**Extensive Dredging Experience**

Neumann Contractors has over 50 years’ experience in contract dredging, dredging in mining applications and dredging equipment supply. Our first dredge was built in the late 1950’s for mineral sand mining. Since then we have built several dredges for our own contracting fleet and many for sale to other mining clients.

Our dredges are modern cutting and recovery machines with a well-earned reputation for performance and reliability in mining and tailings rehandling.

Our dredges are de-mountable and can be cost effectively transported to remote sites. They are a proven, safe, and cost effective method for relocation and reprocessing of tailings and other fin materials.

Operational expertise built on contract dredging experience enables us to constantly improve our equipment. This culture of innovation and continuous improvement gives us the edge as dredging partners of choice.

*Cutter Suction Dredge Nu Compact remining tailings at Ernest Henry Mine, Qld, Australia.*
Vessel Profile

Vessel Name: **Nu Endeavour**
Registration Number: **9264QE**
Trading Name: **DRG006**

**Length**: 34.5m
**Builder**: Neumann Equipment
**Total Horsepower**: 1,950 hp
**Horsepower on Pumps**: 1,400 hp
**Pipeline Diameter**: 450 mm
**Maximum Digging Depth**: 15m
**Hull Material**: Steel
**Superstructure Material**: Steel/Aluminium
**Gross Weight**: 220t
Vessel Name: **Nu Bounty**
Registration Number: **25128QE**
Trading Name: **DRG007**

Length (short configuration) .................................. 33.3m
USL Class ........................................................................................................2E
Builder ............................................... Neumann Equipment
Total Horsepower: ................................................. 2,250 hp
Horsepower on Pumps (combined): ............. 1,650 hp
Pipeline Diameter: ............................................... 450 mm
Max Digging Depth: ................. 15m, extendable to 22m
Hull Material ................................................................. Steel
Superstructure Material ................. Steel/Aluminium
Gross Weight .......................................................... 220t
Vessel Name: **Nu Compact**  
Registration Number: **25013QE**  
Trading Name: **DRG008**

Length ............................................................... 26.8m  
Builder .................................................... Neumann Equipment  
Total Horsepower: ......................................... 850 hp  
Horsepower on Pumps: ..................................... 500 hp  
Pipeline Diameter: ........................................... 300 mm  
Maximum Digging Depth: ..................................... 8m  
Hull Material...................................................... Steel  
Superstructure Material ......................... Steel/Aluminium  
Gross Weight .................................................. 75t
Vessel Name: Nu Enterprise
Registration Number: 25013QE
Trading Name: DRG009

Length ............................................... 12.0m (18.0m LOA)
Builder ............................................. Neumann Equipment
Total Horsepower: .............................................. 290 hp
Horsepower on Pumps: ................................. 230 hp
Pipeline Diameter: ........................................ 250 mm
Maximum Digging Depth: ......................... 7.5 metres
Hull Material.................................................. Steel
Superstructure Material .............................. Steel
Gross Weight ............................................... 32t
Vessel Name: **Nu Discovery**  
Registration Number: **40623QE**  
Trading Name: **DRG012**

**Length:** .......................................................... 11.3m  
**Builder:** ........................................ Neumann Equipment  
**Total Power:** ........................................... 305hp @ 2000rpm  
**Power at Pump:** ........................................ 275hp  
**Pipeline Diameter:** ........................................ 250 mm  
**Maximum Dredging Depth:** ......................... 6.5m  
**Hull Material:** ........................................... Steel  
**Superstructure Material:** ......................... Steel/Aluminium  
**Gross Weight:** ........................................... 23t

**EASILY TRANSPORTED TO SITE:**  
When dismantled, this unit is transportable in 2 x 40’ open top shipping containers to provide cost-effective mobilisation logistics.
Vessel Name: **Nu Investigator**  
Registration Number: **41247QD**  
Trading Name: **DRG014**

**Type:** Neumann Nu Explorer Series  
**Length:** 11.3m  
**Builder:** Neumann Equipment  
**Total Power:** 260hp @ 2200rpm  
**Power at Pump:** 220hp  
**Pipeline Diameter:** 250 mm  
**Maximum Dredging Depth:** 6.5m  
**Hull Material:** Steel  
**Superstructure Material:** Steel/Aluminium  
**Gross Weight:** 23 Tonnes  

**EASILY TRANSPORTED TO SITE:**  
When dismantled, this unit is transportable in 2 x 40’ open top shipping containers to provide cost-effective mobilisation logistics.
Comprehensive Support

Neumann Contractors has a range of ancillary equipment to support undertaking larger scale projects.

Booster Stations

Where increased pumping distances or vertical lifts are required, Neumann Contractors has several boosters capable of working with our dredges, ranging in size from 375 Hp to 2000 Hp.

Our boosters are sound conditioned to levels which comply with EPA noise level criteria.

These boosters can either be pontoon mounted or land based. Telemetry communications enable monitoring and control from the dredge operator’s console.

Workboats and Barges

Neumann Contractors has a range of support vessels and work boats in 2C, 2D and 2E Marine Survey. We have various lifting and fuelling barges available to service project requirements.

Nu Enterprise dredging coal tailings
Project: **Ok Tedi Dredging**

**Principal:**

Ok Tedi Mining Limited

**Location:**

Ok Tedi Mine, Papua New Guinea

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Dredge Nu Explorer was specifically built to enable simple and cost effective transport to the most remote locations. Able to fit into two standard 40 foot open top containers, Nu Explorer was dispatched to the Ok Tedi mine, situated at an elevation of 1700m in the remote Western Highlands of PNG.

Mobilisation involved road transport, shipping, transhipment and further road transport for the final leg up to the site. The dredge’s relatively light weight and standard containerisation made the logistics of this exercise far cheaper and simpler.

The dredging task involved shifting a large volume of pyritic concentrate which had been temporarily stored in two dams. The material was pumped by the dredge into a circuit for further handling.

Nu Explorer is fitted with a 240hp Cummins diesel, an efficient and robust GIW slurry pump, and a hydraulically operated winching system. The dredge’s straightforward mechanical design coupled with essential instrumentation such as slurry flow meter make it an efficient and cost effective slurry pumping unit.

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**Nu-Explorer – Cutter Suction Dredge**

- **Length:** 11.3 m
- **Gross Weight:** 23t
- **Pipe Dia.:** 250 mm
- **Digging Depth:** 6.5 m
Neumann’s were contracted by BMA to remove mud from the floor of an open cut coal mine as part of preparation for reopening the pit.

As the pit had been disused for some time, mud had been carried into the pit from surface runoff and accumulated in the pit floor. The task was to dredge this mud from the pit for placement in an adjacent excavation.

The 450mm bucketwheel cutter suction dredge Nu Bounty was mobilised for this project along with a booster and 2500m of pipeline. A return water pump and pipeline was also mobilised to transfer water back from the discharge area to the dredge pond to enable an orderly draw-down of the water level in the dredge pond.

Innovations

- Management of pumping through a 40m vertical pipe section to the booster pump located on the cast bench
- Trialling of a discharge restriction valve to manage pressure at the discharge line highpoint while maximising the siphon effect

Challenges

- Water levels and drawdown had to be carefully managed to maintain geotechnical slope stability
- Strict design cut conformance was managed and reviewed using on-board RTK navigations systems
- To expedite the work dredging was carried out on a 24/7 basis
Project: Ernest Henry Mine – Tailings Dredging

Principal: Ernest Henry Mining (Xstrata Copper)

Location: Cloncurry, Qld, Australia

Our 300mm CSD Nu Compact was commissioned by Ernest Henry Mining to remine tailings from the Tailings Storage Facility to a magnetite recovery circuit. Nu Compact pumped the reclaimed tailings via a 1000m HDPE pipeline directly into the process circuit where the magnetite was concentrated.

Scope of Work

Supply and operate dredging equipment on a 24/7 basis. Dredge and pump a consistent feed density to the processing plant.

Innovations

Slurry density was managed via addition of dilution water into the suction pipe, automated via a PLC against the dredge’s density meter.

Nu Compact – Cutter Suction Dredge

<table>
<thead>
<tr>
<th>Dredge</th>
<th>Length</th>
<th>Gross Weight</th>
<th>Digging Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nu-Compact</td>
<td>26.8 m</td>
<td>75t</td>
<td>2.0 – 8.0m</td>
</tr>
<tr>
<td>Pipe Dia.</td>
<td>300 mm</td>
<td>Gross Weight</td>
<td>75t</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digging Depth</td>
<td>2.0 – 8.0m</td>
</tr>
</tbody>
</table>
Project: Hellyer Tailings Dredging

Principal: NQ Minerals

Location: Near Cradle Mountain, Tasmania Australia

Our 250mm CSD Nu Investigator was mobilised to NQ Minerals’ Hellyer Gold operation in Tasmania.

Nu Investigator’s job is to recover and pump old tailings produced from earlier mining activities.
Project: **Cadia Gold Mine – Tailings Dredging**

**Principal:**
*Newcrest Mining Limited*

**Location:**
*Cadia Valley, NSW, Australia*

Dredging of fines from the process water pond at Cadia Gold Mine in Orange N.S.W. is undertaken by Neumann Contractors for Newcrest Mining Ltd.

The project uses our dredge 12 Nu Explorer, configured as a suction dredge only, and fitted with high pressure water jets to loosen the material. As the pond is fitted with a HDPE liner, it was not suitable to use a cutter or spud mounted dredge.

The dredging of the material was made more difficult due to layers of harder material approximately 300-500mm thick throughout the material to be dredged.

**Dredge:**

| Nu-Discovery – Cutter Suction Dredge |
|---|---|---|
| **Length** | **Pipe Dia.** | **Gross Weight** | **Digging Depth** |
| 11.3 m | 250 mm | 23t | 2.0 – 6.5m |
Project Profile

Project: Penrith Lakes – Tailings Dredging

Principal: Penrith Lakes Development Corporation

Location: Penrith, NSW, Australia

The project involved dredging of approximately 1.3Mm3 of sand, silt and clay from a central TSF to a land reclamation site 4.4 km away.

Dredged materials were placed in a manner which enabled the coarser fractions of the tailings to be separated from the silts and clays. This methodology allowed the coarser material to remain in the reclamation area where it was placed as a ‘Level 1’ fill. The fine material was picked up with the tailwater from the reclamation site and pumped to a purpose built tailings facility adjacent to the reclamation.

A key objective of the project was the creation of enough volume in the central tailings storage facility to enable continued operation of the quarry processing plants. Also, the material dredged was used to increase the amount of land available at the Penrith Lakes site for future urban development as an end use for the site after completion of the quarry activities.

Challenges:
- Ensuring that the project was carried out with minimal disruption to the effectiveness of existing earthworks being carried out at the site.
- Controlling the separation process of coarse and fine materials.

Nu-Endeavour – Cutter Suction Dredge

<table>
<thead>
<tr>
<th>Dredge</th>
<th>Length (m)</th>
<th>Gross Weight (t)</th>
<th>Digging Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nu-Endeavour</td>
<td>34.5</td>
<td>220</td>
<td>2.5 – 15.0</td>
</tr>
<tr>
<td>Pipe Dia.</td>
<td>450</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Neumann’s Nu-Endeavour was chosen to reclaim coal tailings from the Moura 2C pit.

Dredged tailings were processed to recover fine coal lost in earlier operations and it was part of a program to empty the pit to enable ongoing mining underground from the pit floor.

The dredge produced 450 tph of coal tailings on a 24/7 basis. The slurry was pumped up to 2.5km to the processing plant. As the pit was 45m deep, the end of the job required pumping a vertical lift of 30m to a booster station located at the top of the wall.

The coal tailings in various places were interspersed with some “liquorice” (a very fine type of coal tailings which bind together like plasticine). On several occasions the dredge was also required to dredge through rocky clay shale embankments which had been put across the pit during the filling process.
Project Profile

Project: Superior Coal – Tailings Dredging

Principal: Superior Coal Limited

Location: Gladstone, QLD, Australia

Neumann Contractors were engaged as Dredging Contractors to carry out the dredging works to clear a pond 150 meters wide x 650 meters long of coal tailings that had washed in over several years.

The coal tailings, ranging from fine silt to approximately 70mm in size, were pumped to a screening and washing plant for coal recovery and then placed in stockpiles in the coal storage area.

Scope of Work:
- Mobilise dredge, 600 meters of [200mm-250mm] pipeline and associated equipment.
- Dredging fine to medium sized coal tailings.
- Dredge material to be pumped to screening Plant.

Challenges
- Pumping material at a slow rate 100 litres/second.
- Uneven floor to dredge, rocky and hard material floor.
- Blockages [rocks] in the booster and pipeline.
- Maintaining consistent feed rates to the plant.

Dredge Nu-Enterprise – Cutter Suction Dredge

<table>
<thead>
<tr>
<th>Dredge</th>
<th>Nu-Enterprise – Cutter Suction Dredge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>12.0m</td>
</tr>
<tr>
<td>Gross Weight</td>
<td>32t</td>
</tr>
<tr>
<td>Pipe Dia.</td>
<td>250 mm</td>
</tr>
<tr>
<td>Digging Depth</td>
<td>1.2 – 6.0m</td>
</tr>
</tbody>
</table>
Neumann Contractors provided a 1000 kW diesel-powered slurry pump to shift coal tailings slurry at BHP’s Mt Arthur mine in the NSW Hunter Valley.

The use of the Neumann equipment to pump the tailings to the new tailings dam was a temporary arrangement put in place by the mine operator until delivery of new permanent equipment.

This unit, which ran 24/7, was fitted with a Warman 14/12GGAH slurry pump, floating intake hose with foot valve and a self-bunded fuel tank.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Booster Pump (BST009)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(also available on floating pontoon)</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>11.5m x 3.5m x 3.64m</td>
</tr>
<tr>
<td>Weight (Booster)</td>
<td>30.0 t</td>
</tr>
<tr>
<td>Pump</td>
<td>Warman 14/12GGAH</td>
</tr>
<tr>
<td>Engine</td>
<td>Cummins KTA38C</td>
</tr>
<tr>
<td>Transmission</td>
<td>1350 hp @ 2300 rpm</td>
</tr>
<tr>
<td></td>
<td>Advance HC 600 – 3:1</td>
</tr>
</tbody>
</table>
Project: **Corridor Sands – Resource Dredging**

**Principal:**
Corridor Sands

**Location:**
Woongoolba, Qld, Australia

Our CSD Nu Ultra has been working on a permanent basis at Corridor Sands since 2009.

Corridor Sands supplies processed sand products into the SE Qld market. Nu-Ultra delivers the raw sand feed to the processing plant.

Corridor Sands’ river sand resource is located next to the Logan River and the transport corridor between Brisbane and the Gold Coast, enabling them to service the Brisbane, Logan, Redlands and Gold Coast areas.

The large sand reserve ensures long term supply of high quality washed sand, fill sand, bedding sand and brickies loam to the concrete, asphalt, quarry, construction, building and landscaping industries.

Corridor Sands has Queensland Department of Main Roads Quarry Assessment and Certification approval.

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**Dredge: Nu-Ultra – Cutter Suction Dredge**

<table>
<thead>
<tr>
<th>Length</th>
<th>Gross Weight</th>
<th>Digging Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.78 m</td>
<td>220t</td>
<td>2.0 – 11.0m</td>
</tr>
<tr>
<td>450 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Skid Mounted Pumps

Slurry Pumps, Water Pumps and Booster Stations

Neumann Contractors has a range of skid-mounted pump sets which may be readily configured as slurry pumps, water pumps or dredge booster stations.

<table>
<thead>
<tr>
<th>Unit Number</th>
<th>Installed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>BST010</td>
<td>1500 kW</td>
</tr>
<tr>
<td>BST009</td>
<td>1000 kW</td>
</tr>
<tr>
<td>BST006</td>
<td>900 kW</td>
</tr>
<tr>
<td>BST012</td>
<td>450 kW</td>
</tr>
<tr>
<td>BST005</td>
<td>450 kW</td>
</tr>
<tr>
<td>BST004</td>
<td>450 kW</td>
</tr>
<tr>
<td>BST011</td>
<td>224 kW</td>
</tr>
</tbody>
</table>

These pumps can be land based or mounted on pontoons and floated. They have all been designed and manufactured in our workshop in SE Queensland. We also offer custom designed pump sets with a range of upgrade options such as sound conditioning, remote control, process measurement, data upload etc.
Management Systems

SCI QUAL INTERNATIONAL

SCI QUAL INTERNATIONAL
Quality Management System approved to AS/NZS ISO 9001:2008 Certificate no. 3008

SCI QUAL INTERNATIONAL
Environmental Management System certified to AS/NZS ISO 14001:2004 Certificate no. 3493

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