may be manufactured and which in any way changes any aspect of production will require

the completion of a separate process flow chart to accommodate those changes. A separate flow process chart may however need to be prepared for the processes of cleaning (and vehicle cleaning) and will identify (where appropriate) the various times (e.g. of adherence of a foam cleaner to a surface), temperatures and processes involved, including, detergents, sterilants and sanitizers used.

Item by item, Hazard by hazard the inventory of Critical Control Points is completed. The Inventory Schedule will be developed from the Process Flow Charts and each column of the schedule will be completed as follows:

1. The **Item Number** while being only a formal identification of the next point, item description, it does require a separate column and this number will follow through and be recognisable throughout the processes of the HACCP
2. The **Item Description** (or **Process Step**) will cross reference to the descriptions in the original flow chart.
3. The **Hazard Nature** will identify the nature of each specific potential Hazard and, where applicable, the Critical Control Point factor. At the time of writing the document it may appear to be only a very marginal risk of such a thing happening but it does need to be considered at this point. So the actual hazard nature may indeed appear to bear only a very remote chance of occurring but it is at this stage that even the most 'remote' should be included as a possibility.
4. The **Action(s) required** (or **Control Measures**) will specify the precise action(s) necessary to maintain control and so avoid any unacceptable food safety risks. The actions may be quite minimal and routine or they may include adherence to a strict procedure but they are there to 'maintain control'.
5. The **Critical Limits** must be included to state for example, what temperatures are accepted or what size of metal detection is targeted by the system

6. The **Frequency** (or **Target Levels & Tolerances**) will specify the required frequency of each identified action to safeguard the food safety. The frequency may be for example the 30 minute checks on the operation of the metal detector or even the ongoing thermal recording of chiller temperatures. It may be a daily frequency, such as signatory check on a the cleaning sheet to confirm that it has been done properly or indeed it may relate, to the goods inwards element (that the goods have been checked, for example, as coming from an approved supplier, to each delivery received).
7. The **Responsible Personnel** will identify each of the factory management nominated to be responsible for the identified actions, and frequency, and for maintaining the appropriate documentation to confirm that they have duly fulfilled their responsibilities.
8. The element of a **demerit rating** is one that has been used and in some instances found to be very helpful. Others have found that this part can confuse them so it must only be included where all involved feel comfortable with it. When used it does in fact identify Critical Control Points but it also identifies elements that, while not yet being a Critical Control Point, they could soon become one!

The Demerit Rating is based upon the obvious understanding that some hazards are more critical than others, depending upon the considered outcome if the action/frequency is not implemented. It is important to emphasise that the rating of a hazard is not based on the extent to which any corrective action is implemented. However, as a useful guide, any item with demerit rating of 1000 is certainly a 'CRITICAL' control item and any item with a demerit rating of 100 should certainly be monitored closely. Items attracting 10 points or 1 point should similarly not be totally ignored because the risk factor has on the occasion of preparation of the documents been rated lower. In general, a 'Critical Control Point' is one beyond which there will be no possible or further practical point of examination or test that would identify or prevent the food from entering the human food chain in an unsafe condition. If some aspects of 'quality' are incorporated into the system (as mentioned earlier) they may only be allocated either 1 or 10 demerit points unless they indeed have a common factor of risk element associated with them to the consumer.

The criteria for classifying the severity of a hazard are detailed in the following table:

CLASSIFICATION OF HAZARD	DEMERIT POINTS	CRITERIA FOR CLASSIFYING A HAZARD	EXAMPLE
CRITICAL	1000	Conditions which will in time certainly result in contamination of food with filth, chemicals, extraneous matter: or Critical processes which may go out of control and result in risk of bacterial or chemical contamination whose results could cause death of or injury to a consumer.	Rodents in the plant; glass in processing (or storage area). Inadequate Process controls, improper storage of pesticides or cleaning chemicals infested food material. Lack of facility for refrigeration of foods
SERIOUS	100	Conditions, which will probably result, in contamination of food with filth, insects or other extraneous matter the presence of which may cause revulsion to a consumer.	Live insects in the plant, overloaded entoleter etc. Holes in sieves etc. Insanitary utensils etc. poor plant cleaning of equipment.
MAJOR	10	Conditions, which indicate insufficient interest in good sanitation, GMP etc. and/or could lead to a serious hazard.	Inadequate systems for Q.A., Pest Control, Sanitation etc.
MINOR	1	Conditions which, if not corrected could lead to a major hazard.	Casual attitude towards Systems; poor maintenance etc.

Demerit points are allocated to each hazard in the schedule.

Although a HACCP's can, and ought, to be revised, particularly following any process changes, the principle of application of demerit points is that, once decided upon, they remain as fixed values.

The demerit points must embody the qualitative judgment of the various members of the combined multidisciplinary team and provide a fixed reference point for a subsequent series of audits to constant standards. Demerit points must therefore be allocated in full in all cases; any attempts at 'judgment' on the degree of non-conformity could create an imbalance in ongoing assessments. If the potential hazard is valid *in any degree*, **FULL** demerit marks must be applied. The use of the decision tree (which follows) may also be used in conjunction to provide a standard for the demerit rating.

N.B. All criteria are required to be considered in terms of food safety, which is the primary

consideration. Compliance with laws and regulations is not considered to be necessary here because to do so would cause all defects to bear equal weight. This would dilute the food safety evaluation.

Compliance with processing criteria, which are solely quality related, are not supposed to be considered here, though in practice many criteria relating to quality can, in some way, be related to both product quality and product safety. Acknowledging business interest in such cases they may be considered (but perhaps with a note made of the facts).

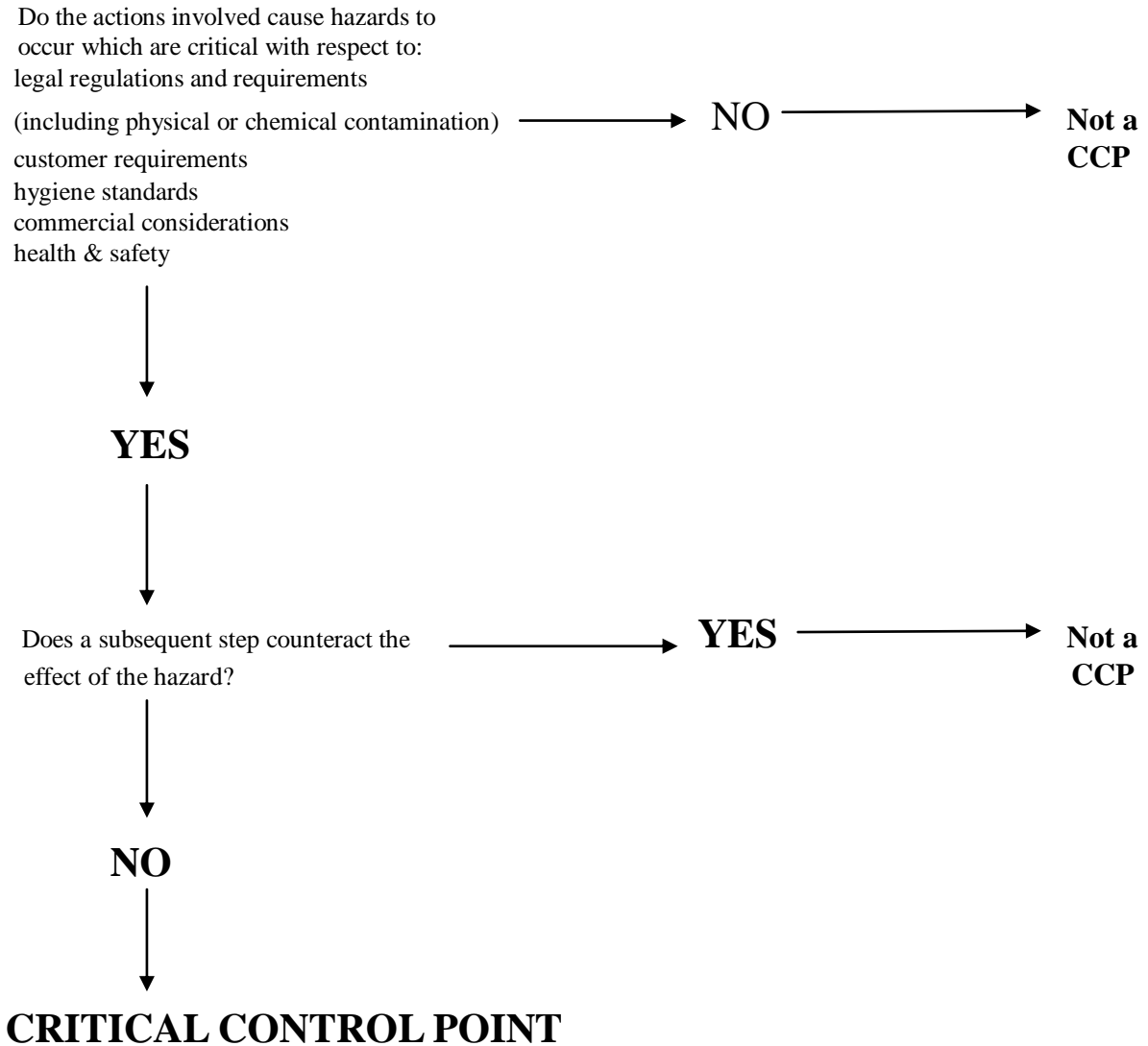
While a sample of a fictional HACCP flow chart is shown here, which is probably a part of a much larger and complex processing organisation, it must be noted that the item numbers relating to each item that are shown in the example would have to remain constant through the other documents and schedule of the HACCP. That is why there are larger gaps in the numbers shown and the parts not shown in the example here would be allocated to the other 'in between' numbers.

Also shown here is a simple example of the process to follow to create a decision tree since all actions along the product flow will need to be assessed to see if they are in fact a critical control point. The assessment of demerit points mentioned earlier, while being an indicator perhaps for the plant operator of items that, while not being a critical control point *'in themselves at that time'*, MUST have the confirmation that they are indeed not a critical control point.

Is it a CCP?

A critical control point is a process step which if controlled will either reduce or minimise a hazard to an acceptable level, or eliminate the hazard completely.

CCP's must be determined for each process step and is more ably demonstrated by using a decision tree such as the one that follows.



During the process of preparing the HACCP it will be found that many items ‘appear’ to be items that will have a ‘critical’ effect. As in the earlier classification system that has been suggested, the grading of ‘de-merit points’ can help to point some of them out. However, it can prove to be useful to keep a list of items of this type of nature to hand that can be referred to when preparing the HACCP. The following points were used (at one time) in the HACCP ‘assisting documentation’ given by some of the Camden Food Research body people in England

and can, given that help should be accepted from any quarter to get it right, prove to be of some assistance. Such items are NOT a part of the HACCP but if they help they should be considered.

Target levels, tolerances, monitoring procedures, and corrective action plans must be specified for each CCP-

The control actions for the hazards which are not CCP's must also be actioned. A summary some of the hazards which are not CCP's are set out below; this list should be considered as examples only in view of the operation in question and should be extended as may be appropriate to the work functions being carried out:

- | | |
|---|---|
| 1) Hand washing | 2) Knife cleaning & sterilization processes |
| 3) Steels cleaning & sterilization | 4) Scabbards cleaning & sterilization processes |
| 5) Clothing type and cleaning processes | 6) Aprons type of fastening and their cleaning |
| 7) Footwear (wellingtons etc) and their cleaning processes | 8) Food in Contact with various fixtures |
| 9) Hose usage | |
| 10) Carcass to carcass contact | 11) Waste (e.g. hocks, skin, udders etc) thrown on the ground. |
| 12) Equipment maintenance in food areas | 14) Processing time in temperatures above that of chillers themselves |
| 13) Waste product removal and disposal | |
| 15) Storage of packaging materials for later use with food stuffs | |

Remember, the cleaning program and check list must be in place anyway and that is the cleaning '*system*', not the '*process*' and it may well in itself be needed to be included in the HACCP.

CONSIDER

Many of the hazards in many areas are often related to the general hygiene awareness of operatives.

THINK!

HOW CAN YOU CREATE THE AWARENESS NECESSARY TO REDUCE THE HAZARDS?

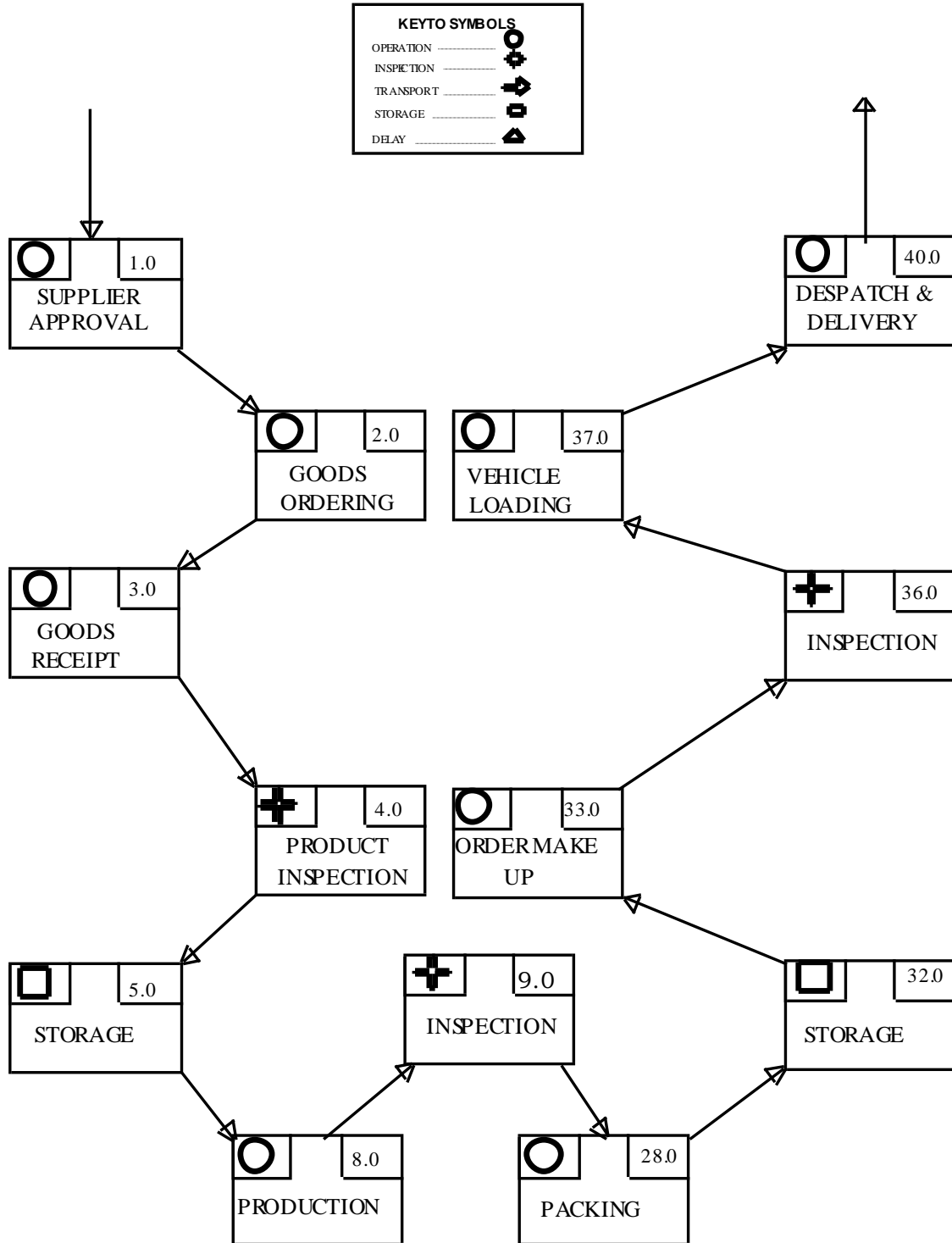
It will be noticed here on the example and on the next two pages that the various points noted are

numbered from 1 to 40. Also it will be noticed from the flow that there appear to be some rather large gaps between the numbers, from 5 to 8 and from 9 to 28 etc. These gaps, or 'spare numbers' would be used for some other functions that would apply and each function should then be allocated a number. The numbers then of the missing gaps would appear on subsequent flow charts, enabling a 'full' picture of the operation to be available. In the actual HACCP flow chart the numbers would follow one another to create a full picture. This is just an example. The symbols however, while being of some use in providing at a quick glance just what is happening, do not affect the process. Once the flows have been completed, an analysis of the points needs to be completed and an example of an analysis is shown as follows. The example of the analysis shown here covers only some of the points that could be made from item 1.00 up to item 5.00. Obviously, in a real situation it may be more practical to include some other items that have either occurred or appear to be relevant to the business using the HACCP. The purpose of the example is to merely give an indication of how it can be laid out and utilise the points covered so far.

As mentioned already, the items included on the flow chart do on occasion have large gaps between them. As the functions progress, other items will be needed to be included and will require the allocation of a number. Also, as the meat is being moved into 'storage' (following the 'product inspection' at '4') it could also have been given a separate heading as a 'transport'. Some people simplify by omitting the different 'titles' and, while it may not follow 100% of the way HACCP is considered by some people, as long as it covers the potential hazards etc while doing so, it cannot truly be claimed to be *wrong*. Simple anomalies such as this will occur when preparing a HACCP analysis sheet and if the actual feature is 'marginal' to one part or another, as long as it is included, it will not make any major difference to the final outcome. However, a movement from the inspection DOES require a 'transport' heading to cover all parts of a full HACCP. In the example given here on the flow chart, two options may be given for item '33' in that it could be 'Order Make up' perhaps for a large meat company wholesaling or a food service supplier assembling the order or even a 'shop sale' for a smaller butcher. In the latter case the small butcher may, or may not be packing the meat prior to sale. All options should be recognised and covered in the 'real' HACCP that each business should prepare.

HACCP OPERATIONAL FLOW CHART

FLOW No. 1 - OVERVIEW



The numbering of the various points will remain constant throughout the rest of the HACCP documentation. In order to permit other items to be included, numbering need not always be consecutive, indeed, it may be beneficial not to be.

ITEM NO	BRIEF DESCRIPTION OF PROCESS STEP	BRIEF DESCRIPTION OF HAZARD, NATURE OF POTENTIAL HAZARD AND CAUSE	BRIEF DESCRIPTION OF ACTION REQUIRED TO CONTROL HAZARD	CRITICAL LIMITS	FREQUENCY OF ACTION REQUIRED	RESPONSIBLE PERSON	DEMERIT POINTS
1.0.0	Supplier Approval	Inadequate control of supplies—poor product, contaminated product etc.	Ensure that all suppliers are audited and approved before trading with them		Before Trading	Purchasing Manager	10
1.0.1	Supplier Approval	Inappropriate traceability path - loss of traceability path	Ensure that all suppliers are audited and approved before trading with them		Before Trading	Purchasing Manager	10
2.0.0	Goods ordering	Excessive stock build up - Product spoilage	Ensure orders match production needs		All orders	Purchasing Manager	1
2.0.1	Goods Ordering	Use of unapproved suppliers - inappropriate product - incorrect product	Ensure that all suppliers are audited and approved before trading with them		Before Trading	Purchasing Manager	10
3.0.0	Goods Receipt	Goods delivered not ordered - excess stock build up - potential product spoilage due to build up	Ensure delivery is scheduled in and is as product ordered		Every delivery	Production Manager	1
3.0.1	Goods Receipt	Delivery too late for production - potential stock build up and product spoilage	Ensure that stock is accepted only within the parameters needed for production		Every delivery	Production Manager	1
4.0.1	Goods Inwards Product Inspection	Poor Product Hygiene - Contaminated Product - Contaminated end product	Check visually hygiene of product, packaging and transport - Reject load if contaminated		Every Delivery	Q.C. Manager	1000
4.0.2	Goods Inwards Product Inspection	Damaged packaging permitting entry of soiling leaking packs product spoilage	Check all packaging - reject if damaged		Every Delivery	Q.C. Manager	1000
4.0.3	Goods Inwards Product Inspection	Incorrect product - Potential for illegal end product	Check product type on all deliveries - reject any incorrect product		Every Delivery	Q.C. Manager	1000
4.0.4	Goods Inwards Product Inspection	Incorrect Use By dates - incorrect or absence of traceability codes - lack of traceability	Check all dates and codes on product delivered - if incorrect or absent advise buyer and isolate the delivery pending any decisions		Every Delivery	Q.C. Manager	1000
4.0.5	Goods Inwards Product Inspection	Allocation and application of batch codes to maintain product traceability during production	Record all allocated batch codes and ensure legibility on product		Every Delivery	Q.C. Manager	1000
4.0.6	Goods Inwards Product Inspection	Incorrect vehicle and/or product temperature leading to potential product spoilage	Check product temperatures, vehicle temperatures and obtain copy of vehicle thermograph recording	Vehicle not >5°C Product not > 4°C	Every Delivery	Q.C. Manager	1000

ITEM NO	BRIEF DESCRIPTION OF PROCESS STEP	BRIEF DESCRIPTION OF HAZARD, NATURE OF POTENTIAL HAZARD AND CAUSE	BRIEF DESCRIPTION OF ACTION REQUIRED TO CONTROL HAZARD	CRITICAL LIMITS	FREQUENCY OF ACTION REQUIRED	RESPONSIBLE PERSON	DEMERIT POINTS
4.0.7	Goods Inwards Product Inspection	Incorrect Product quality - poor quality end product	Check product quality on all deliveries		Every Delivery	Q.C. Manager	1
4.1.0	Move product to de-box area (Fresh Meat only)	Minimisation of contamination risks from soiled packaging	Move product quickly to appropriate area to minimise any risk of temperature fluctuation		Every Delivery	Q.C. Manager/Production Manager	100
4.2.0	De-box product	Contamination risk to product from soiled packaging	De-box with care to minimise any risks		Every Delivery	Q.C. Manager/Production Manager	100
4.3.0	Controlled disposal of waste material from packaging	Contamination of fresh meat with soiled packaging materials - build up of soiled packaging materials giving rise to potential pest infestation risk	Extreme care in de-boxing plus rapid removal of all waste into appropriate receptacles - segregation of workers duties to minimise risk of contamination from soiled workers clothing		All Occasions	Production Manager	10
4.4.0	Application of batch codes to all de-boxed product	Loss of traceability	Ensure that all product is adequately marked. Advise Production manager of any queries on any marking		All Occasions	Q.C. Manager	10
4.5.0	Move all chilled and ambient products to appropriate storage area	Temperature fluctuation and product spoilage due to delays in moving	Move all chilled product to chilled storage and ambient product to ambient storage		All Deliveries	Production Manager	10
4.6.0	Move all frozen product to freezer storage area	Temperature fluctuation and product spoilage	Move frozen product to identified storage area in freezers		All frozen deliveries	Production Manager	10
4.6.1	Move all frozen product to freezer storage area	Ensure all traceability codes are legible - loss of traceability	Ensure that all frozen product is stored in a manner to enable easy reading of use by dates and trace codes - Mark pallets where necessary with codes		All frozen deliveries	Production Manager / Q.C. Manager	10
5.0.0	Storage	Temperature rise due to fluctuation in chiller / freezer temperatures caused by defective units	Check all chillers / freezer temperature records from thermographic recordings and confirm - if in doubt at all move product to alternative chillers / freezers if needed	Chiller temperatures to be not <than -2°C and not more than 3°C. Freezers to be not > -18°C	Ongoing checks from records	Engineer	1000

This is the initial, or outline, flow sheet covering the overall operation but other flow charts would then be needed to cover the other functions that occur between the missing numbers and then the analysis of each flow chart would of course carry on and include all the other points that make up the flow charts.

From the analysis the individual points can be viewed, the risks assessed and the Critical Control Points identified. To assess if it is a critical control point the use of the decision tree is necessary, even if it is not on every occasion 'written down' as a tree. It must then be remembered that if there is a Critical Control Point there must be an inspection of the product at that point and a record of the inspection must be kept. The inspection cannot be a 'random check' of say one in fifty or one in one hundred but must be a full 100% inspection of all products. An example of this is that of the metal detection. After the metal detection, there will be no other point before the meat reaches the consumer for the presence of metal to be detected. So, each single pack of meat must be passed through the metal detection device and the device will detect (within its limitations on particle size) any metal in the pack. The metal detecting device must be checked at regular intervals, of about 30 minutes, when the various known particle sized test pieces will be passed through the device. If the device reacts to each different test piece then it is accepted that it is checking each pack that passes through. If it does not react to the test pieces then it must be accepted that it hasn't checked all the packs that passed through from the last successful check made on the device. If the packs that have passed through the device are readily identifiable (which they should be) then any packs that have passed through since the last successful check made on the device must be quarantined.

The HACCP system is necessary and, once people become used to setting it up and operating it, it does become a straightforward 'thinking' process to create a logical action. It should however *never* be taken for granted and should always be reviewed by the HACCP team at regular review meetings when any aspect can be considered, reviewed and if necessary adapted to mirror minor changes that may have occurred.

The HACCP system example shown is for production but there is no reason why a similar type of exercise cannot be extended to take account of, for example, a cleaning process when aspects of General Food Hygiene, Health & Safety, COSHH (Control of Substances Harmful to Health)

and the overall effectiveness can be considered. If carrying out a HACCP process makes things clearer then they can make things more effective and yes, they can prove to be of economic benefit to the organisation.

A further document was produced in 1996 by a group who classed themselves as the Central Board of HACCP experts and it is certainly well worth studying, if only to check that the HACCP that has been prepared in your company does conform, does operate as a HACCP and will offer you some protection. The full document however is covered by copyright and that limits the publication here and therefore I have included the title and the address of the group, where a full copy of the document may be obtained for studying. As this version is dated May 1996 it is possible that later, updated versions may be available.

CRITERIA FOR TESTING AN OPERATIONAL HACCP SYSTEM

Developed by the co-operating Certifying Organizations in the field of foodstuffs, coming within the compass of responsibility of the Central Board of HACCP experts

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Central Board of HACCP experts secretariat:

P.O. Box 93093, 2509 AB The Hague