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NATURAL RESOURCES CONSERVATION  
AUTHORITY  
DATABASE DEVELOPMENT FOR  
BEACH LICENSING, SECTION 17, AND  
PERMIT AND LICENSING

Prepared by: David Russo  
September 11, 1998

Under contract to:  
Technical Support Services Inc.

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September 11, 1998

Conrad Ornstein, Chief of Party, Technical Support Services  
Marc Rammelaere, MIS  
Natural Resources Conservation Authority  
53 ½ Molyne's Road  
Kingston, Jamaica

Dear Conrad and Marc

Here is my report concerning the database requirements for Beach Licencing, Section 17, and Permit and Licencing, which we researched and studied in July through early September

Within, you will find

- a discussion of appropriate technology and staffing for the database as it will be initially configured, and as it will likely need to be configured in the future,
- a breakdown of time requirements for Phase II, along with a discussion of a timeline including an indication of what time would be spent in Jamaica,
- a breakdown of database inputs for the three systems, with reference to related tables,
- a description and definition of the database tables and related sub-tables required for the three systems, as well as a simple list of the tables,
- a list and brief description of some major process-oriented outputs

### Technology and Staffing Required

It is anticipated that the database will be designed and built using Microsoft Access 97, and will be used by multiple NRCA staff members across the NRCA local area network. This network uses 32-bit Microsoft Windows operating systems on the desktop, and uses Windows NT 4.0 Server on the production fileserver. As promised, here is a review of the technology currently in use by NRCA.

The fileserver is a mid-range Compaq-brand Intel-based fileserver, designed for medium to large workgroup services. I have other clients who regularly use similarly-configured and powered fileservers for workgroups of 50 - 100 users. I recommend that NRCA acquire the appropriate drives to implement a RAID configuration. By adding at least three like drives to the drive present in the fileserver, NRCA could implement RAID Level 5, and maximize fileserver hard disk space. My clients have implemented a variety of disk drive redundancy solutions, including Novell NetWare

disk mirroring and disk duplexing, and various levels of RAID, especially RAID Level 5. My clients have had significant success with RAID Level 5, in terms of reducing the risk of data loss due to hardware failure, while minimizing the cost per megabyte of redundancy solutions.

Of course, the discussion of disk drive redundancy does not lessen the need for appropriate backup systems. Assessing the future configurations of the network, I recommend that appropriate tape drive technology be made available for backup purposes. I think that a tape autochanger, which could accommodate multiple DAT tapes, would suffice. Then, NRCA can fully automate nightly backup. Also, an autochanger could accommodate fileserver disk space growth far into the future. Finally, an autochanger with appropriate software could backup multiple fileservers properly.

It is anticipated that the database will be involved in many of the main functions of NRCA. Because of this, if the database is to be useful, it will need to be available to virtually everyone within NRCA. Thus, as the database is implemented, it will become necessary to move toward a PC on every desktop. Obviously, the database will require a great deal of basic data input via keyboarding. As a result, it will be vital that NRCA support personnel have their own dedicated PCs. Otherwise, data input will fall behind, and the database will no longer represent the true state of affairs current. Additionally, without sufficient resources for data entry, one of the primary purposes of the database will be defeated: the desire to perform regulatory tasks in a more timely way. Obviously, if the data is late going in, it will not help NRCA personnel in performing tasks in a more timely way.

Once data is in the database, it will only be useful if professional staff can access data on demand. This will require that professional staff also have PCs on a PC per desktop basis.

### **Network Operating Systems**

Microsoft Windows NT Server 4.0 is an appropriate choice for network operating system for NRCA, and for support of the database effort. It provides reasonably good file-and-print services, though somewhat inferior in this regard to Novell NetWare 4.x. It is the best Intel-platform application server operating system, which will become important once the database migrates to a client/server application. It is the easiest network operating system to setup, and requires the least amount of technical knowledge to maintain. Additionally, because Microsoft is the largest software company in the world, it is unlikely that the product will become unavailable due to the failure of its publisher.

### **Database Software**

The selection of Microsoft Access 97 provides NRCA with a happy solution. Access 97 is a relatively easy database to use, in which to develop, and to support, especially for relatively small databases. Although complex, the NRCA databases will not be very large, in terms of overall data stored and managed. It is highly likely that NRCA MIS staff can develop significant skill in maintaining and extending the databases which I would create for NRCA.

Additionally, because Access 97 integrates directly into other Microsoft products, and because NRCA is using Microsoft desktop and network operating systems, there is a certain "vanilla" quality to the entire implementation which will make support issues significantly easier and simpler. At this time, I don't recommend any third-party software tools to enhance or extend Access, in part because it would degrade this quality. I've used several third-party tools in the past, and generally have not found that their advantages outweighed the difficulties they presented in integrating them into the overall environment.

In the future, it is likely that NRCA will have to move to a client/server-based database system, and Access 97 will work well in that case, as well. The Access 97 databases created can be converted to Microsoft SQL Server (MS SQL Server) databases, and the Access 97 front-end can serve to interact with the MS SQL Server databases, once that is accomplished. MS SQL Server is a mid-range client-server database solution, which will likely be capable of supporting these database applications indefinitely.

### Staffing

Overall, to maintain an NT 4.0 network, adequate staffing is required. Specifically, with regard to the databases at issue, here, NRCA must maintain appropriate staff to maintain these databases, both now, and ultimately, once the databases are converted to MS SQL Server. It is recommended that for now, one staff member be given primary responsibility for learning Access 97 well enough to make minor modifications and extensions to the databases, and to perform occasional maintenance and repair tasks. Access 97 comes with built-in tools to effect occasional maintenance and repair.

Long-term, it will be necessary for at least one NRCA staff member to be trained in MS SQL Server, and to have a significant part of that staff member's time dedicated to MS SQL Server support. Because this application will, after initial development, continue to be developed, extended, and maintained in-house, NRCA must have internal resources to support it. Microsoft offers certification on their productivity products, including Access 97, and MS SQL Server. A variety of vendors produce self-paced training materials to prepare IT professionals for these certifications. It is recommended that NRCA invest in these materials to provide for the training of NRCA staff to support these products.

Once NRCA moves the database to client/server technology, such as MS SQL Server, *it is imperative that NRCA maintain on-staff at least one person who is highly skilled in that particular client/server technology.* Without a staff member so skilled, the likelihood that the database application will survive as a functioning system, useful to NRCA, is low.

Also, it is imperative that NRCA maintain an overall network support staff sufficient to adequately support the underlying local area network. Without sufficient staff to support the network, it will become impossible to adequately maintain the database system.

**Phase II Design, Creation, Implementation, and Testing of Databases**

Phase II Tasks	Days Required
Define/Design Tables	
Table Definition and Design	7
Definition of Table Relationships	3
Submit for Approval	0
Discuss Possible Modifications	1
Document Table Definition and Relationship Modifications	1
Create Tables and Relationships	4
Subtotal	16
Design Screen Input Forms -	
Design Screen Input Forms	6
Define Validations, Limits, Data Formats	3
Submit for Approval	0
Discuss Possible Modifications	1
Document Screen Input Form Modifications	2
Create Screen Input Forms	6
Subtotal	18
Design Report Output Forms, Related Queries	
Design Output Forms, Form Letters	6
Define Queries Related to Reports	3

Submit for Approval	0
Discuss Possible Modifications	1
Document Report and Query Modifications	2
Create Reports and Queries	4
Subtotal	16
Design Security	
Define Levels of Access	2
Define Access Groups	2
Submit for Approval	0
Discuss Possible Modifications of Security	1
Document Modifications to Security	1
Implement Security, Create Record of Passwords, Document Method of Changing Passwords	2
Subtotal	8
Define, Design Multi-User Access	
Define Access to Various Tables	2
Submit for Approval	0
Discuss Possible Modifications of Multi-User Access	1
Document Modifications to Multi-User Access	1
Implement Multi-User Access	3
Subtotal	7
Database Testing	
Test all Input Screens for Functionality, Look-and-Feel	3
Test all Report Outputs for Accuracy, Look-and-Feel	3

Test security restriction	5
Test Multi-User Access	5
Note All Problems	1
Resolve Problems	5
Subtotal	13
Document Database	6
Training	
Train Users	3
Train System Administrators - How to Maintain, How to Make Queries, Demand Reports	2
Subtotal	5
Post-Implementation Support	1
Total	90

## Discussion of Phase II

### Definition and Design of Tables

It is fortunate that the quality of material provided to me in my first trip in July was of such high quality. The inputs provided will require some work to make them completely "database-friendly", but were for the very great majority, specific and well-defined. Thus, my goal of having all or nearly all tables defined prior to my second trip in September was feasible, and was accomplished. Even better, the basic record definitions for the tables are largely done. There are some parts of some record definitions which require a little more clarification, and there are some data structures which I think may be redundant, and which we may be able to simplify. However, the overall data structure of the databases and the tables contained within is fairly clear.

During Phase II, it will become necessary to completely clarify any ambiguities in the record structures, and to make final decisions about any simplification. Then, the primary tasks regarding the databases and tables, themselves, will be to define each field, in terms of data type, format, etc. and to definitively determine table relationships. There are approximately a dozen major tables and about 64 tables in all. Although I anticipate no real difficulties in this part of the effort, there is a lot of it, and it will absorb a significant amount of time. Once the tables and relationships are completely defined, it will be time to finally create them in Access 97.

### **Design of Screen Input Forms**

Concurrently, I anticipate that we will begin work on the screen inputs. My goal is to create a standard look-and-feel for the databases. Because the data from an input form (such as Beach Licence Application) will be distributed to a number of tables, the design and implementation of the screen inputs will be somewhat difficult. Additionally, because of the large amount of data elements that will require some kind of validation or limit testing, it will be time-consuming to create all those definitions, and to implement them.

Fortunately, we already know, to a large degree, exactly what data in each form will go to which data tables.

It is anticipated that during Phase II and the initial implementation of the databases, that the only method of database input will be keyboarding directly into Access 97 through the created input forms. This is due to the fact that there are some overall budget and time constraints to the initial implementation of the database systems.

However, initially through the use of table merging, and ultimately by publishing parts of the database on a web server available to applicants and participants, it is likely that NRCA could off-load some data entry to applicants and participants shortly after initial implementation, whether with my assistance or without it. Access 97 has web publishing tools built in to it, and thus, at a later date, without any change of software platform, NRCA could extend the system to provide for direct data entry from outside the authority. My goal in this phase, however, is just to get a basic system operating consistently, accurately, and smoothly, without a lot of optional features.

It is also possible to extend the data tables to permit reference to graphic data. Thus it will be possible to add mapping directly to the databases. However, again, this isn't a basic function, and thus, for time and budget considerations, I'm not including it in this phase. Additionally before implementing that function, it will be necessary to carefully evaluate the impact on overall database performance, since graphical data is much "heavier" than text data.

Input Screens to be developed in this phase include screen analogues for

- Beach Licence Application,

- Beach Licence Compliance Verification,
- Section 17 Information on Pollution Control,
- Section 17 Verification and Monitoring Submission,
- Permit and Licencing Screening Form,
- Permit Application,
- PIF,
- Licence Application,
- Input forms related to various tables, such as Regulated Entities, Owners, Standards tables

### **Design of Output Reports, and Related Queries**

During this initial phase, I'm confident that I've identified most of the major *process-related* reports and queries. These are the reports and queries which will be used by staff to determine when the next step in an application or reporting process needs to be performed, and for which applicants and participants. Due to time limitations (we scheduled six days for this work), I spent little time on reports related to summarizing data for informational purposes. This is partly because it is likely that NRCA will require a large number of information reports, and these requirements will likely arise after the initial implementation of the system, as NRCA becomes familiar with the system provided for it. As NRCA staff use the system, they will develop new reporting requirements based on insights gained through the use of the system. Fortunately, Access 97 provides strong on-demand report creation tools, and the type of reports that I envision being developed are exactly those which are best served by the tools contained within Access 97.

### **Database Security and Multi-User Access**

There are some basic decisions to be made about multi-user access, which will require significant discussions between myself and Marc. There is a tension between access to data and protection of data integrity from errors attributable to multi-user access. These discussions will have to refer to specific user tasks, numbers of simultaneous users, process and procedures, and other pertinent issues.

With regard to security, NRCA will need to determine which parts of the data may be available to which personnel, and which personnel may only view a piece of data, which may alter data, and which may generate hard-copy reports.

### **Database Testing and Training**

Once the system is developed, I'll spend some time in my own offices testing the system, and repairing any problems that I can find, here. I have a Microsoft NT Server 4.0 network, and will implement the system, in multi-user mode, on my network and test it in that configuration. Once

I've found and repaired all the problems that I can find, we will be able to set up the system at NRCA, and commence testing on-site

While I'm in Jamaica for testing we'll also conduct training both for users as well as for personnel to maintain the system. The goal for system administrators will be to create new input forms as necessary, create new reports, as necessary, and perform database maintenance and repair functions. We'll also review methods of data table merging, as well as how to modify tables and existing forms. We'll spend time reviewing cautions to be taken when modifying existing structures.

Initial documentation will be provided during this time, as well, though final documentation may be provided on my return to Washington, depending on the level of revision required.

### **Post-Implementation Support**

Once the system is implemented and up and running, I anticipate that there might be some questions or issues to be resolved, and I have budgeted a small amount of time, accordingly.

### **Timeline**

At this time, it isn't clear in my own mind exactly how the timeline will occur. Part of that will depend on how far we get during the September trip. After my trip in September, I'm not sure whether I'll need one more trip before I come to do the implementation. In any event, I anticipate that implementation will occur either in the first part of December, or immediately after the first of the year, and will require one to two weeks in Jamaica.

In any event, I believe that this phase can be completed no later than the end of January or the beginning of February, 1999.

Following this narrative are documents defining tables, inputs, and outputs.

Thank you for taking the time to review this material. If you have any questions, or if I can be of any further assistance, please do not hesitate to call me at 301 805-0700, or contact me via e-mail at david@ine1.com. Thank you for your time and consideration.

Sincerely,

David F Russo

# Natural Resources Conservation Authority Database Project for Beach Licensing, Section 17, and Permit and Licensing

## NRCA Inputs

### Beach Licensing

#### A Application for License

##### Information Collected from Input

- 1 Applicant Name
- 2 Parish
- 3 Foreshore/floor of Sea Address/location
- 4 F/fsl Parish
- 5 F/fsl Location Information
- 6 Property Name
- 7 District
- 8 Parish (Redundant)
- 9 Distance from Nearest Town/village
- 10 Location from Main Road
- 11 Map/sketch
- 12 Property Boundaries
- 13 Length of Foreshore in Metres
- 14 Owners of Adjacent Properties

##### Sub-table - Adjacent Property Owners

- A Owner Name
  - B Owner Address
  - C Property Name
  - D Property Address
  - E Relative Location (N,s,e,w)
- 15 Is Title Registered?
  - 16 By Metes and Bounds?
  - 17 By Plan?
  - 18 Volume/folio of Certificate of Titles
  - 19 Incumbrances

##### Sub-table - Property Incumbrances

- A Incumbrance Type
- B Name of Lienholder
- C Address of Lienholder
- D Amount of Incumbrance
- E Description
- 20 Is Title Common Law?
- 21 By Deed?
- 22 Record Office Reference
- 23 By Long Possession?
- 24 Title Deed/diagrams Possessor
- 25 Terms/tenancy Information
- Terms/tenancy Sub-table (Can this Be Simplified?)**
- A Name of Party with Interest
- B Party with Interest Address
- C Term or Other Interest
- 26 Part of Enclosed Land?
- 27 Means of Enclosure
- 28 Enterprise Type
- Enterprise Sub-table**
- A Prior/present/future
- B Enterprise Description
- 29 Property Changes
- Property Changes Sub-table**
- A Change Type
- B Description
- 30 Road/right-of-way
- Road Sub-table (Must Define Terms of Location, Id)**
- A Name
- B Location
- 31 Document Signed
- 32 Notarized by
- 33 Fee Paid (Amount)
- 34 Date of Application

**B Beach Control Act Schedules**

- 1 Encroachment
- 2 Description
- 3 Fee

## C Conditions of Approval

- 1 Property Id
- 2 Condition Type
- 3 Condition Description
- 4 Measure of Compliance
- 5 Periodicity of Monitoring

## Section 17

### A Information on Pollution Control

- 1 Property Name (Name of Establishment)
- 2 Property Address
- 3 Establishment Type
- 4 Owner Name
- 5 Owner Company Secretary
- 6 Manager/operator
- 7 Environmental/safety Officer
- 8 Product List  
**Product Sub-table**
  - A Product Name
  - B Form (Solid/liquid/gas)
  - C Qty Produced Annually
- 9 Raw Material List  
**Raw Material Sub-table**
  - A Material
  - B Brand Name
  - C Form
  - D Classification (Haz/nonhaz)
  - E Monthly Qty Used (Per Day) (*This Is Confusing*)
- 10 Production Process Description (*Can this Be Nailed down Any Better?*)
- 11 Power Generated On-site?
- 12 Materials/chemicals Used in Op/maintenance  
**Maint Mat/chems Sub-table**
  - A Material
  - B Brand Name
  - C Form

- D Monthly Qty Used (Per Day) (*This Is Confusing*)(*Can We Consolidate this with the Sub-table Above?*)
- 13 Process Effluent - Continuous/intermittent
- 14 Volume Discharged Litres/hr Litres/day
- 15 Process Effluent Description
- Effluent Description Sub-table**
- A Sample Point
- B Ph
- C Temp (Degrees C)
- D Bod (Mg/l)
- E Cod (Kg/1000kg Prdt)
- F Total Coli (Mpn/100ml)
- G Faecal Coli (Mpn/100ml)
- H Other
- I Tss (Mg/l)
- J Nitrate (Mg/l)
- K Phosphate (Mg/l)
- L Oil/grease (Kg/1000kg Prdt)
- M Total Heavy Metals (Mg/l)
- N Sulphate (Mg/l)
- O Other
- 16 Water Treatment Process for Process Effluent (*Need to Better Define This*)
- 17 Method of Sewage Treatment/disposal
- 18 Sewage Effluent Discharge Quality
- Sewage Effluent Description Sub-table**
- A Sample Point
- B Ph
- C Temp (Degrees C)
- D Bod (Mg/l)
- E Cod (Kg/1000kg Prdt)
- F Total Coli (Mpn/100ml)
- G Faecal Coli (Mpn/100ml)
- H Other
- I Tss (Mg/l)
- J Nitrate (Mg/l)
- K Phosphate (Mg/l)
- L Oil/grease (Kg/1000kg Prdt)
- M Total Heavy Metals (Mg/l)
- N Sulphate (Mg/l)
- O Other
- 19 Final Discharge Point - Process Effluent
- 20 Final Discharge Point - Sewage Effluent

- 21 Qty Solid Waste / Day
- 22 Solid Waste Stored on Compound?
- 23 Solid Waste Disposal Method
- 24 Haz Waste Form (Liquid/solid)
- 25 Haz Waste Stored on Compound?
- 26 Haz Waste Storage Method
- 27 Qty Haz Waste / Day
- 28 Haz Waste Pretreatment? (Y/n)
- 29 Haz Waste Disposal Method
- 30 Air Emissions Methods
- Air Emissions Sub-table**
- A Emission
- B Emission Method
- C Temp
- D Height
- E Flow Rate (M/hr)
- F Diameter
- G Fuel Type
- H Grade
- I Feet Rate
- J Nitrogen
- K Sulphur
- L Vanadium
- M Carbon
- N Other Metals
- O Constituents / Qty of Emissions (Mg/m)
- P Qty Oxides of N
- Q Qty Oxides of C
- R Qty Particulates
- S Qty Oxides of S
- T Qty Oxides of Vanadium
- U Qty Other Haz Air Pollutants
- V Qty Other
- W Volatile Organic Compounds
- Volatile Organic Compounds Sub-table**
- 1 Compound
- 2 Qty
- 31 Emergency Response Procedures - Attached - Y/n
- 32 Imporvement Plan - Attached - Y/n
- 33 Certification Name
- 34 Certification Title
- 35 Certification Date
- 36 Certification Signature - Y/n

## B Verification Monitoring Submissions

- 1 Facility Type
- 2 Visit Date
- 3 Company Name
- 4 Company Address
- 5 Property Identification
- 6 Telephone Number
- 7 Fax Number
- 8 Facility Description (*How Should this Be Represented in DB?*)
- 9 Production Process Diagram Submitted? (Y/n)
- 10 Number of Employees
- 11 Number of Professionals
- 12 Operating Mode - Hrs/day
- 13 Operating Mode - Days/week
- 14 Contact Person
- 15 Materials Inventory System (Card, Computerized, Other)
- 16 Frequency of Inventories
- 17 Raw Materials/hazardous Chemicals
  - Raw Materials/hazardous Chemicals Sub-table**
  - a type (Raw Material or Hazardous Chemical [*Raw/nonhaz Raw/haz Nonhaz Haz?*])
  - b material Name
  - c storage Method
  - d qty Stored
  - e qty Used per Annum
- 18 Water Source (Muni/well/surface/other)
- 19 Water Amt/day
- 20 Water Treated Before Use? (Y/n)
- 21 Fuel Type
- 22 Fuel Amt/day
- 23 Wastes Produced
  - Wastes Produced Sub-table**
  - a waste Type (Solid, Liquid, Sludge)
  - b waste Name
  - c qty of Waste (*Per Day? Month?*)
  - d spillage, Rejected Materials, or Process Waste
  - e waste Hazard (Y/n)
  - f method of Disposal (Or Plan Submitted?)
  - g other Waste Mgmt Practices Used or Tried
  - h to Whom Disposed
  - i to Where Disposed

- 24 Do You Have a Reduction of Waste Plan? (Y/n)
- 25 Floor Conditions - Floor Materials
- 26 Floors Curbed?
- 27 What Is Done with Out-of-date Chemicals/raw Materials?
- 28 Floor Conditions - Drainage System
- 29 Floor Conditions - How Often Floors Cleaned
- 30 What Is Done with Empty Drums, Containers?
- 31 Valve Leaks Found? (Y/n)
- 32 Storage Spills Found? (Y/n)
- 33 Shipping Spills Found? (Y/n)
- 34 Receiving Spills Found? (Y/n)
- 35 Hoses Left Running Found? (Y/n)
- 36 Is There a Safety Officer? (Y/n)
- 37 Name of Safety Officer
- 38 Name of Waste Mgmt Officer
- 39 Title of Waste Mgmt Officer
- 40 Name of Chem/materials Storage Officer
- 41 Name of Maint Officer
- 42 Is There a Spill Contingency Plan? (Y/n)
- 43 Spill Contingency Plan Covers Raw Material Spill (Y/n)
- 44 Spill Contingency Plan Covers Product Spill (Y/n)
- 45 Spill Contingency Plan Covers Chemical Spill (Y/n)
- 46 Spill Contingency Plan Submitted? (Y/n)
- 47 Liquid Waster Water and Effluent Are (Select One)
- Separated Between Haz and Nonhaz
- Mixed Together
- Discharged Directly into Sewer System
- Discharged to Containers and Diluted Before Release
- Discharged to Receiving System
- Treated Before Discharge and Release
- Other
- 48 Solvent Based Wasted Separated from Water Based (Y/n)
- 49 Air Emissions Method Type
- Air Emissions Sub-table**
- a method of Emission
- b air Emission Type
- 50 Control Devices
- Control Devices Sub-table**
- a control Device Type
- b control Device Description
- c material Controlled
- 43 Waste Oil Observed? (Y/n) (*Can this Come under Other Materials?*)
- 44 Waste Oil Storage/disposal Method

- 45 Does Company Reuse/recycle Water? (Y/n)
- 46 Does Company Reuse/recycle Other Materials? (Y/n)
- 47 Does Company Sell Waste to Other Companies? (Y/n)
- 48 Describe Other Recycling Methods Used
- 49 Permit Required for Operations? (Y/n)
- Permit Requirements Sub-table**
- a permit Required
- b permit Requirements
- 50 Describe What Would Assist Your Company's Ability to Reduce Waste
- Helpful Info Sources
- 51 Trade Journal (Y/n)
- 52 Govt Agencies (Y/n)
- 53 Consulting Firms (Y/n)
- 54 Academic or Research Institutions (Y/n)
- 55 Other (Describe)
- 56 Receive Material Safety Data Sheets and Labels? (Y/n)
- 57 Safety Sheets Available to Employees? (Y/n)
- 58 Is Emergency Plan Submitted? (Y/n)
- 59 Covers Fire (Y/n)
- 60 Covers Spillage (Y/n)
- 61 Covers Hurricane (Y/n) (*Redundant*)
- 62 Covers Other (Describe)
- 63 Employees Trained? (Y/n)
- 64 Employees Properly Attired? (Y/n)
- 65 Msds and Chem Labels Readily Avail? (Y/n)
- 66 Any Pollution Incidents/accidents at this Facility? (Y/n)
- 67 Action Taken (Describe)
- 68 Facility Has Eye Wash Station (Y/n)
- 69 Facility Has First Aid Kit (Y/n)
- 70 Facility Has Enclosed Lunchroom (Y/n)
- 71 Type of Ventilation Used
- 72 Is Most Maintenance Planned and Scheduled? (Y/n)
- 73 How Have Accidents and near Accidents Been Investigated? Describe
- 74 Changes from Accidents, Describe
- 75 Other Comments
- 76 Number of Sample Points
- 77 Point Locations
- Point Locations Sub-table**
- a location
- b visual Description of Effluent Quality
- 78 Weather Conditions at Time of Sampling (*Can this Be Standardized?*)
- 79 Name of Person Doing Verification

## Permit and Licensing

### A Screening Form

- 1 Project Name
- 2 Project Address
- 3 Project Town
- 4 Project Parish
- 5 Owner Name
- 6 Owner Address
- 7 Owner Town
- 8 Owner Parish
- 9 Applicant Name
- 10 Applicant Address
- 11 Applicant Town
- 12 Applicant Parish
- 13 Project Description

#### Effects on Land Resources - Use 1 - 3 Scale

- 14 Will There Be an Effect to Land Resources as a Result of a Physical Change to the Project Site? 1 2 3

##### Applicable Examples (All Y/n Except G )

- a any Construction on Slopes of 15%
  - b construction in Areas Subject to Subsidence
  - c construction of Areas Greater than 5 Hectares
  - d construction That Will Continue for More than 1 Year
  - e solid Wastes Generated During Construction
  - f evacuation for Mining That Would Remove More than 2 Hectares of Land per Year
  - g other Effects (Describe)
- 15 Will There Be an Effect to Any Unique Geological Features or Land Forms Found on the Site? 1 2 3
- 16 List Specific Land Forms

#### Effects on Water Resources

- 17 Will Project Physically Affect Any Freshwater Body, Wetland or Areas Protected under the Beach Control Act? 1 2 3

##### Applicable Examples

- a dredging or Filling in a Protected Stream
- b 10% Increase or Decrease in the Surface Area

- c construction of a Body of Water That Exceeds 4 Hectares
  - d project That Results in Construction
  - e other Effects (Describe)
- 18 Will Project Affect Surface or Groundwater Quality or Qty? 1 2 3
- a Project will result in exceeding water quality standards of a protected
  - b Project will discharge lower quality water
  - c Project will affect present and/or future public water supply
  - d Construction on land where the depth to the water table is less than 1 meter
  - e Project will require the storage of haz waste on- or off-site
  - f Project requires water supply from wells with
  - g Liquid effluent will be conveyed off the site
  - h Project requiring a facility that would use wastewater in excess of 20K gallons per day
  - i Project will likely cause siltation or other discharge into an existing body of water
  - j Other effects
- 19 Will project alter drainage flow, patterns, or surface water runoff? 1 2 3
- a Project will impede flood water flows and cause off-site flooding
  - b Project is likely to cause substantial erosion
  - c Project occurs in flood-prone areas
  - d Project will create an impervious surface greater than 1/4 hectare
  - e Other effects

**Effects on Air Quality Including Noise and Other Issues**

- 20 Will project affect air quality? 1 2 3
- a Project will result in exceeding air quality standards
  - b New source will emit more than 100 tons of pollutant
  - c Project will increase vehicle trips by 1000 or more
  - d Project will result in the incineration of more than 1 tone of refuse per hour
  - e Other effects
- 21 Will there be objectionable noise, odor, glare, vibration, or electrical disturbance as a result of this project? 1 2 3
- a Blasting within 500 m of a residence
  - b Project will produce operating noise exceeding the local ambient
  - c Project will remove natural barriers that act as noise screens
  - d Odors will occur routinely (more than 1 hour per day)
  - e Other effects

**Effects on Ecological Resources**

- 22 Will project affect any Jamaican endemic or protected plant or animal species or species protected by international convention? 1 2 3
- a Reduction of one or more endemic species residing or using
  - b Removal of any portion of a critical or significant endemic habitat

- c Other effects
- 23 Will project substantially affect species that are not endemic or protected?
  - 1 2 3
  - a Project would substantially interfere with resident or migratory fish or wildlife species
  - b Project requires the removal of more than 10% of mature
  - c Project will result in the introduction of exotic plants or animals
  - d Application of pesticide or herbicide more than twice a year
  - e Other effects

**Effects on Visual Resources**

- 24 Will the project affect views, vistas, or the visual character of the neighborhood or community? 1 2 3
  - a An incompatible visual effect caused by the introduction of new materials
  - b Project will result in the elimination or major screening of scenic views
  - c Other effects

**Effects on Historic Resources**

- 25 Will the project affect any site or structure of historic, prehistoric, or paleontological importance? 1 2 3
  - a Project occurring wholly or partially within or contiguous to any
  - b Any impact to archaeological site located within the project site
  - c Other effects

**Effect on Open Space and Recreation**

- 26 Will the project affect the quantity and quality of existing or future open spaces or recreational opportunities? 1 2 3
  - a The permanent foreclosure of a future recreational opportunity
  - b A major reduction of an open space important to the community
  - c Other effects

**Effects on Energy**

- 27 Will the project affect the community's sources of fuel or energy supply?
  - 1 2 3
  - a Project causing greater than 5% increase in any form of energy used in municipality
  - b Project requiring the creation or extension of an energy transmission or supply system, e g , transmission line
  - c Other effects

**Effects on Transportation**

- 28 Will there be an effect to existing transportation systems? 1 2 3
  - a Alteration of present patters of movement of people and/or goods

- b Project will result in severe traffic problems
- c Other effects

**Effects on Human Health**

- 29 Will the project affect public health and safety? 1 2 3
- a Project will cause a risk of explosion or release of hazardous substances
  - b Project will result in the need for additional health care facilities
  - c Project will result in generation of "hazardous waste"
  - d Other effects

**Effects on Growth and Character of Community or Neighborhood**

- 30 Will the project affect the character of the community or neighborhood?
- 1 2 3
- a The resident population in the vicinity of the project is likely to grow by more than 5%
  - b The municipal budgets for capital expenditures or operating services will increase by more than 5% per year
  - c Will involve any permanent facility of a non-agricultural use in an agricultural district
  - d The project will replace or eliminate existing facilities, structures, or areas
  - e Development will induce an influx of a particular age group with special needs
  - f Project will require the relocation of residents or businesses
  - g Other effects
- 31 Is there public controversy concerning the project? 1 2 3
- a Objection to the project from within the community
  - b Either government, citizens of adjacent communities, or NGOs have expressed
  - c Other effects

32 Large Effects Considered Important

**Large Effect Sub-table**

- a Effect
- b Description
- c Reason for importance
- d Possible mitigation

- 33 Does project have adverse effect on the environment, and EIA is required? (Y/N)
- 34 Preparer's Name
- 35 Preparer's Title
- 36 Date
- 37 Preparer's Signature on Original? (Y/N)

## **B Permit Application**

### **General Information**

- 1 Applicant name
- 2 Applicant address
- 3 Applicant town
- 4 Applicant parish
- 5 Applicant telephone number
- 6 Applicant fax number
- 7 Company Name
- 8 Company Registration Number
- 9 Company registered office address
- 10 Enterprise Location Name
- 11 Enterprise Location Address
- 12 Enterprise Location Town
- 13 Enterprise Location Parish
- 14 CEO Name
- 15 Environmental Manager Name
- 16 Description of category of enterprise, etc , for which approval is sought
- 17 Local authority name
- 18 Attached documents list

#### **Attached documents sub-table**

- a Document name

### **Statement by Applicant**

- 19 Applicant Name
- 20 Applicant Title
- 21 Signature present? (Y/N)
- 22 Date of application

### **Official Use**

- 23 PIF attached? (Y/N)
- 24 Other info attached
- 25 Application fee enclosed? (Y/N)
- 26 Fee amount
- 27 Comments
- 28 Assessment Officer Name
- 29 Date

## **C Project Information Form (PIF)**

### **Project Name and Ownership**

- 1 Applicant name
- 2 Applicant address
- 3 Applicant town
- 4 Applicant parish
- 5 Applicant telephone number
- 6 Applicant fax number
- 7 Applicant e-mail address
- 8 Owner name
- 9 Owner address
- 10 Owner town
- 11 Owner parish
- 12 Project location address
- 13 Project location town
- 14 Project location parish
- 15 Project location map included? (Y/N)
- 16 Do you own property? (Y/N)
- 17 Proof of ownership attached? (Y/N)
- 18 If no, what is nature of interest?
- 19 Supporting documents attached? (Y/N)
- 20 Adjoining Property Owners

#### **Adjoining Property Owners Sub-table**

- a APO name
  - b APO address
  - c APO town
  - d APO parish
- 
- 21 Project Type (Check all that apply)
    - a Power generation plants
    - b Electrical transmission lines and substations greater than 69kV
    - c Pipelines and conveyors, including underground cables, gas lines and other such infrastructure with diameter of 15 cm and over
    - d Port and harbour developments
    - e Development projects
      - 1 Subdivisions of 10 or more lots
      - 2 Housing projects of 10 houses or more
      - 3 Hotel/resort complex of more than 12 rooms
      - 4 Airports including runway expansion greater than 20%
      - 5 Office complex greater than 5000 square metres
    - f Ecotourism projects
    - g Water treatment facilities including water supply, desalination
    - h Mining and mineral processing
      - 1 Bauxite

- 2 Minerals - including aggregate, construction and industrial minerals
- 3 Peat
- 4 Sand
- 5 Metallic
- 6 Non-metallic
- 1 Metal processing
  - 1 Non-ferrous metals
  - 2 Ferrous metals
  - 3 Foundry operations, metal plating
- J Industrial projects
  - 1 Chemical plants
  - 2 Pulp, paper, and wood processing
  - 3 Petroleum production, refinery, storage and stockpiling
  - 4 Food processing plants
  - 5 Fish and meat processing plants
  - 6 Tanneries
  - 7 Detergents manufacturing, including manufacturing of soap
  - 8 Distillery, brewing and fermenting facilities
  - 9 Cement and lime products
  - 10 Manufacture of textiles
  - 11 Manufacturing of pesticides or other hazardous or toxic substances
  - 12 Paint manufacture
  - 13 Boxing plants
  - 14 Manufacture of containers and packaging materials including cans
  - 15 Manufacturing of edible fats, oils, and associated processes
  - 16 Citrus, coffee, cocoa, coconut, sugarcane processing factories
  - 17 Solar salt production
- k Construction of new highways, arterial roads and major road improvement projects
- l River basin development projects
- m Irrigation or water management projects including improvements
- n Land reclamation and drainage projects
- o Watershed development and soil conservation projects including river training
- p Modification, clearance or reclamation of wetlands
- q Solid waste treatment and disposal facilities
- r Processing of agricultural waste
- s Cemeteries and crematoria
- t Introduction of species of flora, fauna and genetic material
- u Slaughterhouse and abattoir
- v Felling of trees and clearing of land of 10 hectares or over for agricultural developments
- w Clear cutting of forested areas of 3 hectares and over on slopes greater than

- 25 degrees
- x Other - describe

**Site Description**

- 22 Land character - uniform slope or uneven/rolling/irregular
- 23 Approx %age of proposed site with slopes 0-10%, 10-25%, 25% and up
- 24 Predominant soil type upland plateaux soils, alluvial soils, highland soils
- 25 Are there bedrock outcroppings on project site? (Y/N)
- 26 Are there any karst or limestone, i e , sinkhole conditions on site? (Y/N)
- 27 Is project located on flood plain, coastal zone, or water catchment area, none?
- 28 If "None" to 27, describe
- 29 Site is below sea level, at sea level, above the 10 m contour line
- 30 Water wells on or adjacent to site (Y/N)
- 31 Rivers, streams, or drainages within or adjacent to site (Y/N)
- 32 Lakes, ponds or wetland areas within or contiguous to the project site (Y/N)
- 33 Present site land use urban, suburban, rural, industrial, commercial, agriculture, forest, other
- 34 Describe other from #33
- 35 Project site presently used by the community or neighbourhood as an open space or recreational area (Y/N)

**Biological Resources**

**Flora**

- 36 Ecosystems and dominant types
- Ecosystems sub-table**
- a Ecosystem type
- b Dominant type
- 37 Watershed name project is in
- 38 Exotic species on site (Y/N)
- 39 Scientifically or aesthetically interesting specimens on site (including Lignum Vitae, Blue Mahoe, Orchids, Ferns, Mangroves, Sea grasses, Royal palms, Bromeliads, Feeder trees for birds)
- 40 Endemic species (Y/N)
- 41 Exotic species to be introduced (Y/N)
- 42 Plant Species / specimens present
- Plant Species / Specimens sub-table**
- a Present / To be introduced
- b Exotic / endemic / scientific / aesthetic
- c Scientific name
- b Common name
- 43 Degree of disturbance of the plant community pristine, semi-degraded, totally

degraded

**Fauna**

- 44 Endangered animals species in the area of the project (Y/N)
- 45 Animal Species present
  - Animal species sub-table**
  - a Endangered (Y/N)
  - b Vertebrate/invertebrate
  - c Classification mammal, bird, fish, amphibian, reptile, insect, coral, sponge, crustacean, other
    - a Scientific name
    - b Common name
- 46 Habitat type
  - Habitat sub-table**
  - a Habitat type
  - b Dominant type
  - c River/stream name
  - d Pond/lake name
- 47 Commercially valuable species present in area? (Y/N)

**Protected Areas**

- 48 Project located in an existing Protected Area? (Y/N)
- 49 Name of Protected Area

**Project Description**

**Physical Dimensions**

- 50 Total contiguous area owned by project sponsor, in hectares
- 51 Project area developed initially, in hectares
- 52 Project area ultimately developed, in hectares
- 53 Project area to remain undeveloped, in hectares

**Operational aspects of project**

- 54 Sewage effluent discharge during construction and/or operation? (Y/N)
- 55 Trade effluent discharge during construction and/or operation? (Y/N)

**Indicate likely effects of project on**

- 56 Land resources

- 57 Water resources
- 58 Air quality (including noise)
- 59 Ecological resources
- 60 Visual resources
- 61 Open space and recreation
- 62 Growth and character of community
- 63 Energy
- 64 Transportation
- 65 Human health
  
- 66 Will there be air emissions (including fugitive dust) produced during construction and operation? (Y/N)
- 67 Will there be poisonous, noxious, or polluting matter discharged during construction and operation? (Y/N)
- Emissions/discharges sub-table**
  - a Emission or discharge
  - b Type
  - c Source
  
- 68 Will blasting occur during construction? (Y/N)
- 69 Will project routinely produce odours (more than one hour per day)? (Y/N)
- 70 Total water usage per day in litres/day
- 71 Source surface, underground, other
- 72 If water supply is from wells, indicate pumping capacity in litres/minute
- 73 Is surface or underground liquid waste involved? (Y/N)
- 74 Type of waste
- 75 If surface disposal, name receiving water body
- 76 Will the project use herbicides or pesticides? (Y/N)
- 77 How many hectares of vegetation to be removed from site?
- 78 Will project involve construction of access roads? (Y/N)
- 79 Surface area of existing water bodies increase or decrease? (Y/N)
- Water body change sub-table**
  - a Water body name
  - b Current size
  - c Final size
  - d Change
- 80 Will project require relocation of people? (Y/N)
- 81 Will project require relocation of houses? (Y/N)
- 82 Will project require relocation of facilities? (Y/N)
- Relocation details sub-table (how should this be expanded?)**
  - a Object relocated (people, houses, facilities)
  - b Number to be relocated
  - c From where

- d To where
- 83 Does project involve disposal of solid waste? (Y/N)
- 84 Will existing municipal solid waste facility(ies) be used? (Y/N)
- 85 Location

**For waste treatment and disposal facilities**

- 86 Nature of waste disposal facility Landfill, transfer station [static compaction, pulverization, baling], treatment plant involving [pulverization, composting, incineration, chemical treatment, other]
- 87 Estimated maximum quantities of general waste of the following description delivered or to be delivered daily at the facility

**Waste Quantities sub-table**

- a Waste Form (liquid, sludge, solid)
- b Type of waste (select from below)
  - Domestic and commercial
    - untreated
    - pulverized or compost
    - baled
    - incinerator residues
  - Medical, surgical and veterinary wastes
  - Hazardous wastes
  - Non-hazardous industrial wastes
    - potentially combustible substances
    - inert and non-flammable substances
  - Wastes from construction industry
  - Old cars, vehicles, and trailers
  - Sewage, sludge
  - Mine and quarry waste
  - Farm waste
- c Qty in tonnes

- 88 Current or anticipated maximum rate of use of the facility, tonnes per day of landfill sites
- 89 Current or anticipated maximum rate of use of the facility, tonnes per hour for treatment plant
- 90 Current capacity of treatment plant in millions litres per day
- 91 Total design capacity in millions litres per day
- 92 Proposed operation capacity in million litres per day

**Project approvals**

- 93 Are there any other GOJ licence or approval required? (Y/N)
- 94 Are there any other previous licences or permits granted in respect of this project? (Y/N)

- 95 Are there any town or local approvals?  
 96 List approvals  
**Approvals sub-table (any other information to be captured, here?)**  
 a Approval required  
 b Responsible body or department  
 c Government entity (GOJ, town, etc )  
 d Pending/granted/denied/other  
 e Date  
 f Project title  
 g Reference number

**Preparer Information**

- 97 Preparer's name  
 98 Preparer's title  
 99 Agency represented  
 100 Date  
 101 Signature on original? (Y/N)

**D Licence Application**

**General Information**

- 1 Applicant name  
 2 Applicant address  
 3 Applicant town  
 4 Applicant parish  
 5 Applicant telephone number  
 6 Applicant fax number  
 7 Company Name  
 8 Company Registration Number  
 9 Company registered office address  
 10 Enterprise Location Name  
 11 Enterprise Location Address  
 12 Enterprise Location Town  
 13 Enterprise Location Parish  
 14 CEO Name  
 15 Environmental Manager Name  
 16 Description of category of enterprise, etc , for which approval is sought  
 17 Local authority name  
 18 Attached documents list

**Attached documents sub-table**

- a Document name

**Application Type**

- 19 Sewage - new or renewal
- 20 Trade effluent - new or renewal
- 21 Modification of existing facility
- 22 Construction/reconstruction/alteration of work

**Detailed description of effluent generating source**

- 23 Plant facilities

**Plant Facilities sub-table**

- a Facility type
- b Outfall location
- c Production amount
- d Drawings, layouts, flow diagrams attached? (Y/N)
- e Process description

- 24 Other permits, approvals, or licences granted

**Other Permits sub-table**

- a Permit/approval/licence type
- b Government entity issuing
- c Date of issue
- d Date of expiry
- e Object permitted/approval/licenced

**Process Information**

- 25 All toxic substances , chemicals, used or manufactured

**Toxic substances sub-table (what other information should be captured, here?)**

- a Substance
- b Toxic/non-toxic

- 26 Intermediate and final products

**Products sub-table (what other information should be captured, here?)**

- a Product
- b Intermediate/final
- c Where stored
- d Qty kept in storage

- 28 Water consumed in litres per day

- 29 Source of water - NWC, WRA, other

- 30 Source of energy, other than sunlight

- 31 Qty of energy consumed (*may wish to provide standard metrics*)

**Waste/Trade Effluent Information - Treatment and Disposal**

- 32 Nature and composition of trade effluent  
**Trade effluent sub-table**  
 a Substance  
 b Form (liquid, sludge, solid)  
 c Current monitoring/sampling result - volume
- 33 Apparatus used to measure and record nature, composition, and volume of waste  
 34 Maximum volume of trade effluent proposed to be discharged on any one day  
 35 Proposed rate at which trade effluent to be discharged  
 36 Nature of waste water treatment facility (describe)  
 37 Treatment level to be provided  
 38 Outfall information - configuration  
 39 Outfall information - construction materials  
 40 Length from shore, in metres  
 41 Diameter of outfall, in cm  
 42 Elevation of discharge invert, in metres below mean sea level  
 43 Depth of receiving water body at discharge point, in metres below mean sea level
- 44 Land Use Requirements within one kilometre of the site  
**Land Use Reqs sub-table**  
 a Object required (well, surface water, etc )  
 b Location
- 45 Soil information  
 46 Hydrogeologic survey providing data necessary to evaluate attached? (Y/N)

**Information for sewage treatment facilities**

- 47 Population served - current year  
 48 Population served - design year projection  
 49 Description of area to be served - current year  
 50 Description of area to be served - design year  
 51 Land use of area to be served - current year  
 52 Land use of area to be served - design year  
 53 Map of area attached - current year (Y/N)  
 54 Map of area attached - design year (Y/N)  
 55 Attached - assessment of the potential environmental impact of the project (Y/N)  
 56 Attached - Operation & control strategies including preventive maintenance (Y/N)

**Plan of facility shows**

- 57 Layout and construction of the facility (Y/N)  
 58 Storage area for liquid, sludge, and solid waste (Y/N)  
 59 Provision being made for the parking, loading, and unloading of vehicles (Y/N)

**Pollution Control and Waste Management Information**

60 Pollution monitoring programme description  
**Pollution monitoring programme sub-table**

- a Monitoring device
- b Location of monitoring point
- c Parameter analyzed
- d Frequency of sampling
- e Personnel involved

Pollution abatement/monitoring equipment

**Pollution monitoring equipment sub-table**

- a Device
- b Year installed
- c Capacity

Pollution prevention or abatement technologies applied

**Pollution prevention/abatement technologies sub-table**

- a Technology applied
- b Description

Safety, contingency, and emergency response measures

**Response measures sub-table**

- a Measure name
- b Measure responds to
- c Description of response

Proposed or implemented conservation measures, including wastewater reuse and recycling

**Conservation measures sub-table**

- a Measure name
- b Measure conserves
- c Description of measure

**Statement by Applicant**

- 61 Signature affixed? (Y/N)
- 62 Name of applicant
- 63 Title of applicant
- 64 Date

# NRCA Database Table Definitions

## Table Entities

**Purpose** Ultimately, each of the three data systems, Beach Licencing, Section 17, and Permit and Licencing, revolve around the regulation and activities of legal entities. These entities may own or lease land, upon which various regulated activities take place. These entities can be individuals, proprietorships, corporations, or limited partnerships. Any specific entity may be regulated for more than one property, under more than one section of the law, for more than one purpose.

### Structure

- Entity Identification Number (Entity ID #)
- Entity Type (Regulated, Owner)
- Entity Name
- Entity Address, telephone, etc (*need to standardize desired information for all inputs*)
- Entity Type (individual, proprietorship, limited partnership, corporation, etc )
- Company Registration Number
- BENO??

### Table Owners (currently not planned)

Structure

Owner Identif Number (Owner ID #)  
Owner Name  
Spec of Own Off ers Owne C mpany Secretary Ic. (when not duant with C nt cty)  
Ow er Address teleph et ( eed standard\_e desired information f ll inputs)  
Ow er En ty Type

## Table Contacts

### Structure

- Contact Identification Number (Contact ID #)
- Contact Name
- Contact Title
- Contact Address, telephone, etc
- Contact Employer

## Table Properties

### Structure

- Property Identification Number (Prop ID #)
- Property Name (if any)
- Previous Property Name (if any)
- Establishment Type (if any)
- Location (by coordinate system ultimately selected)
- Property Address, etc
- Property Description
- Property Owners
  - Sub-table Props/Owners**
  - One or multiple records relating all owners of property to property
  - Property Identification Number
  - Owner Identification Number
- Property Registration Status
  - Title Registered, By Metes and Bounds, By Plan, Volume/Folio of Certificate of Title
- Incumbrances
- Adjacent Property Owners
  - Sub-Table Adjacent Property Owners**
  - Property Identification Number of Primary Property
  - Owner Name
  - Owner Address
  - Adjacent Property Address
  - Relative location to Primary Property

### Table Trade Effluent Standards

- Parameter
- Standard Limit
- Unit of Measure

### Table Sewage Effluent Standards

- Parameter
- Standard Limit
- Unit of Measure

### **Table Interim Ambient Air Quality Standards**

- Parameter
- Maximum Annual Geometric Mean
- Maximum Annual Average
- Maximum 24 Hour Average
- Per Calendar Quarter (lead)
- One Hour Average
- Eight Hour Average
- Unit of Measure

### **Table Recommended Stack Emission Limits**

- Source
- Parameter
- Standard for New Sources
- Target for Existing Sources
- Unit of Measure

## Table Beach Licence Cases

Purpose The purpose of this table is to track all the constituent parts of the process to issue and monitor a Beach Licence

### Structure

#### Header Information

- Beach License Case Number (BL Case #)
- (from **Regulated Entities Table**) Entity ID #
- (from **Properties Table**) Prop ID #
- (from **Contacts Table**) Contact ID #
- Owner/Tenancy Status

#### Beach Licence Application

- Beach Licence Property Data
  - Distance from Nearest Town/Village, Location from Main Road, Length of Foreshore in Metres, Property Boundaries, Presence of Map/Sketch
- Enterprises
  - Sub-table Enterprises**
    - Enterprise ID #
    - BL Case #
    - Prior/Present/Future enterprise
    - Description
- Property Changes
  - Sub-table Property Change**
    - Property Change ID #
    - BL Case #
    - Change Type
    - Description
- Roads/Right of Way
  - Sub-table Roads/Rights of Way**
    - RRW ID #
    - BL Case #
    - Name
    - Location (*must define terms of location and name*)
- Encroachments
  - Sub-table Encroachments**
    - Encroachment ID #
    - BL Case #
    - Encroachment Type
    - Description
    - Fee

- Licence Renewal

- Sub-table Renewal/Billing**

- BL Case #
    - Renewal/Billing Notice Number (R/B #)
    - Result of Review of Compliance Renewal Allowed? (Y/N)
    - Fee Year
    - Fees for Current Year (Sum all records for BL Case # in Encroachments Data Table, and include any standard fees)
    - Overdue Fees (Amount Outstanding from Renewal/Billing where BL Case # = current, and Fee Year = current - 1)
    - Adjustment Amount
    - Adjustment Text
    - Total Fees Due Current Year (calculated field Fees for Current Year + Overdue Fees - Adjustment Amount)
    - Date Due
    - Payments

- Sub-Table Payments**

- R/B #
      - Date of Payment
      - Payment Amount
    - Amount Outstanding (calculated field Total Fees Due Current Year - Sum of Payment Amounts from Payments sub-table)

- Conditions of Approval

- Sub-table Conditions of Approval**

- Condition ID #
    - BL Case #
    - Condition Type
    - Condition Description
    - First Monitoring Date
    - Period of Monitoring (in days)
    - Latest Monitoring Date
    - Next Monitoring Date (calculated field)

- Compliance Reports

- Sub-table Compliance Reports**

- BL Case #
    - Report ID #
    - Report Date
    - Reported by
    - Full Compliance? (Y/N)
    - Compliance Exceptions

- Sub-table Compliance Exceptions**

- BL Case #
      - Report Date

- Condition ID #
- Description of failure to comply
- Remediation Effort Required
- Date Remediation to be Effected
- Is Remediation Effected?
- Actual Remediation Date
- Date of Referral to Enforcement for Failure to Comply

## Table Section 17 Cases

Purpose            The purpose of this table, and related tables, is to track entities which are in Section 17 monitoring and compliance

### Structure

#### Header Information

- Section 17 Case Number (S17 Case #)
- (from **Regulated Entities Table**) Entity ID #
- (from **Properties Table**) Prop ID #
- (from **Contacts Table**) Contact ID #
- Owner/Tenancy Status
- Facility Type (Power Generating Plant, Abattoir/Slaughterhouse, etc )
- Facility Description (*How should this be represented in database?*)
- IPC Periodicity (in days) - 121 days default
- Last IPC Date
- Last IPC Filed Date
- Next IPC Due Date - calculated / can be manually overridden

#### Sub-Table    Information on Pollution Control

- S17 Case #
- IPC Identification Number (IPC ID #)
- Manager/Operator (*Is this redundant with Regulated Entity? Is this meant to be similar to a plant manager?*)
- Environmental / Safety Officer
- Production Process Description

#### Sub-Table    Production Processes

- Process ID #
- Process Type
- Process Description
- Products produced / Raw Materials Used

#### Sub-Table    Products

- IPC ID #
- Process ID #
- Product Name
- Form (solid/liquid/gas)
- Qty produced annually

#### Sub-table    Raw Materials

- IPC ID #
- Process ID #
- Material
- Brand Name

- Form
  - Classification (haz/non-haz)
  - Qty Used Per Day - Averaged over One Month
  - Power Generated On-Site?
  - Materials/chemicals used in Operation/Maintenance
    - Sub-table Materials/Chemicals**
      - IPC ID #
      - Brand Name
      - Form
      - Qty Used Per Day - Averaged over One Month
  - Process Effluent - Continuous/intermittent
  - Volume Discharged Litres/hr Litres/day
  - Process Effluent Description
  - Sewage Effluent Discharge Quality
    - Sub-table Effluent Description**
      - IPC ID #
      - Process / Sewage Effluent
      - Sample Point
      - Sample Point Identification Number (SP ID #)
        - Sub-Table Parameters**
          - SP ID #
          - Parameter
          - Measurement
- Include these items as pre-existing records
- |                           |                             |
|---------------------------|-----------------------------|
| Ph                        | Temp (Degrees C)            |
| Bod (Mg/l)                | Cod (Kg/1000kg Prdt)        |
| Total Coli (Mpn/100ml)    | Faecal Coli (Mpn/100ml)     |
| Tss (Mg/l)                | Nitrate (Mg/l)              |
| Phosphate (Mg/l)          | Oil/grease (Kg/1000kg Prdt) |
| Total Heavy Metals (Mg/l) | Sulphate (Mg/l)             |
- Water Treatment Process for Process Effluent (***Need to Better Define This***)
  - Method of Sewage Treatment/Disposal
  - Final Discharge Point - Process Effluent
  - Final Discharge Point - Sewage Effluent
  - Qty Solid Waste / Day
  - Solid Waste Stored on Compound?
  - Solid Waste Disposal Method
  - Haz Waste Form (Liquid/solid)
  - Haz Waste Stored on Compound?
  - Haz Waste Storage Method
  - Qty Haz Waste / Day
  - Haz Waste Pretreatment? (Y/N)
  - Haz Waste Disposal Method

- Air Emissions Methods

- Sub-table Air Emissions**

- IPC ID #
    - Emission
    - Emission Method
    - Temp
    - Height
    - Flow Rate (M/hr)
    - Diameter
    - Fuel Type
    - Grade
    - Feet Rate
    - Nitrogen
    - Sulphur
    - Vanadium
    - Carbon
    - Other Metals
    - Constituents / Qty of Emissions (Mg/m)
    - Qty Oxides of N
    - Qty Oxides of C
    - Qty Particulates
    - Qty Oxides of S
    - Qty Oxides of Vanadium
    - Qty Other Haz Air Pollutants
    - Qty Other
    - Volatile Organic Compounds

- Sub-Table Volatile Organic Compounds**

- Compound
        - Qty
- Emergency Response Procedures - Attached - Y/n
- Improvement Plan - Attached - Y/n
- Certification Name
- Certification Title
- Certification Date
- Certification Signature - Y/n

**Note** The following sub-table could be collapsed into the preceding sub-table if NRCA could define data required for the IPC as a subset of the data required for the Verification Monitoring Submission, with obvious additions for the IPC of Certification Name, Due Dates, etc The two sets of data are very similar

**This sub-table represents a superset of the data required for specific facility types Therefore,**

it is likely that no one facility would require each piece of data cited herein

**Sub-Table Verification Monitoring Submissions**

- S17 Case #
- Verification Monitoring Identification Number (VM ID #)
- Production Process Diagram Submitted? (Y/n)
- Number of Employees
- Number of Professionals
- Operating Mode - Hrs/day
- Operating Mode - Days/week
- Contact Person
- Materials Inventory System (Card, Computerized, Other)
- Frequency of Inventories
- Raw Materials/Hazardous Chemicals

**Sub-table Raw Materials/hazardous Chemicals**

- VM ID #
- Type (Raw Material or Hazardous Chemical [*Raw/nonhaz Raw/haz Nonhaz Haz?*])
- Material Name
- Storage Method
- Qty Stored
- Qty Used per Annum
- Water Source (Muni/well/surface/other)
- Water Amt/day
- Water Treated Before Use? (Y/n)
- Fuel Type
- Fuel Amt/day
- Wastes Produced

**Sub-table Wastes Produced**

- VM ID #
- waste Type (Solid, Liquid, Sludge)
- waste Name
- qty of Waste (*Per Day? Month?*)
- spillage, Rejected Materials, or Process Waste
- waste Hazard (Y/n)
- method of Disposal (Or Plan Submitted?)
- other Waste Mgmt Practices Used or Tried
- to Whom Disposed
- to Where Disposed
- Do You Have a Reduction of Waste Plan? (Y/n)
- Floor Conditions - Floor Materials
- Floors Curbed?
- What Is Done with Out-of-date Chemicals/raw Materials?

- Floor Conditions - Drainage System
- Floor Conditions - How Often Floors Cleaned
- What Is Done with Empty Drums, Containers?
- Valve Leaks Found? (Y/n)
- Storage Spills Found? (Y/n)
- Shipping Spills Found? (Y/n)
- Receiving Spills Found? (Y/n)
- Hoses Left Running Found? (Y/n)
- Is There a Safety Officer? (Y/n)
- Name of Safety Officer
- Name of Waste Mgmt Officer
- Title of Waste Mgmt Officer
- Name of Chem/materials Storage Officer
- Name of Maint Officer
- Is There a Spill Contingency Plan? (Y/n)
- Spill Contingency Plan Covers Raw Material Spill (Y/n)
- Spill Contingency Plan Covers Product Spill (Y/n)
- Spill Contingency Plan Covers Chemical Spill (Y/n)
- Spill Contingency Plan Submitted? (Y/n)
- Liquid Waster Water and Effluent Are (Select One)
  - Separated Between Haz and Nonhaz
  - Mixed Together
  - Discharged Directly into Sewer System
  - Discharged to Containers and Diluted Before Release
  - Discharged to Receiving System
  - Treated Before Discharge and Release
  - Other
- Solvent Based Wasted Separated from Water Based (Y/n)
- Air Emissions Method Type
  - Sub-table Air Emissions**
  - VM ID #
  - method of Emission
  - air Emission Type
- Control Devices
  - Sub-table Control Devices**
  - VM ID #
  - control Device Type
  - control Device Description
  - material Controlled
- Waste Oil Observed? (Y/n) (*Can this Come under Other Materials?*)
- Waste Oil Storage/disposal Method
- Does Company Reuse/recycle Water? (Y/n)
- Does Company Reuse/recycle Other Materials? (Y/n)

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- Does Company Sell Waste to Other Companies? (Y/n)
- Describe Other Recycling Methods Used
- Permit Required for Operations? (Y/n)
  - Sub-table      Permit Requirements**
  - VM ID #
  - permit Required
  - permit Requirements
- Describe What Would Assist Your Company's Ability to Reduce Waste
- Helpful Info Sources
  - Trade Journal (Y/n)
  - Govt Agencies (Y/n)
  - Consulting Firms (Y/n)
  - Academic or Research Institutions (Y/n)
  - Other (Describe)
- Receive Material Safety Data Sheets and Labels? (Y/n)
- Safety Sheets Available to Employees? (Y/n)
- Is Emergency Plan Submitted? (Y/n)
  - Covers Fire (Y/n)
  - Covers Spillage (Y/n)
  - Covers Hurricane (Y/n) (*Redundant*)
  - Covers Other (Describe)
- Employees Trained? (Y/n)
- Employees Properly Attired? (Y/n)
- MSDS and Chem Labels Readily Avail? (Y/n)
- Any Pollution Incidents/accidents at this Facility? (Y/n)
  - Action Taken (Describe)
  - Facility Has Eye Wash Station (Y/n)
  - Facility Has First Aid Kit (Y/n)
  - Facility Has Enclosed Lunchroom (Y/n)
  - Type of Ventilation Used
  - Is Most Maintenance Planned and Scheduled? (Y/n)
  - How Have Accidents and near Accidents Been Investigated? Describe
  - Changes from Accidents, Describe
  - Other Comments
  - Number of Sample Points
  - Point Locations
    - Sub-table      Point Locations**
    - VM ID #
    - location
    - visual Description of Effluent Quality
- Weather Conditions at Time of Sampling (*Can this Be Standardized?*)
- Name of Person Doing Verification



## Permit and Licencing

### Table Permit Cases

#### Header Information

- Permit Case Number (Perm Case #)
- (from **Regulated Entities Table**) Entity ID #
- (from **Properties Table**) Prop ID #
- (from **Contacts Table**) Contact ID #
- Owner/Tenancy Status

#### Sub-Table Screening Form

- Perm Case #
- Screening Form Identification Number (SF ID #)

#### Effects on Land Resources - Use 1 - 3 Scale

- Will There Be an Effect to Land Resources as a Result of a Physical Change to the Project Site? 1 2 3

#### ● Applicable Examples (All Y/N Except G )

- any Construction on Slopes of 15%
- construction in Areas Subject to Subsidence
- construction of Areas Greater than 5 Hectares
- construction That Will Continue for More than 1 Year
- solid Wastes Generated During Construction
- evacuation for Mining That Would Remove More than 2 Hectares of Land per Year
- other Effects (Describe)
- Will There Be an Effect to Any Unique Geological Features or Land Forms Found on the Site? 1 2 3
  - List Specific Land Forms

#### Effects on Water Resources

- Will Project Physically Affect Any Freshwater Body, Wetland or Areas Protected under the Beach Control Act? 1 2 3

#### Applicable Examples

- dredging or Filling in a Protected Stream
- 10% Increase or Decrease in the Surface Area
- construction of a Body of Water That Exceeds 4 Hectares
- project That Results in Construction
- other Effects (Describe)
- Will Project Affect Surface or Groundwater Quality or Qty? 1 2 3

- Project will result in exceeding water quality standards of a protected
- Project will discharge lower quality water
- Project will affect present and/or future public water supply
- Construction on land where the depth to the water table is less than 1 meter
- Project will require the storage of haz waste on- or off-site
- Project requires water supply from wells with
- Liquid effluent will be conveyed off the site
- Project requiring a facility that would use wastewater in excess of 20K gallons per day
- Project will likely cause siltation or other discharge into an existing body of water
- Other effects
- Will project after drainage flow, patterns, or surface water runoff?      1      2      3
  - Project will impede flood water flows and cause off-site flooding
  - Project is likely to cause substantial erosion
  - Project occurs in flood-prone areas
  - Project will create an impervious surface greater than 1/4 hectare
  - Other effects

**Effects on Air Quality Including Noise and Other Issues**

- Will project affect air quality?      1      2      3
  - Project will result in exceeding air quality standards
  - New source will emit more than 100 tons of pollutant
  - Project will increase vehicle trips by 1000 or more
  - Project will result in the incineration of more than 1 tone of refuse per hour
  - Other effects
- Will there be objectionable noise, odor, glare, vibration, or electrical disturbance as a result of this project?      1      2      3
  - Blasting within 500 m of a residence
  - Project will produce operating noise exceeding the local ambient
  - Project will remove natural barriers that act as noise screens
  - Odors will occur routinely (more than 1 hour per day)
  - Other effects

**Effects on Ecological Resources**

- Will project affect any Jamaican endemic or protected plant or animal species or species protected by international convention?      1      2      3
  - Reduction of one or more endemic species residing or using
  - Removal of any portion of a critical or significant endemic habitat
  - Other effects
- Will project substantially affect species that are not endemic or protected?
  - 1      2      3
  - Project would substantially interfere with resident or migratory fish or wildlife

species

- Project requires the removal of more than 10% of mature
- Project will result in the introduction of exotic plants or animals
- Application of pesticide or herbicide more than twice a year
- Other effects

#### **Effects on Visual Resources**

- Will the project affect views, vistas, or the visual character of the neighborhood or community? 1 2 3
  - An incompatible visual effect caused by the introduction of new materials
  - Project will result in the elimination or major screening of scenic views
  - Other effects

#### **Effects on Historic Resources**

- Will the project affect any site or structure of historic, prehistoric, or paleontological importance? 1 2 3
  - Project occurring wholly or partially within or contiguous to any
  - Any impact to archaeological site located within the project site
  - Other effects

#### **Effect on Open Space and Recreation**

- Will the project affect the quantity and quality of existing or future open spaces or recreational opportunities? 1 2 3
  - The permanent foreclosure of a future recreational opportunity
  - A major reduction of an open space important to the community
  - Other effects

#### **Effects on Energy**

- Will the project affect the community's sources of fuel or energy supply? 1 2 3
  - Project causing greater than 5% increase in any form of energy used in municipality
  - Project requiring the creation or extension of an energy transmission or supply system, e g , transmission line
  - Other effects

#### **Effects on Transportation**

- Will there be an effect to existing transportation systems? 1 2 3
  - Alteration of present patters of movement of people and/or goods
  - Project will result in severe traffic problems
  - Other effects

#### **Effects on Human Health**

- Will the project affect public health and safety?    1       2       3
  - Project will cause a risk of explosion or release of hazardous substances
  - Project will result in the need for additional health care facilities
  - Project will result in generation of "hazardous waste"
  - Other effects

**Effects on Growth and Character of Community or Neighborhood**

- Will the project affect the character of the community or neighborhood?
  - 1       2       3
    - The resident population in the vicinity of the project is likely to grow by more than 5%
    - The municipal budgets for capital expenditures or operating services will increase by more than 5% per year
    - Will involve any permanent facility of a non-agricultural use in an agricultural district
    - The project will replace or eliminate existing facilities, structures, or areas
    - Development will induce an influx of a particular age group with special needs
    - Project will require the relocation of residents or businesses
    - Other effects
- Is there public controversy concerning the project?       1       2       3
  - Objection to the project from within the community
  - Either government, citizens of adjacent communities, or NGOs have expressed
  - Other effects

● Large Effects Considered Important

**Large Effect Subtable**

- SF ID #
- Effect
- Description
- Reason for importance
- Possible mitigation

- Does project have adverse effect on the environment, and EIA is required? (Y/N)
- Preparer's Name
- Preparer's Title
- Date
- Preparer's Signature on Original? (Y/N)

**Sub-table    Permit Application**

**General Information**

- Perm Case #
- Permit Application Identification Number (PA ID #)
- Company Registration Number
- Company registered office address
- CEO Name
- Environmental Manager Name
- Description of category of enterprise, etc , for which approval is sought
- Local authority name
- Attached documents list

**Sub-table      Attached documents**

- PA ID #
- Document name

**Statement by Applicant**

- Applicant Name
- Applicant Title
- Signature present? (Y/N)
- Date of application

**Official Use**

- PIF attached? (Y/N)
- Other info attached
- Application fee enclosed? (Y/N)
- Fee amount
- Comments
- Assessment Officer Name
- Date

**Sub-table      Project Information Form (PIF)**

**Header Information**

- Perm ID #
- PIF Identification Number (PIF ID #)
- Supporting documents attached? (Y/N)

**Project Type**

- Project Type (Check all that apply)
  - Power generation plants
  - Electrical transmission lines and substations greater than 69kV
  - Pipelines and conveyors, including underground cables, gas lines and other such infrastructure with diameter of 15 cm and over
  - Port and harbour developments

- Development projects
  - Subdivisions of 10 or more lots
  - Housing projects of 10 houses or more
  - Hotel/resort complex of more than 12 rooms
  - Airports including runway expansion greater than 20%
  - Office complex greater than 5000 square metres
- Ecotourism projects
- Water treatment facilities including water supply, desalination
- Mining and mineral processing
  - Bauxite
  - Minerals - including aggregate, construction and industrial minerals
  - Peat
  - Sand
  - Metallic
  - Non-metallic
- Metal processing
  - Non-ferrous metals
  - Ferrous metals
  - Foundry operations, metal plating
- Industrial projects
  - Chemical plants
  - Pulp, paper, and wood processing
  - Petroleum production, refinery, storage and stockpiling
  - Food processing plants
  - Fish and meat processing plants
  - Tanneries
  - Detergents manufacturing, including manufacturing of soap
  - Distillery, brewing and fermenting facilities
  - Cement and lime products
  - Manufacture of textiles
  - Manufacturing of pesticides or other hazardous or toxic substances
  - Paint manufacture
  - Boxing plants
  - Manufacture of containers and packaging materials including cans
  - Manufacturing of edible fats, oils, and associated processes
  - Citrus, coffee, cocoa, coconut, sugarcane processing factories
  - Solar salt production
- Construction of new highways, arterial roads and major road improvement projects
- River basin development projects
- Irrigation or water management projects including improvements
- Land reclamation and drainage projects
- Watershed development and soil conservation projects including river training
- Modification, clearance of reclamation of wetlands

- Solid waste treatment and disposal facilities
- Processing of agricultural waste
- Cemeteries and crematoria
- Introduction of species of flora, fauna and genetic material
- Slaughterhouse and abattoir
- Felling of trees and clearing of land of 10 hectares or over for agricultural developments
- Clear cutting of forested areas of 3 hectares and over on slopes greater than 25 degrees
- Other - describe

### Site Description

- Land character - uniform slope or uneven/rolling/irregular
- Approx %age of proposed site with slopes 0-10%, 10-25%, 25% and up
- Predominant soil type upland plateaux soils, alluvial soils, highland soils
- Are there bedrock outcroppings on project site? (Y/N)
- Are there any karst or limestone, i e , sinkhole conditions on site? (Y/N)
- Is project located on flood plain, coastal zone, or water catchment area, none?
- If "None" to 27, describe
- Site is below sea level, at sea level, above the 10 m contour line
- Water wells on or adjacent to site (Y/N)
- Rivers, streams, or drainages within or adjacent to site (Y/N)
- Lakes, ponds or wetland areas within or contiguous to the project site (Y/N)
- Present site land use urban, suburban, rural, industrial, commercial, agriculture, forest, other
- Describe other from #33
- Project site presently used by the community or neighbourhood as an open space or recreational area (Y/N)

### Biological Resources

#### Flora

- Ecosystems and dominant types
  - Sub-table Ecosystems**
  - PIF ID #
  - Ecosystem type
  - Dominant type
- Watershed name project is in
- Exotic species on site (Y/N)
- Scientifically or aesthetically interesting specimens on site (including Lignum Vitae, Blue Mahoe, Orchids, Ferns, Mangroves, Sea grasses, Royal palms, Bromeliads, Feeder trees for birds)

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- Endemic species (Y/N)
- Exotic species to be introduced (Y/N)
- Plant Species / specimens present
  - Sub-table      Plant Species / Specimens**
  - PIF ID #
  - Present / To be introduced
  - Exotic / endemic / scientific / aesthetic
  - Scientific name
  - Common name
- Degree of disturbance of the plant community   pristine, semi-degraded, totally degraded

**Fauna**

- Endangered animals species in the area of the project (Y/N)
- Animal Species present
  - Sub-table      Animal species**
  - PIF ID #
  - Endangered (Y/N)
  - Vertebrate/invertebrate
  - Classification   mammal, bird, fish, amphibian, reptile, insect, coral, sponge, crustacean, other
  - Scientific name
  - Common name
- Habitat type
  - Sub-table      Habitat**
  - PIF ID #
  - Habitat type
  - Dominant type
  - River/stream name
  - Pond/lake name
- Commercially valuable species present in area? (Y/N)

**Protected Areas**

- Project located in an existing Protected Area? (Y/N)
- Name of Protected Area

**Project Description**

**Physical Dimensions**

- Total contiguous area owned by project sponsor, in hectares
- Project area developed initially, in hectares
- Project area ultimately developed, in hectares
- Project area to remain undeveloped, in hectares

### Operational aspects of project

- Sewage effluent discharge during construction and/or operation? (Y/N)
- Trade effluent discharge during construction and/or operation? (Y/N)

### Indicate likely effects of project on

- Land resources
- Water resources
- Air quality (including noise)
- Ecological resources
- Visual resources
- Open space and recreation
- Growth and character of community
- Energy
- Transportation
- Human health
- Will there be air emissions (including fugitive dust) produced during construction and operation? (Y/N)
- Will there be poisonous, noxious, or polluting matter discharged during construction and operation? (Y/N)

#### Sub-table Emissions/discharges

- PIF ID #
- Emission or discharge
- Type
- Source
- Will blasting occur during construction? (Y/N)
- Will project routinely produce odours (more than one hour per day)? (Y/N)
- Total water usage per day in litres/day
- Source surface, underground, other
- If water supply is from wells, indicate pumping capacity in litres/minute
- Is surface or underground liquid waste involved? (Y/N)
- Type of waste
- If surface disposal, name receiving water body
- Will the project use herbicides or pesticides? (Y/N)
- How many hectares of vegetation to be removed from site?
- Will project involve construction of access roads? (Y/N)

- Surface area of existing water bodies increase or decrease? (Y/N)

**Sub-table Water body change**

- PIF ID #
- Water body name
- Current size
- Final size
- Change
- Will project require relocation of people? (Y/N)
- Will project require relocation of houses? (Y/N)
- Will project require relocation of facilities? (Y/N)

**Sub-table Relocation details (*how should this be expanded?*)**

- PIF ID #
  - Object relocated (people, houses, facilities)
  - Number to be relocated
  - From where
  - To where
- Does project involve disposal of solid waste? (Y/N)
- Will existing municipal solid waste facility(ies) be used? (Y/N)
- Location

**For waste treatment and disposal facilities**

- Nature of waste disposal facility Landfill, transfer station [static compaction, pulverization, baling], treatment plant involving [pulverization, composting, incineration, chemical treatment, other]
- Estimated maximum quantities of general waste of the following description delivered or to be delivered daily at the facility

**Sub-table Waste Quantities**

- PIF ID #
- Waste Form (liquid, sludge, solid)
- Type of waste (select from below)
  - Domestic and commercial
    - untreated
    - pulverized or compost
    - baled
    - incinerator residues
  - Medical, surgical and veterinary wastes
  - Hazardous wastes
  - Non-hazardous industrial wastes
    - potentially combustible substances
    - inert and non-flammable substances
  - Wastes from construction industry
  - Old cars, vehicles, and trailers
  - Sewage, sludge

SS

Mine and quarry waste  
Farm waste

- Qty in tonnes

- Current or anticipated maximum rate of use of the facility, tonnes per day of landfill sites
- Current or anticipated maximum rate of use of the facility, tonnes per hour for treatment plant
- Current capacity of treatment plant in millions litres per day
- Total design capacity in millions litres per day
- Proposed operation capacity in million litres per day

### **Project approvals**

- Are there any other GOJ licences or approvals required? (Y/N)
- Are there any other previous licences or permits granted in respect of this project? (Y/N)
- Are there any town or local approvals?
- List approvals

**Sub-table Approvals (any other information to be captured, here?)**

- PIF ID #
- Approval required
- Responsible body or department
- Government entity (GOJ, town, etc )
- Pending/granted/denied/other
- Date
- Project title
- Reference number

### **Preparer Information**

- Preparer's name
- Preparer's title
- Agency represented
- Date
- Signature on original? (Y/N)
- Date Received at NRCA
- Required Response Date for EIA (calculated field)

### **EIA Information**

- Is EIA Required? (Y/N)
- Date EIA Notice Sent
- EIA Preparer

- Terms of Reference for EIA (if required)
  - Sub-table      Terms of Reference (*needs more definition*)**
    - PIF ID #
    - Term of Reference
    - Document(s) related to this TOR
    - TOR Approved? (Y/N)
- NRCA Staff Responsible for EIA decision and TOR
  
- EIA Response - Satisfactory? (Y/N)
- Date Comments on EIA due to Applicant
- Date Comments on EIA Sent to Applicant and EIA Preparers
- Date Applicant Responds to EIA Comments
- Date Submission to TCA Due
- Date Submission to TCA Sent

**Public Presentation**

- Public Presentation Required? (Y/N)
- Date Public Presentation Due By
- Date Public Presentation Actually Made
- Public Concerns
  - Sub-table      List of Public Concerns**
    - PIF ID #
    - Description of Concern
    - Name of Individual Presenting Concern
    - Number of individuals agreeing with concern
    - Applicant response to concern

**Final TCA Review**

- Date Final TCA Recommendation Due
- Date Final TCA Recommendation Made
- Decision      Permit Granted / Permit Denied
- Date Decision Sent

## Table Licence Cases

### Licence Application

#### Header Information

- Licence Case Number (LC #)
- (from **Regulated Entities Table**) Entity ID #
- (from **Properties Table**) Prop ID #
- (from **Contacts Table**) Contact ID #
- Owner/Tenancy Status
- Company Registration Number
- Company registered office address
- Environmental Manager Name
- Description of category of enterprise, etc , for which approval is sought
- Local authority name
- Attached documents list

#### Sub-table Attached documents

- LC #
- Document name

#### Application Type

- Sewage - new or renewal
- Trade effluent - new or renewal
- Modification of existing facility
- Construction/reconstruction/alteration of work

#### Detailed description of effluent generating source

- Plant facilities
- #### Sub-table Plant Facilities
- LC #
  - Facility type
  - Outfall location
  - Production amount
  - Drawings, layouts, flow diagrams attached? (Y/N)
  - Process description

- Other permits, approvals, or licences granted

#### Sub-table Other Permits

- LC #
- Permit/approval/licence type
- Government entity issuing
- Date of issue
- Date of expiry
- Object permitted/approval/licenced

### Process Information

- All toxic substances , chemicals, used or manufactured
  - Sub-table Toxic substances***(what other information should be captured, here?)*
    - LC #
    - Substance
    - Toxic/non-toxic
- Intermediate and final products
  - Sub-table Products** *(what other information should be captured, here?)*
    - LC #
    - Product
    - Intermediate/final
    - Where stored
    - Qty kept in storage
- Water consumed in litres per day
- Source of water - NWC, WRA, other
- Source of energy, other than sunlight
- Qty of energy consumed *(may wish to provide standard metrics)*

### Waste/Trade Effluent Information - Treatment and Disposal

- Nature and composition of trade effluent
    - Sub-table Trade effluent**
      - LC #
      - Substance
      - Form (liquid, sludge, solid)
      - Current monitoring/sampling result - volume
  - Apparatus used to measure and record nature, composition, and volume of waste
  - Maximum volume of trade effluent proposed to be discharged on any one day
  - Proposed rate at which trade effluent to be discharged
  - Nature of waste water treatment facility (describe)
  - Treatment level to be provided
  - Outfall information - configuration
  - Outfall information - construction materials
  - Length from shore, in metres
  - Diameter of outfall, in cm
  - Elevation of discharge invert, in metres below mean sea level
  - Depth of receiving water body at discharge point, in metres below mean sea level
- 
- Land Use Requirements within one kilometre of the site
    - Sub-table Land Use Requirements**
      - LC #
      - Object required (well, surface water, etc )

- Location
- Soil information
- Hydrogeologic survey providing data necessary to evaluate attached? (Y/N)

**Information for sewage treatment facilities**

- Population served - current year
- Population served - design year projection
- Description of area to be served - current year
- Description of area to be served - design year
- Land use of area to be served - current year
- Land use of area to be served - design year
- Map of area attached - current year (Y/N)
- Map of area attached - design year (Y/N)
- Attached - assessment of the potential environmental impact of the project (Y/N)
- Attached - Operation & control strategies including preventive maintenance (Y/N)

**Plan of facility shows**

- Layout and construction of the facility (Y/N)
- Storage area for liquid, sludge, and solid waste (Y/N)
- Provision being made for the parking, loading, and unloading of vehicles (Y/N)

**Pollution Control and Waste Management Information**

- Pollution monitoring programme description
  - Sub-table Pollution monitoring programme**
  - LC #
  - Monitoring device
  - Location of monitoring point
  - Parameter analyzed
  - Frequency of sampling
  - Personnel involved
- Pollution abatement/monitoring equipment
  - Sub-table Pollution monitoring equipment**
  - LC #
  - Device
  - Year installed
  - Capacity
- Pollution prevention or abatement technologies applied
  - Sub-table Pollution prevention/abatement technologies**
  - LC #
  - Technology applied
  - Description

- Safety, contingency, and emergency response measures

**Sub-table      Response measures**

- LC #
- Measure name
- Measure responds to
- Description of response

- Proposed or implemented conservation measures, including wastewater reuse and recycling

**Sub-table      Conservation measures**

- LC #
- Measure name
- Measure conserves
- Description of measure

**Statement by Applicant**

- Signature affixed? (Y/N)
- Name of applicant
- Title of applicant
- Date

**Licence Application Review**

- Is Facility New? (Y/N)

**For Existing Facilities (New facility applications are subsumed under permit process)**

- Is Additional Information Required? (Y/N)
- Date Request for Additional Information Required to be Sent
- Date Request for Additional Information Sent
- Additional Information Requested

**Sub-table      Additional Information (*Need greater definition*)**

- LC ID #
- Additional Information Item
- Date Requested

- Additional Information Satisfactory? (Y/N)

- Date Required to Submit to TCA
- Date Submitted to TCA

- Date by which TCA must make final recommendation
- Date TCA makes recommendation
- Decision Licence Granted / Licence Denied

Note As of July 31, 1998, there were no procedures for monitoring and verification of Licences after the granting of licences. A recommendation solution to this requirements is to use the Section 17 Monitoring/Verification Submission tables, with necessary modifications, for monitoring and verification of licences. If this requires some modification of the Section 17 data structures, that would still be preferable to creating all new data structures.

## NRCA Database Tables List

Table	Regulated Entities
Table	Owners
Table	Contacts
Table	Properties
Sub-table	Props/Owners
Sub-Table	Adjacent Property Owners
Table	Trade Effluent Standards
Table	Sewage Effluent Standards
Table	Interim Ambient Air Quality Standards
Table	Recommended Stack Emission Limits
Table	Beach Licence Cases
Sub-table	Enterprises
Sub-table	Property Change
Sub-table	Roads/Rights of Way
Sub-table	Encroachments
Sub-table	Conditions of Approval
Sub-table	Compliance Reports
Sub-table	Compliance Exceptions
Table	Section 17 Cases
Sub-Table	Information on Pollution Control
Sub-Table	Products
Sub-table	Raw Materials
Sub-table	Materials/Chemicals
Sub-table	Effluent Description
Sub-table	Sewage Effluent Description
Sub-table	Air Emissions
Sub-Table	Volatile Organic Compounds
Sub-Table	Verification Monitoring Submissions
Sub-table	Raw Materials/hazardous
Sub-table	Wastes Produced

Sub-table Air Emissions  
 Sub-table Control Devices  
 Sub-table Permit Requirements  
 Sub-table Point Locations

**Table Permit Cases**

Sub-Table Screening Form  
     Large Effect Subtable  
 Sub-table Permit Application  
     Sub-table Attached documents  
 Sub-table Project Information Form (PIF)  
     Sub-table Ecosystems  
     Sub-table Plant Species / Specimens  
     Sub-table Animal species  
     Sub-table Habitat  
     Sub-table Emissions/discharges  
     Sub-table Water body change  
     Sub-table Relocation details (*how should this be expanded?*)  
     Sub-table Waste Quantities  
     Sub-table Approvals (*any other information to be captured, here?*)  
     Sub-table Terms of Reference (*needs more definition*)  
     Sub-table List of Public Concerns

**Table Licence Cases**

Sub-table Attached documents  
 Sub-table Plant Facilities  
 Sub-table Other Permits  
 Sub-table Toxic substances(*what other information should be captured, here?*)  
 Sub-table Products (*what other information should be captured, here?*)  
 Sub-table Trade effluent  
 Sub-table Land Use Requirements  
 Sub-table Pollution monitoring programme  
 Sub-table Pollution monitoring equipment  
 Sub-table Pollution prevention/abatement technologies  
 Sub-table Response measures  
 Sub-table Conservation measures  
 Sub-table Additional Information (*Need greater definition*)

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