



Australian Government
National Offshore Petroleum
Titles Administrator



Australian Government
Geoscience Australia



Government of Western Australia
Department of Mines and Petroleum

National Offshore Petroleum Data and Core Repository— Commonwealth Offshore Petroleum Sample Submission Standards



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About offshore petroleum sample management

From 1 January 2012, the National Offshore Petroleum Titles Administrator (NOPTA) assumed responsibility for a range of regulatory and administrative functions for Commonwealth waters that had previously been the responsibility of the 'Designated Authorities'.

In early 2012, NOPTA conducted a review of offshore physical data management to identify the most cost effective and efficient option for receiving, storing and providing access to offshore petroleum mining samples (cores, cuttings, slides etc). The review was conducted in collaboration with Geoscience Australia (GA) and in consultation with state/NT data managers, the Australian Petroleum Production and Exploration Association (APPEA) and petroleum titleholders.

From this review the National Offshore Petroleum Data and Core Repository (NOPDCR) was established – operated in collaboration between NOPTA, GA and the WA Department of Mines and Petroleum (DMP).

The NOPDCR ensures that GA's Canberra Core Store continues to be the storage location for the 1/3 conventional core, one set of cuttings collected and all fluid or gas samples required to be submitted under the OPGGSA (RMA) Regulations 2011.

DMP's Carlisle Core Store in Perth is now the storage and sampling location for the 2/3 conventional core, one set of cuttings and side wall cores for all offshore jurisdictions.

Palynological, paleontological and petrological slides and residues are currently managed by the DMP and archived at Mineral House in East Perth.

This document aims to outline a standard process that will assist those involved in the submission of petroleum mining samples, to help titleholders meet submission requirements under current and previous offshore regulations and to ensure samples are archived in the best way for future generations.



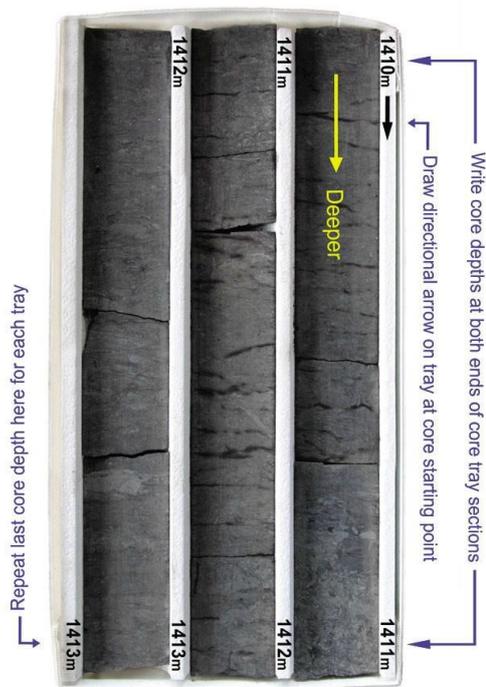


Figure 2 Correct core direction and layout in corrugated plastic trays



Figure 3 Well/tray information on both tray and lid

Common mistakes to avoid when processing petroleum drillcore into trays

Some common mistakes include:

- not using drillcore end caps,
- extra heavy trays,
- not leaving finger space, for lifting metal trays,
- not marking preserved, missing and sampled core sections,
- poor matching of core and tray sizes,
- core sitting too low in core trays.

Use of drillcore end caps

If the core is slabbed in its barrel, plastic or rubber end caps should be secured at both ends to prevent core loss. The cap should be cut as the core is slabbed and should sit flush with the slabbed core surface.

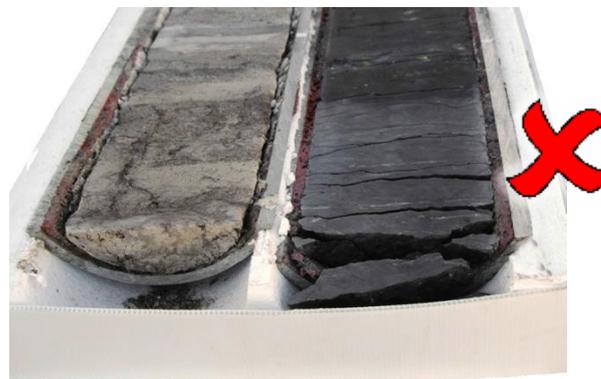


Figure 4 Core breaking away from main slab due to no end cap



Figure 5 Tight fitting plastic end caps with cap cut to fit core barrel

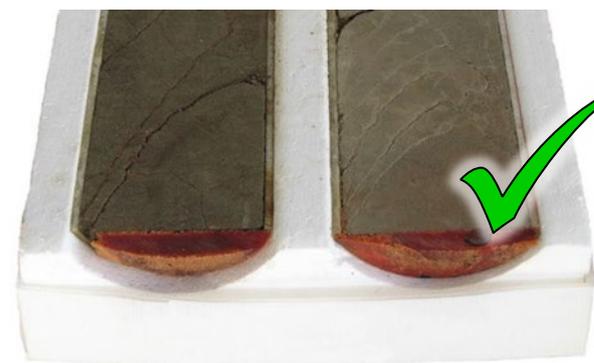


Figure 6 Rubber end caps

Avoid heavy trays

Two-third cores of four-inch and five-inch core diameters should be processed in two-row trays to help reduce manual handling issues. Individual core tray weights should not exceed 45 kilograms where practical. Where two-row trays will be above this weight, core should be processed in single-row trays.



Figure 7 Heavy three-row four-inch and five-inch two-third core



Figure 8 Two-row four-inch and five-inch two-third core

Allow space for fingers in metal trays

For metal trays where the core height is close to the tray lip, a 25 mm space should be left at each section end of core to allow for finger room when lifting trays.



Figure 9 No finger space

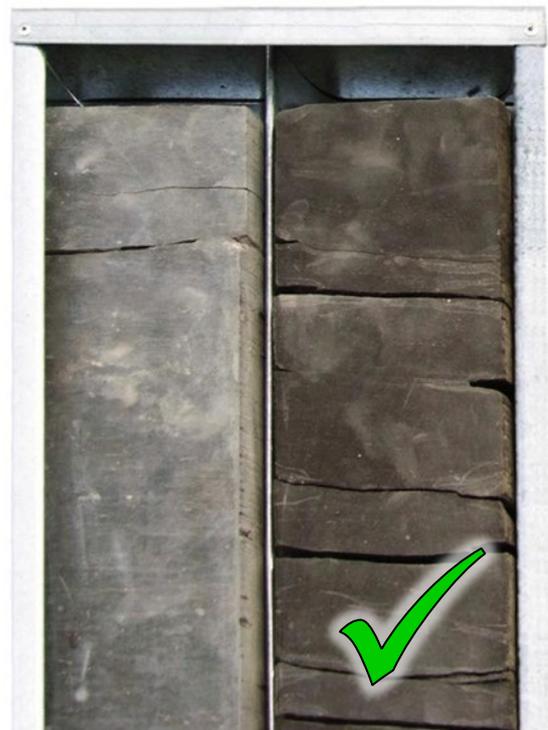


Figure 10 With good finger space

Mark preserved, missing, and sampled core sections

Under the Regulations, titleholders must apply to NOPTA for a submission variation prior to undertaking core preservation (within sample confidentiality period). Requests to vary core submissions are assessed individually and submission conditions may apply. Further information on the process of applying for a submission variation is provided on page 15.

Any preserved, sampled, or missing core must have markers in place at the location of the missing core. The marker must note the core as preserved, sampled, or missing, as well as including the depth ranges for that core as demonstrated in figure 11 below.

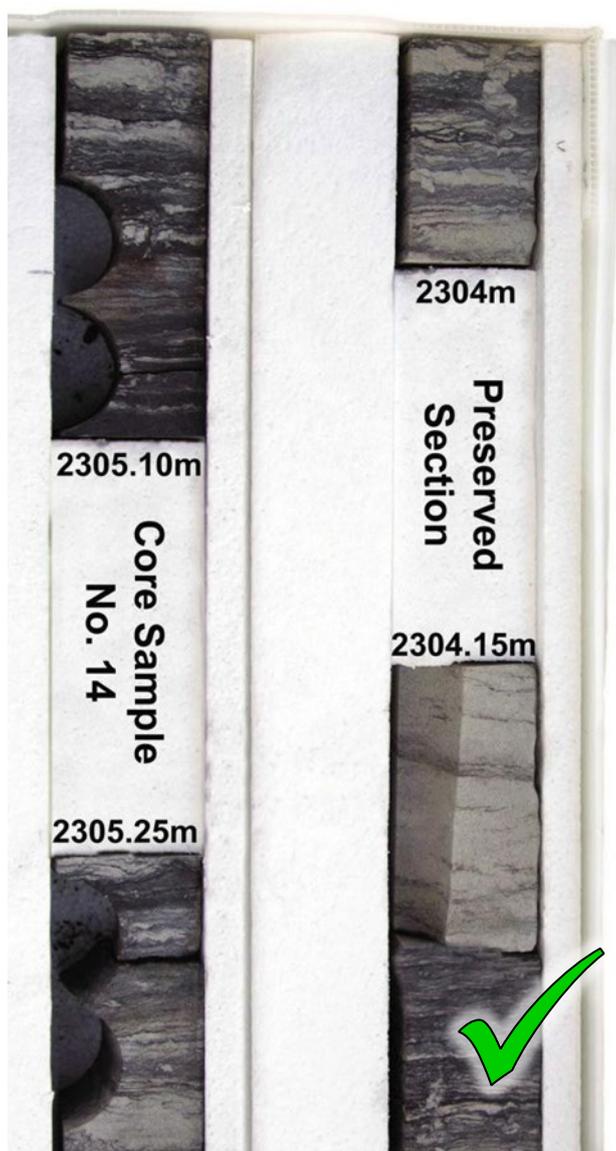


Figure 11 Core markers

Use section inserts in trays

The use of section inserts in trays is recommended to prevent the movement of smaller lengths of core within the tray sections when handling and during the transport of core.

Styrofoam inserts are preferred, but if not available, bubble wrap or rolled newspaper can be used to stop the movement of smaller core sections.



Figure 12 Section inserts

Match the core and tray sizes

Metal and corrugated plastic core trays must be the correct dimensions to house the core. The core and barrel (if applicable) must sit securely within each individual tray section/divider. The slabbed surface of core must be clearly visible; it should not sit too low in the tray (Fig. 15) or have areas of core obscured by tray edges or lips. The core height must not be above the lip of the tray top, nor be able to rock from side to side excessively in tray sections.

The core height in the tray ideally should be close to the level of the tray lip.

When the sides of the metal tray are considerably higher than the core height, viewing is made difficult.



Figure 15 Core sitting too low in tray

Cardboard boxes

The NOPDCR discourages the use of cardboard boxes for processing because:

- long term storage of cardboard is susceptible to damage from oil and insects.
- cardboard boxes are more susceptible to crushing when stacked.
- regular handling of boxes leads to box deterioration, written well information on a cardboard box is more likely to be lost with regular handling.
- cardboard boxes are not made to fit the core; often the core is either packed too tightly or too loosely.
- viewing core in cardboard boxes can be difficult for geologists, often the core has to be removed from the box, which can lead to increased core damage.



Figure 13 Undersize core for tray sections

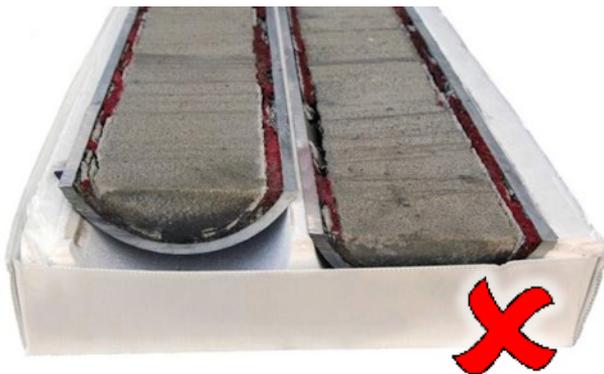


Figure 14 Oversize core for tray sections

Ditch cuttings

Ditch cuttings are due for submission prior to the day six months after rig release date.

Two sets of washed and dried cuttings sample at 200 grams dry weight, per sample interval are required for submission; one set to be submitted to both the GA (Canberra) and DMP (Carlisle) NOPDCR repositories.

Samples should be packaged in metal plastic or plastic zip-locked bags and presented in the following format:

- Bags must be marked with indelible ink displaying the operators (company) name, a full non abbreviated well name, set number and from and to depth range in metres. Note that single depths on bags can cause confusion of the sample interval contained within.
- For metal plastic bags, staple an aluminium tag firmly impressed with a ball point pen displaying the submitting operators (company) name, a full non abbreviated well name, set number and depth range in meters.
- For plastic zip-locked bags, place inside an aluminum tag firmly impressed with a ball point pen displaying the submitting operators (company) name, a full non abbreviated well name, set number and depth range in meters.

Aluminium tag firmly impressed with a ballpoint pen stapled to metalised bag



Aluminium tag firmly impressed with a ballpoint pen inside plastic bag

Figure 16 Correctly labelled ditch cuttings sample bags

Sample bags should be contained in cardboard boxes with samples vertically positioned in the box. For archiving purposes, the preferred sample box dimensions should be 90x135x380cm or approximate.

The front of sample boxes should be clearly labelled with the submitting operators (company) name, a full non-abbreviated well name, set number and depth range in meters.

Each sample box should display a box number and maximum box number in the submission, i.e. box 9/10.

Sample boxes are best transported in larger securely packaged cardboard boxes, displaying the submitting operators (company) name, a full non abbreviated well name, set number and depth range in meters.

Each transport box should also display a box number and maximum box number in the submission, i.e. box 1/2.



Figure 17 Correctly labelled smaller sample boxes and larger transport boxes

A sampling summary must be provided with the sample shipment and detail the following:

- The depth range of samples and intervals of sample collection.
- All non-recovered and missing sample ranges must be noted with a reason for sample omission, e.g. high ROP, loss of circulation.
- A breakdown of the number of large transport boxes and sample boxes and the depth ranges contained within.

Sidewall core

Sidewall core should be submitted to the DMP Carlisle repository prior to the day 18 months after rig release date.

As specified under the Regulations, **all** sidewall core material collected is to be submitted.

Where it is known that not all material collected cannot be submitted, Titleholders are to apply for a submission variation from NOPTA (within the sample confidentiality period). Further information on the process of applying for a submission variation is provided on page 15.

Samples should be packaged and presented in the following format:

- Sidewall core material should be wrapped in aluminum foil and contained in glass jars sealed with a lid.
- Jars should be labelled with indelible ink displaying the operators (company) name, a full non-abbreviated well name, a sidewall core number and depth in metres.



Figure 18 Side wall core in aluminium foil



Figure 19 Correctly labelled side wall core jars with lids

- Foam packing should be inserted in boxes to secure bottles from movement during transport.

A sampling summary must be provided with the sample shipment and detail the following:

- The depth and depth range of samples collected and the corresponding sidewall core numbers.
- Any missed or non-recovered/lost samples.
- A breakdown of the number of large transport boxes and sample boxes and the depths contained within.

Gaseous hydrocarbons and fluid samples

For fluids collected during the drilling of a well, sample submission is due prior to the day six months after the rig release date.

If the fluid sample is collected during a test on a completed well, submissions are expected as soon as practicable after collection of the sample.

Gas samples are due as soon as practicable after completion of the test during which the sample is collected.

Crude oil, condensate and natural gasses recovered during exploration work programs are to be submitted to the NOPDCR, GA repository (ACT). Only samples acquired from wireline, drill stem, production tests or separator and stock tanks are required for submission. Manifold and well head samples, such as IsoTubes and IsoJars are currently not required for submission.

Gas and fluid samples must be representative of the reservoir and not the remaining fraction left in the cylinder after tests (PVT or other) have been performed.

Gas samples must be stored in appropriate stainless steel gas cylinders that are new, clean and evacuated prior to filling. Cylinders must be equipped with at least one on/off valve.

A total sample volume of 300 cc must be submitted as either one cylinder of 300 cc internal volume or two cylinders of 150 cc internal volume.



Figure 20 Gas cylinder: 150cc internal volume

Cylinders must be labelled with indelible ink and display:

- the operator (company) name,
- a non-abbreviated well name,
- sample number,
- temperature, date and time of sample capture and
- the pressure in PSI and volume of sample contained.

Samples obtained through wireline should be submitted at reservoir pressure where possible. Drill stem and pressure test surface samples should be submitted at sampling pressure.

Note: GA gas cylinders typically use a female 1/4" NPT inline swage lock gas tight fitting, therefore a male 1/4" NPT swage lock gas tight adaptor is used to connect to the parent cylinder.

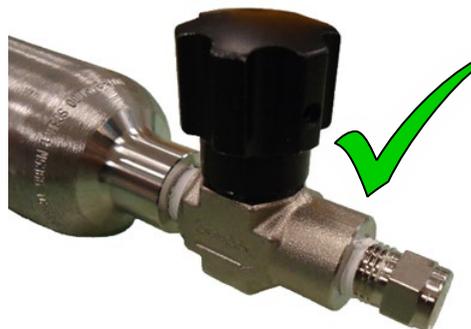


Figure 21 1/4" inline swage lock valve

The GA Laboratory typically uses cylinders rated to 1800 and 5000 psi, these can have 3000 psi valves or 5000 psi valves attached (according to requirement). This means that they would be able to hold a gas sample of about 1800psi, 3000 psi and 5000 psi or whichever is the lowest working pressure rated component; cylinder or valve.

A sampling summary must be provided with the sample shipment and detail the following:

- The depth range of samples and intervals of sample collection.
- Sample number, temperature, date and time of sample capture and
- the pressure in PSI and volume of sample contained.

Liquid hydrocarbons recovered from a drill stem test or production test must be submitted at atmospheric pressure in a 1 litre screw top Pyrex/Schott glass bottle. 1 litre of liquid hydrocarbons is required.



Figure 22 1 litre screw-top Pyrex/Schott glass bottles

Thin sections

Palynological slides and residues, Paleontological material and Petrological slides are due prior to the day 18 months after rig release date.

Slides should be submitted in plastic hard cases (fig. 25) with slide slots and an index sheet within the box specifying a slide number, depth and description.

All slides are to be positioned in holding slots. Bubble wrap should be placed on top of slides with tape applied to secure slides in place and eliminate movement during transport. Adhesive tapes should not be applied directly to the slides.

Slide boxes and residues are to be wrapped with bubble wrap or foam packing material and securely sealed in cardboard boxes or cartons. Boxes are to be clearly labelled with a well name and a description of what is being submitted. To preserve slides, fragile stickers or appropriate labelling should be attached to transport boxes.



Figure 23 Example of unacceptable sample containers

Transport boxes are to be accompanied by a transmittal and manifest of the submission details.

Attachment A. Thin section transmittal should be completed and accompany the submission of thin sections and residues.



Figure 24 Thin section case with slide dividers and index sheet

Samples submission addresses

Sample type	Submission address	Additional information
1/3rd conventional core, ditch cuttings, hydrocarbon samples (fluids and gases)	Manager National Offshore Petroleum Data & Core Repository Geoscience Australia Cnr Jerrabomberra Ave and Hindmarsh Dr	Advise ausgeodata@ga.gov.au prior to submission and CC data@nopta.gov.au .
2/3rd conventional core, ditch cuttings, side wall core	Manager National Offshore Petroleum Data & Core Repository Perth Core Library, 37 Harris Street CARLISLE WA 6101	Advise petroleumcore.submissions@dmp.wa.gov.au prior to submission and CC data@nopta.gov.au .
Thin sections, slides and residues	Manager Petroleum Exploration Information Geological Survey Department of Mines and Petroleum 100 Plain Street EAST PERTH WA 6004	Advise ausgeodata@ga.gov.au and data@nopta.gov.au .

Table 1 Outline of sample distribution to the NOPDCR

How to apply for submission variations

A variation to the submission requirements for offshore petroleum samples may be authorised by the Titles

Administrator under part 7 of the Regulations.

Variations that may be considered include:

- extended submission timing,
- non-standard submissions,
- non-standard sample size or quantity,
- requests to retain, preserve or resinate core.

A request to vary submission requirements should be directed to data@nopta.gov.au prior to sample submission and include the following information:

- title number(s),
- activity details, such as well name,
- the relevant regulation in which the request is being made (which submission requirement),
- the relevant submission type, such as 1/3 core or drill cuttings,

- the reason for this request,
- requested alternative, for example new submission date or quantity,
- any foreseeable impact the request may have on the availability of the sample for public release.

Where an approval to vary the submission is granted, the submission variation approval number should be quoted on all related correspondence and the relevant data submission transmittal(s).

Transmittals

All sample submissions must be accompanied with a transmittal.

Transmittals should list details of well names from which the sample has been acquired.

Careful attention should be paid to ensure well names are spelt correctly and depth ranges are accurately representative of the samples submitted.

The transmittal should include the following details as a minimum:

- The Petroleum title from which the well was drilled under and the name of the company operating the petroleum title.
- A description of the samples being submitted e.g. conventional core, sidewall core, ditch cuttings etc.
- For conventional core the depths ranges, tray and core numbers, listing missing, preserved samples and core slab volume e.g. 1/3rd or 2/3rd.

Attachment B. NOPDCR transmittal template should be completed and accompany the submission of conventional core, sidewall core, ditch cuttings, hydrocarbon samples, returned samples and any “other” sample.

Returned samples

Samples exported for overseas analysis must be returned to Australia as part of a condition of export and are to be returned twelve months from the export approval date (granted by NOPTA for confidential samples).

Samples used in analysis and not consumed are to be returned to the repository from which the sample was acquired. If the sample was exported from contractor storage prior to government submission, samples should be forwarded to the DMP Carlisle NOPDCR repository.

Any samples contaminated by analysis should be marked appropriately by the laboratory conducting the test. E.g. MICP.

Where used samples are not a good representation of the original sample, i.e. after selective rock typing/extraction, written advice should be provided with the returned sample.

A transmittal and manifest should accompany returned samples and detail the type of analysis conducted, the possibility of contamination and the NOPTA export approval numbers, where known.

Transporting samples

NOPDCR managers may refuse to accept delivery of samples that arrive without an appropriate transmittal or are incorrectly packaged or labelled. Such refusal will not remove from the titleholder the obligation of submitting samples in compliance with the regulations or these guidelines.

Pallet stacking and strapping

When transporting samples, please adhere to the following recommendations:

- Use good quality pallets with no loose boards or nails.
- Position trays and boxes centrally within pallet dimensions – no trays or boxes overhanging the pallet.
- To maintain tray stability do not stack trays or boxes too high on pallets.
- Lids must be fitted to top trays.
- A minimum of four well-tensioned straps are to be used to secure trays to pallets with straps around both front and sides of pallets.
- All pallets containing samples should be wrapped tightly with plastic pallet wrap or covered by purpose-designed LDPE heat shrink bags.

Where the use of heat shrink bags is not possible, hand-stretch wrap should be used to cover pallets to contain and protect boxes and trays.

Labelling

To assist with receiving samples, please ensure the consignment is labelled as follows:

- ‘To’ and ‘From’ address must be affixed to the front and rear of pallets.
- Pallet weight should be noted, if known.
- Pallet number should be displayed on each pallet e.g. 1/3, 2/3, 3/3.
- Pallets must not be double stacked.
- Pallets should always be loaded as a single layer on truck beds.
- If applicable, consignment barcodes are to be securely attached to pallets.

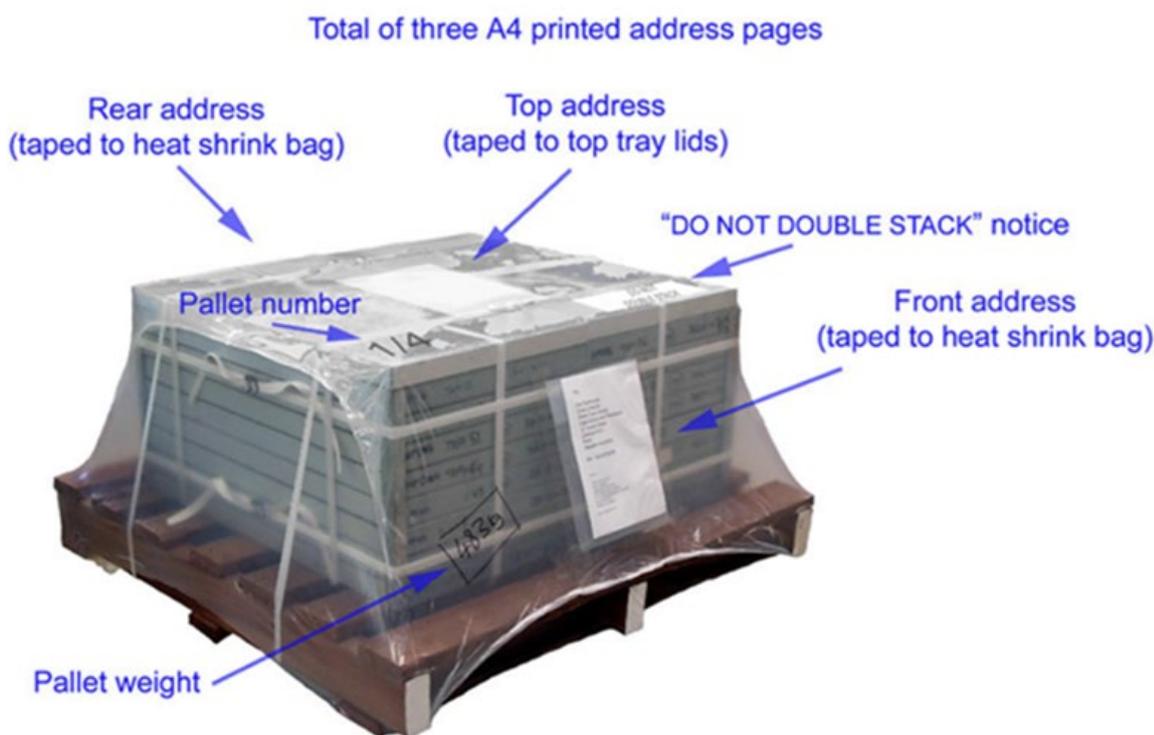


Figure 25 Pallet for transport with strapping, heat shrink wrap and labels

Version history

Version	Date	Comment
2.0	February 2020	Update the departments name
1.0	July 2015	Guidance document of submission standards

Attachment A. NOPDCR—thin section transmittal

[Link to transmittal](#)

http://www.nopta.gov.au/forms/nopta-forms/data_mgmt/Transmittal-Thin-Sections.xlsx

Attachment B. NOPDCR petroleum mining samples—transmittal

[Link to transmittal](#)

[\(http://www.nopta.gov.au/forms/nopta-forms/data_mgmt/Transmittal-PhysicalSamples.docx\)](http://www.nopta.gov.au/forms/nopta-forms/data_mgmt/Transmittal-PhysicalSamples.docx)