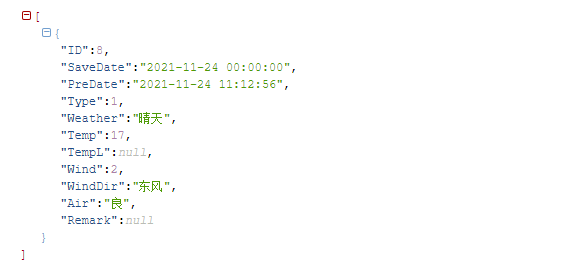
1. **大屏**
   1. **获取天气预报数据**

* 请求路径：/DataDisplay/Main/GetWetherRecord
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| type | 1：分时天气预报；2：分时和三天的天气预报数据 |  |

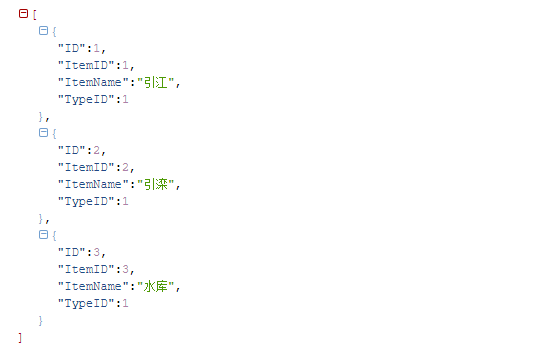
* 请求示例：http://localhost:4921/DataDisplay/Main/GetWetherRecord?type=2
* 响应数据:



* 1. **获取下拉框数据**
* 请求路径：/SystemManage/SysDic/GetItemList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 1：原水泵站类别；2：水厂类别；3：监测数据类别；  4：工艺类别；300：运行评估；311：技术性；  312：经济性；313：安全性；321：水力性能；322：水质性能；323：供水效率；324：基建费用；325：运行费用；326：供给安全；327：管网保障；328：综合管理； |  |

* 请求示例：http://localhost:4921/SystemManage/SysDic/GetItemList?typeId=1
* 响应数据:



* 1. **根据原水泵站类别获取原水泵站数据**
* 请求路径：/DataDisplay/Main/GetMainStation
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 1：引江；2：引滦；3：水库； |  |

* 请求示例：http://localhost:4921/DataDisplay/Main/GetMainStation?typeId=1
* 响应数据:

[{

"StationName": "曹庄泵站",

"Flow": 15886.0000,

"Level": 4.7800,

"Press": 0.0

}, {

"StationName": "西河泵站",

"Flow": 36308.0000,

"Level": 4.0500,

"Press": 0.0

}, {

"StationName": "永清渠泵站",

"Flow": 3000.0000,

"Level": 2.8800,

"Press": 0.0

}]

* 1. **根据水厂类别获取水厂数据**
* 请求路径：/DataDisplay/Main/GetMainReservoir
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 1：中心城区；2：滨海新区； |  |

* 请求示例：http://localhost:4921/DataDisplay/Main/GetMainReservoir?typeId=1
* 响应数据:

[{

"StationName": "芥园水厂",

"Press": 2.000000,

"Flow": 20611.3890,

"CL": 1.3900,

"NTU": 0.7200,

"SFlow": 0.0,

"PumpCount": 3

}, {

"StationName": "凌庄水厂",

"Press": 6.890000,

"Flow": 20000.0000,

"CL": 0.9440,

"NTU": 1.0000,

"SFlow": 0.0,

"PumpCount": 3

}, {

"StationName": "新开河水厂",

"Press": 0.000000,

"Flow": 30000.0000,

"CL": 1.3792,

"NTU": 0.0000,

"SFlow": 0.0,

"PumpCount": 3

}, {

"StationName": "津滨水厂",

"Press": 3.710000,

"Flow": 40000.0000,

"CL": 1.3944,

"NTU": 0.0000,

"SFlow": 0.0,

"PumpCount": 3

}]

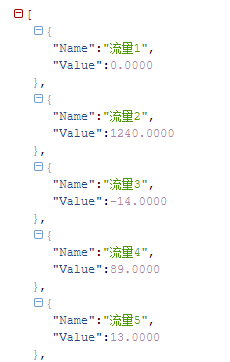
* 1. **根据监测点类别获取监测点数据（流量、压力、余氯和浊度）**
* 请求路径：/DataDisplay/Main/GetMainRealTimeData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 1：流量；2：压力；3：余氯；4：浊度。 |  |

* 请求示例：

http://localhost:4921/DataDisplay/Main/GetMainRealTimeData?typeId=1

* 响应数据:



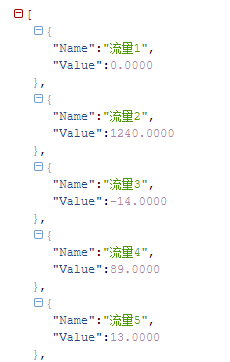
* 1. **根据监测点类别和监测点key设置置顶**
* 请求路径：/DataDisplay/Main/PointToTop
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 1：流量；2：压力；3：余氯；4：浊度。 |  |
| staKey | 监测点station\_key |  |

* 请求示例：

http://localhost:4921/DataDisplay/Main/PointToTop?typeId=2&staKey=005

* 响应数据:



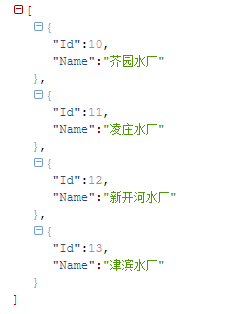
* 1. **根据工艺一级菜单获取工艺二级菜单数据**
* 请求路径：/DataDisplay/Main/GetMainGY2ndItemList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| typeId | 工艺图一级类别：  1：原水；2：水厂；3：管网 |  |

* 请求示例：

http://localhost:4921/DataDisplay/Main/GetMainGY2ndItemList?typeId=2

* 响应数据:



* 1. **根据工艺二级菜单数据，获取泵站的静态数据**
* 请求路径：/DataDisplay/Main/GetMainPumpStationInfo
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| stationId | 带工艺图泵站ID |  |

* 请求示例：

<http://localhost:4921/DataDisplay/Main/GetMainPumpStationInfo>?stationId=15

* 响应数据:



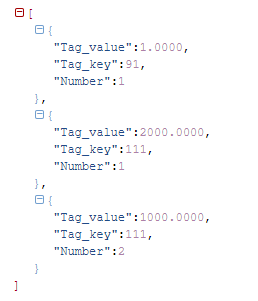
* 1. **根据工艺二级菜单数据，获取泵站的工艺数据**
* 请求路径：/DataDisplay/Main/GetMainPumpCurrent
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| stationId | 带工艺图泵站ID |  |

* 请求示例：

<http://localhost:4921/DataDisplay/Main/GetMainPumpCurrent>?stationId=3

* 响应数据:



* 1. **历史趋势查询中，获取一级下拉菜单列表**
* 请求路径：/DataDisplay/Main/GetDataTypeList
* 请求方法：GET
* 请求参数： 无
* 请求示例：

http://localhost:4921/DataDisplay/Main/GetDataTypeList

* 响应数据:

[{

"Name": "压力",

"Value": "3\_1"

}, {

"Name": "流量",

"Value": "3\_2"

}, {

"Name": "余氯",

"Value": "3\_3"

}, {

"Name": "浊度",

"Value": "3\_4"

}, {

"Name": "曹庄泵站",

"Value": "0\_1"

}, {

"Name": "西河泵站",

"Value": "0\_2"

}, {

"Name": "永清渠泵站",

"Value": "0\_3"

}]

* 1. **历史趋势查询中，根据一级菜单获取二级下拉菜单列表**
* 请求路径：/DataDisplay/Main/GetWFTypeList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| dataType | 一级菜单中的Value值 |  |

* 请求示例：

http://localhost:4921/DataDisplay/Main/GetWFTypeList?dataType=3\_2

* 响应数据:

[{

"Name": "保温管厂",

"Value": "1\_2"

}, {

"Name": "白堤路",

"Value": "2\_2"

}, {

"Name": "滨湖中学",

"Value": "3\_2"

}, {

"Name": "八里台",

"Value": "4\_2"

}, {

"Name": "城厢东路",

"Value": "5\_2"

}, {

"Name": "东局子",

"Value": "6\_2"

}]

* 1. **历史趋势查询中，根据二级菜单获取监测点历史数据**
* 请求路径：/DataDisplay/Main/GetHistoryData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| sTagKeys | 通过二级菜单中添加的“，”分割的Value集合 |  |

* 请求示例：

http://localhost:4921/DataDisplay/Main/GetHistoryData?sTagKeys

=4\_2,5\_2

* 响应数据:

[

[{

"value": ["2021-03-26 13:57:16", "2.32"]

}, {

"value": ["2021-03-26 14:12:28", "2.32"]

}, {

"value": ["2021-03-26 14:44:56", "2.32"]

}, {

"value": ["2021-03-26 14:59:04", "2.32"]

}, {

"value": ["2021-03-26 15:13:57", "2.32"]

}],

[{

"value": ["2021-03-26 14:12:37", "0.00"]

}, {

"value": ["2021-03-26 14:45:13", "0.00"]

}, {

"value": ["2021-03-26 14:59:34", "0.00"]

}, {

"value": ["2021-03-26 15:14:31", "0.00"]

}, {

"value": ["2021-03-26 15:29:35", "0.00"]

}]

]

1. **数据综合展示**
   1. **实时监测数据中区域分类下拉菜单**

* 请求路径：/SystemManage/SysDic/GetTreeSelectJson
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/SystemManage/SysDic/GetTreeSelectJson

* 响应数据:

[{

"id": "54",

"text": "原水",

"parentId": "0",

"data": {

"ID": 54,

"ItemID": 0,

"ItemName": "原水",

"TypeID": 5,

"TypeName": "分类"

}

}, {

"id": "49",

"text": "　　引江",

"parentId": "54",

"data": {

"ID": 49,

"ItemID": 54,

"ItemName": "引江",

"TypeID": 5,

"TypeName": "原水分类"

}

}, {

"id": "50",

"text": "　　引滦",

"parentId": "54",

"data": {

"ID": 50,

"ItemID": 54,

"ItemName": "引滦",

"TypeID": 5,

"TypeName": "原水分类"

}

}]

* 1. **实时监测数据中数据类型下拉菜单**
* 请求路径：/DataSynthetical/CurrentData/GetDataTypeList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的id值 | 必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/CurrentData/GetDataTypeList?areaId=56

* 响应数据:

[{

"Name": "流量",

"Value": "1"

}, {

"Name": "压力",

"Value": "2"

}, {

"Name": "余氯",

"Value": "3"

}, {

"Name": "浊度",

"Value": "4"

}]

* 1. **实时监测数据中监测点下拉菜单**
* 请求路径：/DataSynthetical/CurrentData/GetPointList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的value值 | 必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/CurrentData/GetPointList?areaId=56&type=2

* 响应数据:

[{

"Name": "二营销",

"Value": "1018"

}, {

"Name": "包头道",

"Value": "1019"

}]

* 1. **实时监测数据中获取实时数据**
* 请求路径：/DataSynthetical/CurrentData/GetCurrentData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| sks | 表号合集字符串 | 必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/CurrentData/GetCurrentData?sks=120,113, 109

* 响应数据:

[{

"ElementID": 88448,

"WMeter\_ID": "120",

"Meter\_Name": "针织一厂",

"Geo\_x": 101462.869080,

"Geo\_y": 298406.688293,

"Explain": "管网水质监测站点",

"Tag\_value": 0.35,

"Save\_date": 2020-08-20 12:00:00,

"Station\_Unit": "市南二营销"

}, {

"ElementID": 22434,

"WMeter\_ID": "113",

"Meter\_Name": "三营销",

"Geo\_x": 95135.529000,

"Geo\_y": 299479.028000,

"Explain": "管网水质监测站点",

"Tag\_value": 0.36,

"Save\_date": 2020-08-20 12:00:00,

"Station\_Unit": "市南三营销"

}, {

"ElementID": 511057,

"WMeter\_ID": "109",

"Meter\_Name": "碧华里",

"Geo\_x": 94705.710334,

"Geo\_y": 294878.725943,

"Explain": "管网水质监测站点",

"Tag\_value": 0.47,

"Save\_date": 2020-08-20 12:00:00,

"Station\_Unit": "市南四营销"

}]

* 1. **工艺流程图**
* 参考接口1.6,1.7,1.8
  1. **数据查询中区域分类下拉菜单**
* 参考接口2.1
  1. **数据查询中数据类型下拉菜单**
* 参考接口2.2
  1. **数据查询中特殊点位下拉列表**
* 请求路径：/DataSynthetical/DataSearch/GetSPList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetSPList

* 响应数据:

[{

"Name": "管网末梢",

"Value": "1"

}, {

"Name": "交界处",

"Value": "2"

}, {

"Name": "最不利点",

"Value": "3"

}]

* 1. **数据查询中供水范围下拉列表**
* 请求路径：/DataSynthetical/DataSearch/GetSWaterList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetSWaterList

* 响应数据:

[{

"Name": "芥园水厂",

"Value": "10"

}, {

"Name": "凌庄水厂",

"Value": "11"

}, {

"Name": "新开河水厂",

"Value": "12"

}, {

"Name": "津滨水厂",

"Value": "13"

}]

* 1. **数据查询中监测点名称下拉列表**
* 请求路径：/DataSynthetical/CurrentData/GetPointList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的value值 | 必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |
| sPint | 特殊点位下拉菜单中的value值 | 非必填 |
| sWater | 供水范围下拉菜单中的value值 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/CurrentData/GetPointList?areaId=56&type=2

* 响应数据:

[{

"Name": "二营销",

"Value": "1018"

}, {

"Name": "包头道",

"Value": "1019"

}]

* 1. **数据查询中条件数据查询**
* 请求路径：/DataSynthetical/DataSearch/GetHistoryData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| pagination | 前端jqgrid数据表控件固有参数 | 包含页码，每页数，排序列等信息 |
| sTKey | 表号合集字符串 | 必填 |
| max | 数值范围最大值 | 非必填 |
| min | 数据范围最小值 | 非必填 |
| startDate | 数据起始时间 | 非必填 |
| endDate | 数据结束时间 | 非必填 |
| startTime | 数据时间 | 非必填 |
| endTime | 数据时间 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetHistoryData?xxx=xx(pagination项)&sTKey=306,1019&startDate=2021-04-01 13:00:00&endDate=2021-04-03 14:00:00&startTime=12:00:00&endTime=14:00:00

* 响应数据:

[{

"ID": 241954,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2750,

"Save\_date": "2021-04-02 13:19:12",

"Station\_key": "宾水道",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:19:12"

}, {

"ID": 242285,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2750,

"Save\_date": "2021-04-02 13:34:13",

"Station\_key": "宾水道",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:34:13"

}, {

"ID": 242533,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2750,

"Save\_date": "2021-04-02 13:49:13",

"Station\_key": "宾水道",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:49:13"

}, {

"ID": 241581,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2880,

"Save\_date": "2021-04-02 13:04:13",

"Station\_key": "滨河小区",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:04:13"

}, {

"ID": 241872,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2880,

"Save\_date": "2021-04-02 13:19:12",

"Station\_key": "滨河小区",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:19:12"

}, {

"ID": 242203,

"Tag\_value\_ss": null,

"Tag\_value\_zx": null,

"Tag\_value\_fx": null,

"Tag\_value": 0.2880,

"Save\_date": "2021-04-02 13:34:13",

"Station\_key": "滨河小区",

"Tag\_key": 2,

"CleanedValue": null,

"ModifiedValue": null,

"CreateDate":"2021-04-02 13:34:13"

}]

* 1. **图表分析中区域分类一级下拉菜单**
* 请求路径：/SystemManage/SysDic/Get5ItemList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/SystemManage/SysDic/Get5ItemList

* 响应数据:

[{

"Name": "原水",

"Value": "54"

}, {

"Name": "水厂",

"Value": "55"

}, {

"Name": "管网",

"Value": "56"

}]

* 1. **图表分析中区域分类二级下拉菜单**
* 请求路径：/SystemManage/SysDic/Get5ItemList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| itemId | 区域分类一级菜单选择的value值 | 必填 |

* 请求示例：

http://localhost:4921/SystemManage/SysDic/Get5ItemList?itemId=54

* 响应数据:

[{

"Name": "引江",

"Value": "49"

}, {

"Name": "引滦",

"Value": "50"

}]

* 1. **图表分析中区域分类三级下拉菜单**
* 请求路径：/SystemManage/SysDic/Get5ItemList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| itemId | 区域分类二级菜单选择的value值 | 必填 |

* 请求示例：

http://localhost:4921/SystemManage/SysDic/Get5ItemList?itemId=49

* 响应数据:

[{

"Name": "曹庄泵站",

"Value": "60"

}, {

"Name": "西河泵站",

"Value": "61"

}, {

"Name": "永清渠泵站",

"Value": "62"

}]

* 1. **图表分析中数据类型信息列表**
* 请求路径：/DataSynthetical/DataSearch/GetDataTyppeList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| area1 | 区域分类一级下拉菜单选中的value值 | 必填 |
| area2 | 区域分类二级下拉菜单选中的value值 | 非必填 |
| area3 | 区域分类三级下拉菜单选中的value值 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetDataTyppeList?area1=56&area2=16&area3=48

* 响应数据:

[{

"Name": "流量",

"Value": "1"

}, {

"Name": "压力",

"Value": "2"

}, {

"Name": "余氯",

"Value": "3"

}, {

"Name": "浊度",

"Value": "4"

}]

* 1. **图表分析中统计周期下拉列表**
* 请求路径：/SystemManage/DataClean/GetCycleList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetCycleList

* 响应数据:

[{

"Name": "按日统计",

"Value": "1"

}, {

"Name": "按月统计",

"Value": "2"

}, {

"Name": "按年统计",

"Value": "3"

}]

* 1. **图表分析中特殊点位下拉列表**
* 参考接口2.8
  1. **图表分析中供水范围下拉列表**
* 参考接口2.9
  1. **图表分析中监测点下拉列表**
* 请求路径：/DataSynthetical/DataSearch/GetPointList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| area1 | 区域分类一级下拉菜单选中的value值 | 必填 |
| area2 | 区域分类二级下拉菜单选中的value值 | 非必填 |
| area3 | 区域分类三级下拉菜单选中的value值 | 非必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |
| sPint | 特殊点位下拉菜单中的value值 | 非必填 |
| sWater | 供水范围下拉菜单中的value值 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetPointList?area1=56&area2=16&area3=48&type=2

* 响应数据:

[{

"Name": "二营销",

"Value": "1018"

}, {

"Name": "包头道",

"Value": "1019"

}]

* 1. **图表分析中管网流量占比数据**
* 请求路径：/DataSynthetical/DataSearch/GetFlowRateData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的id值 | 必填 |
| cycle | 统计周期下拉菜单选中的value值 | 必填 |
| startDate | 数据起始时间 | 非必填 |
| endDate | 数据结束时间 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetFlowRateData?areaId=56&cycle=1&startDate=2021-03-01 13:00:00&endDate=2021-03-03 14:00:00

* 响应数据: （占比数据，横坐标数据，名称，饼图数据）

[[

[320, 332, 301, 334, 390, 330, 320], [120, 132, 101, 134, 90, 230, 210], [220, 182, 191, 234, 290, 330, 310]

], [

[2021-03-03 00:00, 2021-03-03 01:00, 2021-03-03 02:00, 2021-03-03 03:00, 2021-03-03 04:00, 2021-03-03 05:00, 2021-03-03 06:00]

],[

"芥园水厂","津滨水厂","新开河水厂"

], [

[320,120,220],[332,132,182],[301,101,191],[334,134,234],[390,90,290],[330,230,330],[320,210,310]

]]

* 1. **图表分析中流量数据对比**
* 请求路径：/DataSynthetical/DataSearch/GetFlowData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| stationKey | 监测点下拉菜单选中的id值 | 必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |
| startDate | 数据起始时间 | 非必填 |
| endDate | 数据结束时间 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetFlowData?stationKey=54&type=2&startDate=2021-03-01 13:00:00&endDate=2021-03-03 14:00:00

* 响应数据:

[{

"Name": "流量",

"Value": "1"

}, {

"Name": "压力",

"Value": "2"

}, {

"Name": "余氯",

"Value": "3"

}, {

"Name": "浊度",

"Value": "4"

}]

* 1. **图表分析中极值趋势数据**
* 请求路径：/DataSynthetical/DataSearch/GetMaxMinData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的id值 | 必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |
| startDate | 数据起始时间 | 非必填 |
| endDate | 数据结束时间 | 非必填 |

* 请求示例：

http://localhost:4921/DataSynthetical/DataSearch/GetMaxMinData?areaId=56&type=2&startDate=2021-03-01 13:00:00&endDate=2021-03-03 14:00:00

* 响应数据:

[[

[320, 332, 301, 334, 390, 330, 320], [120, 132, 101, 134, 90, 230, 210]

], [

[2021-03-03, 2021-03-04, 2021-03-05, 2021-03-06, 2021-03-07, 2021-03-08 2021-03-09]

],[

"最大值","最小值"

]]

1. **辅助调度决策**
   1. **调度日志中班次下拉菜单**

* 请求路径：/Scheduling/Log/GetShiftList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Log/GetShiftList

* 响应数据:

[{

"Name": "早班",

"Value": "1"

}, {

"Name": "晚班",

"Value": "2"

}]

* 1. **调度日志中调度类型下拉菜单**
* 请求路径：/Scheduling/Log/GetDispatchTypeList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Log/GetDispatchTypeList

* 响应数据:

[{

"Name": "日常",

"Value": "1"

}, {

"Name": "应急",

"Value": "2"

}, {

"Name": "水厂停减产",

"Value": "3"

}, {

"Name": "爆管应急",

"Value": "4"

}, {

"Name": "水质污染应急",

"Value": "5"

}, {

"Name": "压力突降应急",

"Value": "6"

}]

* 1. **调度日志中操作人员下拉菜单**
* 请求路径：/Scheduling/Log/GetOperatorList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Log/GetOperatorList

* 响应数据:

[{

"Name": "西青营业所",

"Value": "西青营业所"

}, {

"Name": "陈工",

"Value": "陈工"

}, {

"Name": "测试",

"Value": "测试"

}, {

"Name": "李工",

"Value": "李工"

}]

* 1. **调度日志中调令状态下拉菜单**
* 请求路径：/Scheduling/Log/GetStatusList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Log/GetStatusList

* 响应数据:

[{

"Name": "已生成",

"Value": "1"

}, {

"Name": "已下发",

"Value": "2"

}, {

"Name": "执行中",

"Value": "3"

}, {

"Name": "已执行",

"Value": "4"

}]

* 1. **调度日志中获取调度日志数据**
* 请求路径：/Scheduling/Log/GetDispatchPlan
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| pagination | 前端jqgrid数据表控件固有参数 | 包含页码，每页数，排序列等信息 |
| sdDate | 调度日志下发开始时间 | 非必填 |
| edDate | 调度日志下发结束时间 | 非必填 |
| seDate | 调度日志执行开始时间 | 非必填 |
| eeDate | 调度日志执行结束时间 | 非必填 |
| shift | 班次下拉菜单选中的Value值 | 非必填 |
| dtype | 调度类型下拉菜单选中的Value值 | 非必填 |
| oper | 操作人员下拉菜单选中的Value值 | 非必填 |
| status | 调令状态下拉菜单选中的Value值 | 非必填 |
| isPlan | 是否添加下拉菜单选中的Value值 | 0未添加，1已添加，非必填 |

* 请求示例：

http://localhost:4921/Scheduling/Log/GetDispatchPlan?xxx=xx(pagination项)& shift=1

* 响应数据:

[{

"ID": 1,

"CreateDate": "2021-03-30 14:20:00",

"IssueDate": "2021-03-30 14:21:00",

"ExecDate": "2021-03-30 14:28:00",

"DataDate": "2021-03-30 14:20:00",

"Shift": 1,

"Operator": "李工",

"DispatchType": 1,

"Deviation": 5.0000,

"Status": 5,

"AccordingTo": "16,金泽园,.4020,.3020,.4020,.3920,2.49;17,刘家房,.2380,.2380,.2380,.2380,0;18,六站,.2560,.2560,.2560,.2560,0",

"DispatchOrder": "芥园水厂,2021-03-30 14:20:00,0.32,10000,0.38,12000;通用水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;津滨水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;新开河水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000",

"Effect": null,

"LinkedMeters": null,

"PlanFile": null,

"IsPlanBase": 0,

"Remark": null

}, {

"ID": 2,

"CreateDate": "2021-03-30 14:20:00",

"IssueDate": "2021-03-30 14:21:00",

"ExecDate": "2021-03-30 14:28:00",

"DataDate": "2021-03-30 14:20:00",

"Shift": 1,

"Operator": "李工",

"DispatchType": 3,

"Deviation": null,

"Status": 3,

"AccordingTo": "芥园水厂,1,;\r\n通用水厂,0,;\r\n津滨水厂,0,;\r\n新开河水厂,0,",

"DispatchOrder": "芥园水厂,2021-03-30 14:20:00,0.32,10000,0.38,12000;通用水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;津滨水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;新开河水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000",

"Effect": "35,19,198;25,12,120",

"LinkedMeters": "98992,98993,98994,98995,98996,98997,98998",

"PlanFile": "方案文件",

"IsPlanBase": 0,

"Remark": null

}]

* 1. **调度日志中添加经验库按钮**
* 请求路径：/Scheduling/Log/AddPlanBase
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| planId | 方案ID | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/Log/AddPlanBase?planId=2

* 响应数据:

结果信息（无需处理）

* 1. **调度指令中获取调度指令数据**
* 请求路径：/Scheduling/Order/GetDispatchPlan
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| pagination | 前端jqgrid数据表控件固有参数 | 包含页码，每页数，排序列等信息 |
| sdDate | 调度指令下发开始时间 | 非必填 |
| edDate | 调度指令下发结束时间 | 非必填 |
| seDate | 调度指令执行开始时间 | 非必填 |
| eeDate | 调度指令执行结束时间 | 非必填 |
| dtype | 调度类型下拉菜单选中的Value值 | 非必填 |

* 请求示例：

http://localhost:4921/Scheduling/Order/GetDispatchPlan?xxx=xx(pagination项)

* 响应数据:

[{

"ID": 1,

"CreateDate": "2021-03-30 14:20:00",

"IssueDate": "2021-03-30 14:21:00",

"ExecDate": "2021-03-30 14:28:00",

"DataDate": "2021-03-30 14:20:00",

"Shift": 1,

"Operator": "李工",

"DispatchType": 1,

"Deviation": 5.0000,

"Status": 5,

"AccordingTo": "16,金泽园,.4020,.3020,.4020,.3920,2.49;17,刘家房,.2380,.2380,.2380,.2380,0;18,六站,.2560,.2560,.2560,.2560,0",

"DispatchOrder": "芥园水厂,2021-03-30 14:20:00,0.32,10000,0.38,12000;通用水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;津滨水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;新开河水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000",

"Effect": null,

"LinkedMeters": null,

"PlanFile": null,

"IsPlanBase": 0,

"Remark": null

}, {

"ID": 2,

"CreateDate": "2021-03-30 14:20:00",

"IssueDate": "2021-03-30 14:21:00",

"ExecDate": "2021-03-30 14:28:00",

"DataDate": "2021-03-30 14:20:00",

"Shift": 1,

"Operator": "李工",

"DispatchType": 3,

"Deviation": null,

"Status": 3,

"AccordingTo": "芥园水厂,1,;\r\n通用水厂,0,;\r\n津滨水厂,0,;\r\n新开河水厂,0,",

"DispatchOrder": "芥园水厂,2021-03-30 14:20:00,0.32,10000,0.38,12000;通用水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;津滨水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000;新开河水厂,2021-03-30 14:20:00,0.32,10000,0.32,12000",

"Effect": "35,19,198;25,12,120",

"LinkedMeters": "98992,98993,98994,98995,98996,98997,98998",

"PlanFile": "方案文件",

"IsPlanBase": 0,

"Remark": null

}]

* 1. **调度指令中下载调度指令数据**
* 请求路径：/Scheduling/Order/GetDownloadJson
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| sdDate | 调度指令下发开始时间 | 非必填 |
| edDate | 调度指令下发结束时间 | 非必填 |
| seDate | 调度指令执行开始时间 | 非必填 |
| eeDate | 调度指令执行结束时间 | 非必填 |
| dtype | 调度类型下拉菜单选中的Value值 | 非必填 |

* 请求示例：

http://localhost:4921/Scheduling/Order/GetDispatchPlan?dtype=1

* 响应数据:

"http://localhost:4921/file/调度指令20220505122301.xlsx"

* 1. **日常调度方案中获取监测点实时数据**
* 请求路径：/Scheduling/Daily/GetRealtimeData
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Daily/GetRealtimeData

* 响应数据: （由4个元素的多维数组组成，依次是压力监测点数据、流量监测点数据、水质监测点数据）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2021-04-02 13:49:13",

"Station\_Unit": "市南二营销",

"Remark": 0.2600

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2021-04-02 13:49:13",

"Station\_Unit": "市南二营销",

"Remark": 0.2600

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2021-04-02 00:00:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2021-04-02 00:00:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}]]

* 1. **日常调度方案中获取数据**
* 请求路径：/Scheduling/Daily/GetData
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Daily/GetData

* 响应数据: （由9个元素的多维数组组成，依次是全市当前流量和预测流量、调度依据和执行效果数据(包括监测点id，当前压力，目标压力，实际压力，偏差率)、调度方案和调度指令数据（包括名称，当前压力，当前流量，方案压力，方案流量）、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、方案平均偏差率）

[[

[2022-01-17 09:05:00,5362.1],[2022-01-17 10:00:00,5632.6]

],[

[16,金泽园,0.4020,0.3020,0.4020,0.3920,2.49],[17,刘家房,0.2380,0.2380,0.2380,0.2380,0],[18,六站,0.2560,0.2560,0.2560,0.2560,0]

],[

[芥园水厂,0.32,10000,0.38,12000],[通用水厂,0.32,10000,0.32,12000],[津滨水厂,0.32,10000,0.32,12000],[新开河水厂,0.32,10000,0.32,12000]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 1. **日常调度方案中生成方案**
* 请求路径：/Scheduling/Daily/CreateDailyPlan
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| dataDate | 调度依据数据时间 | 必填 |
| pressList | 调度依据数据字符串(id,当前压力,目标压力) | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/Daily/CreateDailyPlan?dataDate=2022-01-17 09:05:00&pressList=16,0.3020,0.4020;17,0.2380,0.2380;18,0.2560,0.2560

* 响应数据: （由9个元素的多维数组组成，依次是全市当前流量和预测流量、调度依据和执行效果数据(包括监测点id，当前压力，目标压力，实际压力，偏差率)、调度方案和调度指令数据（包括名称，当前压力，当前流量，方案压力，方案流量）、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、方案平均偏差率）

[[

[2022-01-17 09:05:00,5362.1],[2022-01-17 10:00:00,5632.6]

],[

[16,金泽园,0.3020,0.4020,,],[17,刘家房,0.2380,0.2380,,],[18,六站,0.2560,0.2560,,]

],[

[芥园水厂,0.32,10000,0.38,12000],[通用水厂,0.32,10000,0.32,12000],[津滨水厂,0.32,10000,0.32,12000],[新开河水厂,0.32,10000,0.32,12000]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 1. **日常调度方案中下发调度指令**
* 请求路径：/Scheduling/Daily/CreateDailyOrder
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| planId | 进入页面或生成方案是后台返回方案ID | 必填 |
| order | 调度指令字符串(id,当前压力,目标压力) | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/Daily/CreateDailyOrder?planId=2

* 响应数据: （由9个元素的多维数组组成，依次是全市当前流量和预测流量、调度依据和执行效果数据(包括监测点id，当前压力，目标压力，实际压力，偏差率)、调度方案和调度指令数据（包括名称，当前压力，当前流量，方案压力，方案流量）、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、方案平均偏差率）

[[

[2022-01-17 09:05:00,5362.1],[2022-01-17 10:00:00,5632.6]

],[

[16,金泽园,0.3020,0.4020,,],[17,刘家房,0.2380,0.2380,,],[18,六站,0.2560,0.2560,,]

],[

[芥园水厂,0.32,10000,0.38,12000],[通用水厂,0.32,10000,0.32,12000],[津滨水厂,0.32,10000,0.32,12000],[新开河水厂,0.32,10000,0.32,12000]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,,

]

* 1. **调度经验库中调度类型下拉菜单**
* 参考接口3.2
  1. **调度经验库中日常调度对应调度依据下拉菜单**
* 请求路径：/Scheduling/Experience/GetPressList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Experience/GetPressList

* 响应数据:

[{

"Name": "二营销",

"Value": "1018"

}, {

"Name": "包头道",

"Value": "1019"

}, {

"Name": "民园体育场",

"Value": "1021"

}, {

"Name": "光华桥",

"Value": "53"

}]

* 1. **调度经验库中水厂停减产和泵站优化对应水厂下拉菜单**
* 请求路径：/Scheduling/Experience/GetFactoryList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Experience/GetFactoryList

* 响应数据:

[{

"Name": "芥园水厂",

"Value": "10"

}, {

"Name": "凌庄水厂",

"Value": "11"

}, {

"Name": "新开河水厂",

"Value": "12"

}, {

"Name": "津滨水厂",

"Value": "13"

}]

* 1. **调度经验库中其他类型对应营销下拉菜单**
* 请求路径：/Scheduling/Experience/GetDMAList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/Experience/GetDMAList

* 响应数据:

[{

"Name": "市南一营销",

"Value": "1"

}, {

"Name": "市南二营销",

"Value": "2"

}, {

"Name": "市南三营销",

"Value": "3"

}, {

"Name": "市南四营销",

"Value": "4"

}]

* 1. **调度经验库中获取推荐结果数据**
* 请求路径：/Scheduling/Experience/GetDispatchPlan
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| dtype | 调度类型下拉菜单选中的value值 | 必填 |
| sDate | 开始时间 | 非必填 |
| eDate | 结束时间 | 非必填 |
| pressList | 不同调度类型，下拉菜单选中的value逗号分割字符串 | 非必填 |

* 请求示例：

http://localhost:4921/Scheduling/Experience/GetDispatchPlan?dtype=1&pressList=2,3,6&sDate=2021-04-02 13:00:00&eDate=2021-04-02 14:00:00

* 响应数据:

[

1,2,3

]

* 1. **调度经验库中获取调度详细数据**
* 请求路径：/Scheduling/Experience/GetData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| planId | 推荐结果中方案ID | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/Experience/GetData?planId=2

* 响应数据:
* 日常调度

（由12个元素的多维数组组成，日常调度时依次是压力监测点数据、流量监测点数据、水质监测点数据、全市当前流量和预测流量、调度依据和执行效果数据、调度方案和调度指令数据、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、方案平均偏差率）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}],[

[2022-01-17 09:05:00,5362.1],[2022-01-17 10:00:00,5632.6]

],[

[16,金泽园,0.4020,0.3020,0.4020,0.3920,2.49],[17,刘家房,0.2380,0.2380,0.2380,0.2380,0],[18,六站,0.2560,0.2560,0.2560,0.2560,0]

],[

[芥园水厂,0.32,10000,0.38,12000],[通用水厂,0.32,10000,0.32,12000],[津滨水厂,0.32,10000,0.32,12000],[新开河水厂,0.32,10000,0.32,12000]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 水厂停减产

（由12个元素的多维数组组成，水厂停减产时依次是压力监测点数据、流量监测点数据、水质监测点数据、处理效果前和后、水厂停减产信息、水厂调度方案和调度指令数据、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、无意义信息）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}],[

[405,162.1],[186,69.6]

],[

[10,0]

],[

[-,芥园水厂,-,-,-,-],

[11,凌庄水厂,0.298,13.29,0.358,17.277],

[12,新开河水厂,0.239,23.03,0.287,29.939],

[13,津滨水厂,0.271,14.53,0.325,18.889]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 爆管应急和水质污染应急

（由12个元素的多维数组组成，爆管应急和水质污染应急时压力监测点数据、流量监测点数据、水质监测点数据、关阀后影响、爆管点(事故点)信息，关阀明细信息、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、无意义信息）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}],[

[214],[52.6]

],[

[23578,泗水道DN400,106662.9,292442.2,DN400,球墨铸铁,市南五营销]

],[

[25874,艺林路泗水道口,292-105-3-78-M-15739,400],

[35824,泗水道DN400,292-105-3-86-M-15275,400],

[386521,艺林路泗水道口,292-105-3-78-M-14556,400]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 压力突降

（由12个元素的多维数组组成，压力突降时压力监测点数据、流量监测点数据、水质监测点数据、区域信息和找到事故点信息、事故点信息，区域管道明细信息、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、无意义信息）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}],[

[31,241.1],["25637,红旗路","25647,红旗路"]

],[

[16,金泽园,在线,0.4020,南开二营销]

],[

[1,真理道与红星路交口,600],

[2,真理道与红星路交口,600],

[3,真理道与红星路交口,600],

[4,幸福道与红星路交口东南侧,400],

[5,幸福道与红星路交口东南侧,400]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 泵站优化

（由12个元素的多维数组组成，泵站优化时压力监测点数据、流量监测点数据、水质监测点数据、无意义信息、水厂信息，调度方案信息、监测点数据时间、方案ID、方案生成时间、方案下发时间、方案执行时间、无意义信息）

[[{

"ElementID": null,

"WMeter\_ID": "1018",

"Meter\_Name": "二营销",

"Geo\_x": null,

"Geo\_y": null,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2600,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 511405,

"WMeter\_ID": "1019",

"Meter\_Name": "包头道",

"Geo\_x": 98464.106379,

"Geo\_y": 299679.027371,

"Explain": "管网压力监测站点",

"Tag\_value": 0.2560,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 510819,

"WMeter\_ID": "13100000029",

"Meter\_Name": "津河贵州路DN600",

"Geo\_x": 99157.523901,

"Geo\_y": 297222.534727,

"Explain": "流量计量监测站点",

"Tag\_value": 266.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}, {

"ElementID": 510786,

"WMeter\_ID": "13100000214",

"Meter\_Name": "复康路立交桥（新）DN400",

"Geo\_x": 94114.403451,

"Geo\_y": 296853.253015,

"Explain": "流量计量监测站点",

"Tag\_value": 10.0000,

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": "市南二营销"

}],[{

"ElementID": 161155,

"WMeter\_ID": "110",

"Meter\_Name": "天药集团",

"Geo\_x": 117.499344,

"Geo\_y": 38.739632,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.8559,

0.3034

]

},{

"ElementID": 183200,

"WMeter\_ID": "111",

"Meter\_Name": "北洋职专",

"Geo\_x": 117.404364,

"Geo\_y": 38.687041,

"Explain": [

"余氯(mg/L)",

"浊度(NTU)"

],

"Save\_date": "2022-01-17 09:05:00",

"Station\_Unit": null,

"Tag\_value": [

0.0061,

0.8321

]

}],[

[],[]

],[

[10, 芥园水厂]

],[

["1","芥园一1#泵","False","0.82","0.301","906","61.6"],

["2","芥园一2#泵","False","0.813","0.26","1742","69"],

["3","芥园一3#泵","True","0.91","0.304","3250","92.2"],

["4","芥园一4#泵","False","0.661","0.305","2778","91.8"],

["5","芥园一5#泵","True","0.757","0.299","1136","80"],

["6","芥园二6#泵","True","0.611","0.284","1336","60.4"],

["7","芥园二7#泵","True","0.605","0.294","2172","67.8"],

["8","芥园二8#泵","True","0.808","0.279","2372","83.2"],

["9","芥园二9#泵","True","0.802","0.289","3208","90.7"],

["11","芥园二10#泵","True","0.656","0.274","3408","71"],

["12","芥园二11#泵","True","0.65","0.283","1094","78.5"],

["13","芥园二12#泵","False","0.853","0.269","1295","93.8"],

["14","芥园二13#泵","True","0.847","0.278","2130","66.3"]

],

2022-01-17 09:05:00,2,2022-01-17 09:08:00,2022-01-17 09:10:00,2022-01-17 09:15:00,3.66

]

* 1. **短期水量预测区域下拉菜单**
* 请求路径：/Scheduling/ShortTime/GetAreaList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/ShortTime/GetAreaList

* 响应数据:

[

{"Name":"全市","Value":"0"}

]

* 1. **短期水量预测**
* 请求路径：/Scheduling/ShortTime/DemandPrediction
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域下拉菜单选中的value值 | 必填 |
| type | 1：小时；2：天；3：周； | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/ShortTime/DemandPrediction?areaId=0&type=2

* 响应数据: (实际数据，预测数据，误差率，预测未来数据，数据最大值，数据最小值，误差率最大值，误差率最小值)

[

[

[1630022400000, 1736140.00],

[1630108800000, 1707563.00],

[1630195200000, 1733450.00],

[1630281600000, 1748349.00],

[1630368000000, 1710321.00],

[1630454400000, 1766610.00],

],

[

[1630022400000, 1731917.153506],

[1630108800000, 1695151.436791],

[1630195200000, 1730615.334096],

[1630281600000, 1730909.233322],

[1630368000000, 1729148.873766],

[1630454400000, 1730610.287105],

],

[

[1630022400000, 0.24],

[1630108800000, 0.73],

[1630195200000, 0.16],

[1630281600000, 1],

[1630368000000, 1.1],

[1630454400000, 2.04],

],

[

[1630540800000, 1789830.00],

[1630627200000, 1795338.00],

], 1795338.00, 1416331.800, 9.2071142337821552, 0.069001871479683979

]

* 1. **长期水量预测区域下拉菜单**
* 请求路径：/Scheduling/LongTime/GetAreaList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Scheduling/LongTime/GetAreaList

* 响应数据:

[

{"Name":"全市","Value":"0"}

]

* 1. **长期水量预测年预测GDP人口保存**
* 请求路径：/Scheduling/LongTime/DemandPYear
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| people | 当年人口 | 必填 |
| gdp | 当年GDP | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/LongTime/DemandPYear?people=14007026.70&gdp=152505600.00

* 响应数据:

结果信息

* 1. **长期水量预测年预测按钮**
* 请求路径：/Scheduling/LongTime/DemandPredictionBut
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域下拉菜单选中的value值 | 必填 |
| pRate | 预估人口增长率 | 必填 |
| gRate | 预估GDP增长率 | 必填 |

* 请求示例：

http://localhost:4921/Scheduling/LongTime/DemandPredictionBut?areaId=4&pRate=0.51&gRate=3.81

* 响应数据: (实际数据，预测数据，误差率，预测未来数据，数据最大值，数据最小值，误差率最大值，误差率最小值,GDP人口（年）)

[

[

[1630022400000, 1736140.00],

[1630108800000, 1707563.00],

[1630195200000, 1733450.00],

[1630281600000, 1748349.00],

[1630368000000, 1710321.00],

[1630454400000, 1766610.00],

],

[

[1630022400000, 1731917.153506],

[1630108800000, 1695151.436791],

[1630195200000, 1730615.334096],

[1630281600000, 1730909.233322],

[1630368000000, 1729148.873766],

[1630454400000, 1730610.287105],

],

[

[1630022400000, 0.24],

[1630108800000, 0.73],

[1630195200000, 0.16],

[1630281600000, 1],

[1630368000000, 1.1],

[1630454400000, 2.04],

],

[

[1630540800000, 1789830.00],

[1630627200000, 1795338.00],

], 1795338.00, 1416331.800, 9.2071142337821552, 0.069001871479683979,

[152505600.00,14007026.70, 4,0.5]

]

* 1. **长期水量预测**
* 请求路径：/Scheduling/LongTime/DemandPrediction
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域下拉菜单选中的value值 | 必填 |
| type | 4：月；5：季；6：年； | 必填 |

* 请求示例：

http://localhost:4921/LongTime/DemandPrediction?areaId=4&type=6

* 响应数据: (实际数据，预测数据，误差率，预测未来数据，数据最大值，数据最小值，误差率最大值，误差率最小值,GDP人口（年）)

[

[

[1630022400000, 1736140.00],

[1630108800000, 1707563.00],

[1630195200000, 1733450.00],

[1630281600000, 1748349.00],

[1630368000000, 1710321.00],

[1630454400000, 1766610.00],

],

[

[1630022400000, 1731917.153506],

[1630108800000, 1695151.436791],

[1630195200000, 1730615.334096],

[1630281600000, 1730909.233322],

[1630368000000, 1729148.873766],

[1630454400000, 1730610.287105],

],

[

[1630022400000, 0.24],

[1630108800000, 0.73],

[1630195200000, 0.16],

[1630281600000, 1],

[1630368000000, 1.1],

[1630454400000, 2.04],

],

[

[1630540800000, 1789830.00],

[1630627200000, 1795338.00],

], 1795338.00, 1416331.800, 9.2071142337821552, 0.069001871479683979,

[152505600.00,14007026.70, 4,0.5]

]

* 1. **水量预测报告生成**
* 请求路径：/Scheduling/ShortTime/CreatePDF
* 请求方法：POST
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| type | 水量预测预测周期类型 | 必填 |
| base64Info | echart生成的图片base64字符串 | 必填 |

* 请求示例：

http://localhost:4921/LongTime/DemandPrediction

{

type=6,

base64Info=data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAABncAAALQCAYAAABCCiW2AAAAAXNSR0IArs4c6QAAIABJREFUeF7s3Quc3FV99/Hv78wmAREEuVlBBBWrUC8Fk3DxQiS7i1zUqghqvYK3PsYYL4+mIkkQDVokhLTWouCl1YaLba0YsrNBKCiQBKz6CKjVchO1QglyEZLsnN/zOpuZOBlmd2dn/nP/7OvFi83Oub7Pfwfy/845

}

* 响应数据: (pdf文件相对路径)

[

"~/file/pdf/s20200422135218.pdf"

]

1. **精细化管理**
   1. **泵站优化调度中泵站下拉菜单**

* 请求路径：/Elaborate/Optimize/GetPumpList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/Elaborate/Optimize/GetPumpList

* 响应数据:

[{

"Name": "芥园送水一泵站",

"Value": "2"

}, {

"Name": "芥园送水二泵站",

"Value": "3"

}, {

"Name": "凌庄送水泵站",

"Value": "4"

}, {

"Name": "新开河送水一泵站",

"Value": "5"

}, {

"Name": "新开河送水二泵站",

"Value": "6"

}, {

"Name": "津滨送水泵站",

"Value": "7"

}]

* 1. **泵站优化调度中获取泵基本信息数据**
* 请求路径：/Elaborate/Optimize/GetPumpInfo
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| psId | 泵站下拉菜单选中的value值 | 必填 |

* 请求示例：

http://localhost:4921/Elaborate/Optimize/GetPumpInfo?psId=2

* 响应数据: (泵运行数据，泵基本信息)

[{

"PumpId": 1,

"PumpName": "芥园一1#泵",

"ElementId": 1,

"StationId": 2,

"LocalID": 1,

"LogicID": 1,

"TankID": 1,

"PumpModel": "调速泵",

"IsActive": 1,

"S0": -0.0000005280,

"H0": 53.1999638582,

"a2": -0.0000150638,

"a1": 0.2007739078,

"a0": -21.9844119574,

"b2": -0.0000000346,

"b1": 0.0003460379,

"b0": -0.0000560467,

"PumpType": "KPS50-700",

"CreateTime": "2020-04-28 16:23:46",

"CreaterId": null,

"BasePress": null,

"BaseFlow": null,

"BasePower": null,

"RotateSpeed": null,

"Remark": null

}, {

"PumpId": 2,

"PumpName": "芥园一2#泵",

"ElementId": 2,

"StationId": 2,

"LocalID": 2,

"LogicID": 2,

"TankID": 1,

"PumpModel": "调速泵",

"IsActive": 1,

"S0": -0.0000005280,

"H0": 53.1999638582,

"a2": -0.0000150638,

"a1": 0.2007739078,

"a0": -21.9844119574,

"b2": -0.0000000346,

"b1": 0.0003460379,

"b0": -0.0000560467,

"PumpType": "KPS50-700",

"CreateTime": "2020-04-20 16:08:47",

"CreaterId": null,

"BasePress": null,

"BaseFlow": null,

"BasePower": null,

"RotateSpeed": null,

"Remark": null

}]

* 1. **泵站优化调度中获取泵运行数据**
* 请求路径：/Elaborate/Optimize/GetPumpParam
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| psId | 泵站下拉菜单选中的value值 | 必填 |

* 请求示例：

http://localhost:4921/Elaborate/Optimize/GetPumpParam?psId=2

* 响应数据: (泵运行数据，泵基本信息)

[{

"PumpId": 1,

"PumpName": "芥园一1#泵",

"DataTime": "2022-04-12 00:00:00",

"PumpLift": 3.00,

"Power": 1.00,

"Press": 1.000,

"Vacuum": 1.00,

"Value1": 1.0,

"Value2": 0.0,

"Frequency": 53.2,

"RotateSpeed": null,

"Flow": null,

"Efficiency": null,

"IsOpen": null,

"SpeedRatio": null

}, {

"PumpId": 2,

"PumpName": "芥园一2#泵",

"DataTime": "2022-04-12 00:00:00",

"PumpLift": 3.00,

"Power": 2.00,

"Press": 1.000,

"Vacuum": 1.00,

"Value1": 1.0,

"Value2": 0.0,

"Frequency": 53.2,

"RotateSpeed": null,

"Flow": null,

"Efficiency": null,

"IsOpen": null,

"SpeedRatio": null

}]

* 1. **泵站优化调度中改变泵可用状态**
* 请求路径：/Elaborate/Optimize/SetPumpActive
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| pumpId | 泵站基本信息列表中选中泵的id值 | 必填 |
| isActive | 是否可用 | 必填 |

* 请求示例：

http://localhost:4921/Elaborate/Optimize/SetPumpActive?pumpId=4&isActive=false

* 响应数据:

成功信息

* 1. **泵站优化调度中生成方案**
* 请求路径：/Elaborate/Optimize/CreateOptimizePlan
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| psId | 泵站下拉菜单选中的value值 | 必填 |

* 请求示例：

http://localhost:4921/Elaborate/Optimize/CreateOptimizePlan?psId=2

* 响应数据: (泵方案泵数据，方案信息)

[

[{

"PumpId": 1,

"PumpName": "芥园一1#泵",

"DataTime": null,

"PumpLift": null,

"Power": null,

"Press": 0.298,

"Vacuum": null,

"Value1": null,

"Value2": null,

"Frequency": 71.9,

"RotateSpeed": null,

"Flow": 3221.0,

"Efficiency": null,

"IsOpen": true,

"SpeedRatio": 0.91

}, {

"PumpId": 2,

"PumpName": "芥园一2#泵",

"DataTime": null,

"PumpLift": null,

"Power": null,

"Press": 0.302,

"Vacuum": null,

"Value1": null,

"Value2": null,

"Frequency": 67.7,

"RotateSpeed": null,

"Flow": 2775.0,

"Efficiency": null,

"IsOpen": true,

"SpeedRatio": 0.609

}], {

"ID": 4,

"CreateDate": "2022-04-12 18:14:30",

"IssueDate": null,

"ExecDate": null,

"DataDate": "2022-04-12 18:14:30",

"Shift": 1,

"Operator": "admin",

"DispatchType": 7,

"Deviation": null,

"Status": 1,

"AccordingTo": "1,芥园一1#泵,True,0.91,0.298,3221,71.9;2,芥园一2#泵,True,0.609,0.302,2775,67.7;3,芥园一3#泵,True,0.772,0.266,2424,84.5;5,芥园一5#泵,True,0.627,0.28,2443,79.2",

"DispatchOrder": null,

"Effect": null,

"LinkedMeters": null,

"PlanFile": null,

"IsPlanBase": 1,

"Remark": null

}

]

* 1. **泵站优化调度中下发调度指令**
* 请求路径：/Elaborate/Optimize/CreatePumpOrder
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| planId | 生成方案后返回的方案id | 必填 |

* 请求示例：

http://localhost:4921/Elaborate/Optimize/CreatePumpOrder? planId =2

* 响应数据:

成功信息

* 1. **阀门校核**
* 请求路径：Elaborate/ValueCheck/ValveCheckCal
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| valve\_ids | 阀门ElementId用逗号隔开的字符串 | 必填 |
| valve\_status | 阀门开关状态用逗号隔开的字符串；0：关闭；  1：开启 | 必填 |

* 请求示例：

<http://localhost:4921/Elaborate/ValueCheck/ValveCheckCal?valve_ids=230605,222215&valve_status=1,1>

* 响应数据: （如果返回字符串第一个内容是-1，则表示报错，第二个是报错的内容）

返回各阀门校核结果用逗号隔开的字符串；0：状态相符；1：阀门状态待核实

例如：["1,0"]

* 1. **运行评估—压力平均值**
* 请求路径：Elaborate/Evaluate/GetAvgPressure
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetAvgPressure](http://localhost:4921/Elaborate/ValueCheck/ValveCheckCal?valve_ids=230605,222215&valve_status=1,1)

* 响应数据:

{

"节点压力及服务水平列表": [

{

"Label": "159558",

"Pressure": 9.74,

"Service": 0.0

},

{

"Label": "160393",

"Pressure": 10.9,

"Service": 0.46

},

{

"Label": "160362",

"Pressure": 12.16,

"Service": 1.9

},

],

"压力最大、最小和平均值": "{\"MaxP\":32.59,\"MinP\":9.74,\"AvgP\":25.96}",

"压力分布的百分比": [

{

"head": 9.74,

"percentage": 0.0

},

{

"head": 15.45,

"percentage": 0.17

},

{

"head": 21.16,

"percentage": 1.37

},

{

"head": 26.87,

"percentage": 73.27

},

{

"head": 32.59,

"percentage": 25.18

}

],

"最高工作压力": "40",

"最低工作压力": "14",

"标定曲线": [

{

"x1": 0.0,

"y1": 0.0,

"x2": 10.5,

"y2": 0.0

},

{

"x1": 10.5,

"y1": 0.0,

"x2": 14.0,

"y2": 4.0

},

{

"x1": 14.0,

"y1": 4.0,

"x2": 40.0,

"y2": 3.0

},

{

"x1": 40.0,

"y1": 3.0,

"x2": 60.0,

"y2": 1.0

},

{

"x1": 60.0,

"y1": 1.0,

"x2": 80.0,

"y2": 0.0

},

{

"x1": 80.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

}

],

"最高工作压力、最低工作压力、标定曲线": [

{

"head": 9.74,

"percentage": 0.0

},

{

"head": 15.45,

"percentage": 0.17

},

{

"head": 21.16,

"percentage": 1.37

},

{

"head": 26.87,

"percentage": 73.27

},

{

"head": 32.59,

"percentage": 25.18

}

],

"TecpressureavgScore": "3.54",

"服务水平占比": "{\"one\":0.000000,\"two\":0.000000,\"three\":0.000000,\"four\":100.000000}"

}

* 1. **运行评估—压力合格率**
* 请求路径：Elaborate/Evaluate/GetRatePressure
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetRatePressure](%20http://localhost:4921/Elaborate/Evaluate/GetRatePressure)

* 响应数据:

{

"节点的低压、适宜、高压需水量列表": [

{

"Label": "1000",

"LowDemand": 0.0,

"MidDemand": 0.02,

"HighDemand": 0.0

},

{

"Label": "10000",

"LowDemand": 0.0,

"MidDemand": 0.02,

"HighDemand": 0.0

},

{

"Label": "100000",

"LowDemand": 0.0,

"MidDemand": 0.01,

"HighDemand": 0.0

},

{

"Label": "100015",

"LowDemand": 0.0,

"MidDemand": 0.04,

"HighDemand": 0.0

},

{

"Label": "100016",

"LowDemand": 0.0,

"MidDemand": 0.21,

"HighDemand": 0.0

}

],

"节点的低压、适宜、高压需水量总量":

"{\"TotalDemand\":21778.81,\"LowDemand\":2061.24,\"MidDemand\":19717.57,\"HighDemand\":0.0}",

"低压的标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 10.0,

"y1": 3.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 15.0,

"y1": 2.0,

"x2": 10.0,

"y2": 3.0

},

{

"x1": 20.0,

"y1": 1.0,

"x2": 15.0,

"y2": 2.0

},

{

"x1": 25.0,

"y1": 0.0,

"x2": 20.0,

"y2": 1.0

}

],

"适宜的标定曲线": [

{

"x1": 50.0,

"y1": 0.0,

"x2": 60.0,

"y2": 1.0

},

{

"x1": 60.0,

"y1": 1.0,

"x2": 70.0,

"y2": 2.0

},

{

"x1": 70.0,

"y1": 2.0,

"x2": 80.0,

"y2": 3.0

},

{

"x1": 80.0,

"y1": 3.0,

"x2": 100.0,

"y2": 4.0

},

{

"x1": 100.0,

"y1": 4.0,

"x2": 100.0,

"y2": 4.0

}

],

"高压的标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 10.0,

"y1": 3.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 15.0,

"y1": 2.0,

"x2": 10.0,

"y2": 3.0

},

{

"x1": 20.0,

"y1": 1.0,

"x2": 15.0,

"y2": 2.0

},

{

"x1": 25.0,

"y1": 0.0,

"x2": 20.0,

"y2": 1.0

}

],

"低压服务水平": "3.05",

"适宜服务水平": "3.53",

"高压服务水平": "4",

"最高工作压力": "40",

"最低工作压力": "14",

"FTechPressureLowQuan": "0.2",

"FTechPressureMidQuan": "0.6",

"FTechPressureHighQuan": "0.2",

"TecpressureQualifiedRateScore": "3.53"

}

* 1. **运行评估—压力均衡性**
* 请求路径：Elaborate/Evaluate/GetDiffPressure
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetDiffPressure](%20http://localhost:4921/Elaborate/Evaluate/GetDiffPressure)

* 响应数据:

{

"TecpressureFromdiffScore": "3.4",

"压力均衡性标准平方差": "12.1",

"最低工作压力Ha": "14",

"允许的最大均衡性": "20",

"均衡性的标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 10.0,

"y1": 3.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 15.0,

"y1": 2.0,

"x2": 10.0,

"y2": 3.0

},

{

"x1": 20.0,

"y1": 1.0,

"x2": 15.0,

"y2": 2.0

},

{

"x1": 25.0,

"y1": 0.0,

"x2": 20.0,

"y2": 1.0

}

]

}

* 1. **运行评估—经济流速**
* 请求路径：Elaborate/Evaluate/GetPipeVelocity
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetPipeVelocity](%20http://localhost:4921/Elaborate/Evaluate/GetDiffPressure)

* 响应数据:

{

"流速的最大、最小、平均值": "{\"MaxP\":5.98,\"MinP\":0.0,\"AvgP\":0.09}",

"流速的标准差": "0.14",

"经济流速分布的百分比": "[{\"speed\":0.0,\"percentage\":0.0},{\"speed\":1.5,\"percentage\":75.25},{\"speed\":3.0,\"percentage\":0.01},{\"speed\":4.5,\"percentage\":0.0},{\"speed\":5.98,\"percentage\":0.0}]",

"各管线的信息列表": [

{

"Label": null,

"Length": 9.18422508239746,

"Diameter": 800.0,

"Velocity": 0.17,

"EconomicSpeed": 0.95,

"LowVolume": 0.0,

"MidVolume": 0.0,

"HighVolume": 0.0

},

{

"Label": null,

"Length": 4.74095487594604,

"Diameter": 400.0,

"Velocity": 0.17,

"EconomicSpeed": 0.77,

"LowVolume": 0.0,

"MidVolume": 0.0,

"HighVolume": 0.0

},

{

"Label": null,

"Length": 0.596516191959381,

"Diameter": 400.0,

"Velocity": 0.17,

"EconomicSpeed": 0.77,

"LowVolume": 0.0,

"MidVolume": 0.0,

"HighVolume": 0.0

}

],

"各管线的低负荷、经济、高负荷管线容积的和": "{\"TotalVolume\":947313.22,\"LowVolume\":935354.89,\"MidVolume\":8996.51,\"HighVolume\":2961.81}",

"低负荷标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 15.0,

"y1": 3.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 30.0,

"y1": 2.0,

"x2": 15.0,

"y2": 3.0

},

{

"x1": 45.0,

"y1": 1.0,

"x2": 30.0,

"y2": 2.0

},

{

"x1": 60.0,

"y1": 0.0,

"x2": 45.0,

"y2": 1.0

}

],

"经济标定曲线": [

{

"x1": 20.0,

"y1": 0.0,

"x2": 40.0,

"y2": 1.0

},

{

"x1": 40.0,

"y1": 1.0,

"x2": 60.0,

"y2": 2.0

},

{

"x1": 60.0,

"y1": 2.0,

"x2": 80.0,

"y2": 3.0

},

{

"x1": 80.0,

"y1": 3.0,

"x2": 100.0,

"y2": 4.0

},

{

"x1": 100.0,

"y1": 4.0,

"x2": 100.0,

"y2": 4.0

}

],

"高负荷标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 5.0,

"y1": 3.0,

"x2": 0.0,

"y2": 4.0

},

{

"x1": 10.0,

"y1": 2.0,

"x2": 5.0,

"y2": 3.0

},

{

"x1": 15.0,

"y1": 1.0,

"x2": 10.0,

"y2": 2.0

},

{

"x1": 20.0,

"y1": 0.0,

"x2": 15.0,

"y2": 1.0

}

],

"低负荷服务水平": "0",

"经济服务水平": "0",

"高负荷服务水平": "3.94",

"FTechNicalPipeVelocityLowQuan": "0.3",

"FTechNicalPipeVelocityMidQuan": "0.4",

"FTechNicalPipeVelocityHighQuan": "0.3",

"TechNicalPipeVelocityScore": "1.18"

}

* 1. **运行评估—水力性能综合评估**
* 请求路径：Elaborate/Evaluate/GetTechJSum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetTechJSum](%20http://localhost:4921/Elaborate/Evaluate/GetDiffPressure)

* 响应数据:

{

"压力平均值服务水平": "3.54",

"压力合格率服务水平": "3.53",

"压力均衡性服务水平": "3.4",

"管段经济流速服务水平": "1.18",

"TecpressureavgQuanZhong": "0.2",

"TecpressureQualifiedRateQuanZhong": "0.3",

"TecpressureFromdiffQuanZhong": "0.25",

"TechNicalPipeVelocityQZ": "0.25",

"TecpressureScore": "2.91"

}

* 1. **运行评估—保存权重和服务水平**
* 请求路径：Elaborate/Evaluate/SaveServiceAndQZ
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| names | 用逗号隔开的权重或服务水平的名称字符串 |  |
| Values | 用逗号隔开的权重或服务水平的数值字符串 |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/SaveServiceAndQZ?names=TecpressureavgQuanZhong,TecpressureQualifiedRateQuanZhong&values=0.25,0.25

* 响应数据:

{"state":"success","message":"保存成功！","data":null}

* 1. **运行评估—水龄合格率**
* 请求路径：Elaborate/Evaluate/GetAgeRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/GetAgeRate

* 响应数据:

{

"可允许的节点水龄": "15",

"允许的最大节点水龄": "30",

"各节点编号、水龄、服务水平信息列表": [

{

"Label": "184660",

"Age": 108.43,

"Service": 1.0

},

{

"Label": "211325",

"Age": 61.01,

"Service": 1.0

},

{

"Label": "58332",

"Age": 57.02,

"Service": 1.0

},

{

"Label": "daliuliang-S\_13100000437",

"Age": 40.25,

"Service": 1.0

}

],

"节点水龄的最大、最小、平均及标准差": "{\"Max\":120.0,\"Min\":0.0,\"Avg\":32.61,\"Stdev\":19.58}",

"节点水龄的标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 15.0,

"y2": 3.0

},

{

"x1": 15.0,

"y1": 3.0,

"x2": 30.0,

"y2": 1.0

},

{

"x1": 30.0,

"y1": 1.0,

"x2": 60.0,

"y2": 1.0

},

{

"x1": 60.0,

"y1": 1.0,

"x2": 10000.0,

"y2": 1.0

}

],

"水龄分布的百分比": [

{

"head": 0.0,

"percentage": 0.0

},

{

"head": 30.0,

"percentage": 52.73

},

{

"head": 60.0,

"percentage": 39.74

},

{

"head": 90.0,

"percentage": 5.7

},

{

"head": 120.0,

"percentage": 1.83

}

],

"水龄服务水平分布的百分比": [

{

"head": 1.0,

"percentage": 47.35

},

{

"head": 1.75,

"percentage": 14.08

},

{

"head": 2.5,

"percentage": 13.77

},

{

"head": 3.25,

"percentage": 15.88

},

{

"head": 4.0,

"percentage": 8.91

}

],

"TechNicalPipeWaterTimeScore": "1.68"

}

* 1. **运行评估—水质合格率**
* 请求路径：Elaborate/Evaluate/GetInWaterQualityRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/GetInWaterQualityRate

* 响应数据:

{

"标定曲线": [

{

"x1": 90.0,

"y1": 0.0,

"x2": 93.0,

"y2": 1.0

},

{

"x1": 93.0,

"y1": 1.0,

"x2": 95.0,

"y2": 2.0

},

{

"x1": 95.0,

"y1": 2.0,

"x2": 97.0,

"y2": 3.0

},

{

"x1": 97.0,

"y1": 3.0,

"x2": 100.0,

"y2": 4.0

},

{

"x1": 100.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"TechNicalWaterQualityRate": "98.5",

"TechNicalWaterQualityRateScore": "3.5"

}

* 1. **运行评估—水质性能综合评估**
* 请求路径：Elaborate/Evaluate/GetTechQualitySum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetTechQualitySum](%20http://localhost:4921/Elaborate/Evaluate/GetTechQualitySum)

* 响应数据:

{

"水质合格率服务水平": "3.5",

"水龄合格率服务水平": "1.68",

"TechNicalWaterQualityRateQZ": "0.5",

"TechNicalPipeWaterTimeQZ": "0.5",

"TechNicalWaterQualitySumScore": "2.59"

}

* 1. **运行评估—管网漏损率**
* 请求路径：Elaborate/Evaluate/GetInLeakageRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/GetInLeakageRate

* 响应数据:

{

"管网漏损率标定曲线": [

{

"x1": 10.0,

"y1": 4.0,

"x2": 12.0,

"y2": 3.0

},

{

"x1": 12.0,

"y1": 3.0,

"x2": 14.0,

"y2": 2.0

},

{

"x1": 14.0,

"y1": 2.0,

"x2": 17.0,

"y2": 1.0

},

{

"x1": 17.0,

"y1": 1.0,

"x2": 20.0,

"y2": 0.0

},

{

"x1": 20.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

}

],

"TechNicalSupplyEfficiencyLeakage": "11",

"TechNicalSupplyEfficiencyLeakageScore": "3.5"

}

* 1. **运行评估—用水普及率**
* 请求路径：Elaborate/Evaluate/GetInCoverageRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/GetInCoverageRate

* 响应数据:

{

"用水普及率标定曲线": [

{

"x1": 90.0,

"y1": 0.0,

"x2": 92.0,

"y2": 1.0

},

{

"x1": 92.0,

"y1": 1.0,

"x2": 95.0,

"y2": 2.0

},

{

"x1": 95.0,

"y1": 2.0,

"x2": 98.0,

"y2": 3.0

},

{

"x1": 98.0,

"y1": 3.0,

"x2": 100.0,

"y2": 4.0

},

{

"x1": 100.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"TechNicalSupplyEfficiencyCoverage": "99",

"TechNicalSupplyEfficiencyCoverageScore": "3.5"

}

* 1. **运行评估—供水效率综合评价**
* 请求路径：Elaborate/Evaluate/GetTechSupplySum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

http://localhost:4921/Elaborate/Evaluate/GetTechSupplySum

* 响应数据:

{

"管网漏损率服务水平": "3.5",

"用水普及率服务水平": "3.5",

"TechNicalSupplyEfficiencyLeakageQZ": "0.5",

"TechNicalSupplyEfficiencyCoverageQZ": "0.5",

"TechNicalSupplyEfficiencySumScore": "3.5"

}

* 1. **运行评估—技术性综合评价**
* 请求路径：Elaborate/Evaluate/GetTechSum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetTechSum>

* 响应数据:

{

"水力性能服务水平": "1.82",

"水质性能服务水平": "2.59",

"供水效率服务水平": "3.5",

"TecpressureQuanZhong": "0.4",

"TechNicalWaterQualitySumQZ": "0.3",

"TechNicalSupplyEfficiencySumQZ": "0.3",

"TechScore": "2.55"

}

* 1. **运行评估—基建费用指标**
* 请求路径：Elaborate/Evaluate/GetFixedInvestment
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetFixedInvestment>

* 响应数据:

{

"各管段的Label、成本信息列表": [

{

"Label": "Pipe-101886",

"Length": 9.18,

"Diameter": 800.0,

"Cost": 2.1639

},

{

"Label": "Pipe-107607",

"Length": 9.72,

"Diameter": 200.0,

"Cost": 0.3824

},

{

"Label": "Pipe-73725",

"Length": 36.87,

"Diameter": 400.0,

"Cost": 3.3406

},

{

"Label": "Pipe-87527",

"Length": 9.09,

"Diameter": 200.0,

"Cost": 0.0082

}

],

"各类管材的管材名称、成本信息列表": [

{

"Pipe\_Material": "",

"Cost": 30.19

},

{

"Pipe\_Material": "PCCP",

"Cost": 0.0

},

{

"Pipe\_Material": "PE",

"Cost": 3323.63

},

{

"Pipe\_Material": "PVC",

"Cost": 122.04

},

{

"Pipe\_Material": "镀锌钢管",

"Cost": 0.0

},

{

"Pipe\_Material": "钢",

"Cost": 72544.43

},

{

"Pipe\_Material": "球墨铸铁",

"Cost": 324538.77

},

{

"Pipe\_Material": "热熔管",

"Cost": 0.0

},

{

"Pipe\_Material": "塑料",

"Cost": 344.53

},

{

"Pipe\_Material": "铸铁",

"Cost": 1086.93

}

],

"标定曲线": [

{

"x1": 1.0,

"y1": 4.0,

"x2": 1.2,

"y2": 3.0

},

{

"x1": 1.2,

"y1": 3.0,

"x2": 1.5,

"y2": 2.0

},

{

"x1": 1.5,

"y1": 2.0,

"x2": 2.0,

"y2": 1.0

},

{

"x1": 2.0,

"y1": 1.0,

"x2": 3.0,

"y2": 0.0

},

{

"x1": 3.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

}

],

"EconomicFixedInvestmentFactory": "99000",

"EconomicFixedInvestmentPump": "99000",

"管网投资": "401990.52",

"EconomicFixedInvestmentOther": "98000",

"总投资": "697990.52",

"C优": "600000",

"C总/C优": "1.16",

"EconomicFixedInvestmentScore": "3.2"

}

* 1. **运行评估—运行费用指标**
* 请求路径：Elaborate/Evaluate/GetRunCost
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetRunCost>

* 响应数据:

{

"运行费用标定曲线": [

{

"x1": 1.0,

"y1": 4.0,

"x2": 1.5,

"y2": 3.0

},

{

"x1": 1.5,

"y1": 3.0,

"x2": 1.75,

"y2": 2.0

},

{

"x1": 1.75,

"y1": 2.0,

"x2": 2.0,

"y2": 1.0

},

{

"x1": 2.0,

"y1": 1.0,

"x2": 3.0,

"y2": 0.0

},

{

"x1": 3.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

}

],

"EconomicEnergyConsumptionEwater": "200",

"EconomicEnergyConsumptionEpower": "22000",

"供水电耗E(kWh/km3)": "110",

"EconomicEnergyConsumptionEYou": "90",

"C总/C优": "1.22",

"EconomicEnergyConsumptionScore": "3.56"

}

* 1. **运行评估—经济性综合评价**
* 请求路径：Elaborate/Evaluate/GetEconomicSum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetEconomicSum>

* 响应数据:

{

"基建费用服务水平": "3.2",

"运行费用服务水平": "3.56",

"EconomicFixedInvestmentQuanZhong": "0.4",

"EconomicEnergyConsumptionQuanZhong": "0.6",

"EconomicScore": "3.42"

}

* 1. **运行评估—枯水年水量保证率**
* 请求路径：Elaborate/Evaluate/GetInLowWaterRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetInLowWaterRate>

* 响应数据:

{

"枯水年水量保证率标定曲线": [

{

"x1": 80.0,

"y1": 0.0,

"x2": 85.0,

"y2": 1.0

},

{

"x1": 85.0,

"y1": 1.0,

"x2": 90.0,

"y2": 2.0

},

{

"x1": 90.0,

"y1": 2.0,

"x2": 95.0,

"y2": 3.0

},

{

"x1": 95.0,

"y1": 3.0,

"x2": 97.0,

"y2": 4.0

},

{

"x1": 97.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"SafeSupplyLowWaterRate": "96",

"SafeSupplyLowWaterRateScore": "3.5"

}

* 1. **运行评估—水源水质类别指标**
* 请求路径：Elaborate/Evaluate/GetInSourceQuality
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetInSourceQuality>

* 响应数据:

{"SafeSupplySourceQualityScore":"3"}

* 1. **运行评估—水源备用比例指标**
* 请求路径：Elaborate/Evaluate/GetInSourceStandby
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetInSourceStandby](http://localhost:4921/Elaborate/Evaluate/GetInSourceStandbye)

* 响应数据:

{"SafeSupplySourceStandbyScore":"4"}

* 1. **运行评估—调蓄水量比率指标**
* 请求路径：Elaborate/Evaluate/GetInAdjustRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetInAdjustRate>

* 响应数据:

{

"调蓄水量比率标定曲线": [

{

"x1": 9.99,

"y1": 0.0,

"x2": 10.0,

"y2": 1.0

},

{

"x1": 10.0,

"y1": 1.0,

"x2": 15.0,

"y2": 2.0

},

{

"x1": 15.0,

"y1": 2.0,

"x2": 20.0,

"y2": 3.0

},

{

"x1": 20.0,

"y1": 3.0,

"x2": 25.0,

"y2": 4.0

},

{

"x1": 25.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"SafeSupplyAdjustRate": "23",

"SafeSupplyAdjustRateScore": "3.6"

}

* 1. **运行评估—供给安全综合评价**
* 请求路径：Elaborate/Evaluate/GetSupplySum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetSupplySum>

* 响应数据:

{

"枯水年水量保证率服务水平": "3.5",

"水源水质类别服务水平": "3",

"水源备用比例服务水平": "4",

"调蓄水量比率服务水平": "3.6",

"SafeSupplyLowWaterRateQZ": "0.25",

"SafeSupplySourceQualityQZ": "0.25",

"SafeSupplySourceStandbyQZ": "0.25",

"SafeSupplyAdjustRateQZ": "0.25",

"SafeSupplySumScore": "3.52"

}

* 1. **运行评估—管网爆管概率指标**
* 请求路径：Elaborate/Evaluate/GetBreakProbability
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetBreakProbability>

* 响应数据:

{

"管网爆管概率信息列表": [

{

"PIPE\_Lable": "Pipe-158092",

"PIPE\_MATERIALS": "塑料",

"PIPE\_AGE": 2022.0,

"underpress": 17.36,

"MaterialScore": 2.0,

"ageScore": 0.0,

"pressScore": 4.0

},

{

"PIPE\_Lable": "Pipe-20348",

"PIPE\_MATERIALS": "球墨铸铁",

"PIPE\_AGE": 2022.0,

"underpress": 13.08,

"MaterialScore": 4.0,

"ageScore": 0.0,

"pressScore": 4.0

},

{

"PIPE\_Lable": "Pipe-161304",

"PIPE\_MATERIALS": "球墨铸铁",

"PIPE\_AGE": 2022.0,

"underpress": 13.72,

"MaterialScore": 4.0,

"ageScore": 0.0,

"pressScore": 4.0

},

{

"PIPE\_Lable": "Pipe-213245",

"PIPE\_MATERIALS": "PE",

"PIPE\_AGE": 2022.0,

"underpress": 16.96,

"MaterialScore": 2.0,

"ageScore": 0.0,

"pressScore": 4.0

}

],

"管材、管龄、压力/承压的平均服务水平": "{\"avgmaterial\":3.49,\"avgage\":0.0,\"avgpress\":4.0}",

"管龄标定曲线": [

{

"x1": 0.0,

"y1": 4.0,

"x2": 10.0,

"y2": 4.0

},

{

"x1": 10.0,

"y1": 4.0,

"x2": 15.0,

"y2": 3.0

},

{

"x1": 15.0,

"y1": 3.0,

"x2": 30.0,

"y2": 2.0

},

{

"x1": 30.0,

"y1": 2.0,

"x2": 50.0,

"y2": 1.0

},

{

"x1": 50.0,

"y1": 1.0,

"x2": 100.0,

"y2": 0.0

},

{

"x1": 100.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

},

{

"x1": 100.0,

"y1": 0.0,

"x2": 100.0,

"y2": 0.0

}

],

"压力/承压标定曲线": [

{

"x1": -1000.0,

"y1": 4.0,

"x2": 80.0,

"y2": 4.0

},

{

"x1": 60.0,

"y1": 4.0,

"x2": 80.0,

"y2": 3.0

},

{

"x1": 80.0,

"y1": 3.0,

"x2": 120.0,

"y2": 2.0

},

{

"x1": 120.0,

"y1": 2.0,

"x2": 150.0,

"y2": 1.0

},

{

"x1": 150.0,

"y1": 1.0,

"x2": 300.0,

"y2": 0.0

},

{

"x1": 300.0,

"y1": 0.0,

"x2": 10000.0,

"y2": 0.0

},

{

"x1": 300.0,

"y1": 0.0,

"x2": 300.0,

"y2": 0.0

}

],

"SafeSecurityBreakFactorMaterialQZ": "0.3",

"SafeSecurityBreakFactorPipeAgeQZ": "0.3",

"SafeSecurityBreakFactorPressQZ": "0.4",

"SafeSecurityBreakProbabilityScore": "2.65"

}

* 1. **运行评估—事故时节点流量保证率**
* 请求路径：Elaborate/Evaluate/GetAccidentFlowRate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetAccidentFlowRate>

* 响应数据:

{

"事故时节点流量保证率信息列表": [

{

"Label": 247,

"highDemand": 0.0511,

"accDemand": 0.0,

"ratio": 0.86,

"flag": 1

},

{

"Label": 248,

"highDemand": 0.0148,

"accDemand": 0.0,

"ratio": 0.97,

"flag": 1

},

{

"Label": 345,

"highDemand": 0.0242,

"accDemand": 0.0,

"ratio": 0.98,

"flag": 1

},

{

"Label": 346,

"highDemand": 0.0298,

"accDemand": 0.0,

"ratio": 0.98,

"flag": 1

}

],

"事故时节点流量保证率标定曲线": [

{

"x1": 0.2,

"y1": 0.0,

"x2": 0.4,

"y2": 1.0

},

{

"x1": 0.4,

"y1": 1.0,

"x2": 0.6,

"y2": 2.0

},

{

"x1": 0.6,

"y1": 2.0,

"x2": 0.8,

"y2": 3.0

},

{

"x1": 0.8,

"y1": 3.0,

"x2": 1.0,

"y2": 4.0

},

{

"x1": 1.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"事故时节点流量总数": "{\"total\":160171,\"totalFlag\":160131}",

"SafeSecurityAccidentFlowRate": "1",

"SafeSecurityAccidentFlowRateScore": "4"

}

* 1. **运行评估—输配水管线备用**
* 请求路径：Elaborate/Evaluate/GetInPipeStandby
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetInPipeStandby>

* 响应数据:

{

"输配水管线备用标定曲线": [

{

"x1": 50.0,

"y1": 0.0,

"x2": 60.0,

"y2": 1.0

},

{

"x1": 60.0,

"y1": 1.0,

"x2": 70.0,

"y2": 2.0

},

{

"x1": 70.0,

"y1": 2.0,

"x2": 80.0,

"y2": 3.0

},

{

"x1": 80.0,

"y1": 3.0,

"x2": 90.0,

"y2": 4.0

},

{

"x1": 90.0,

"y1": 4.0,

"x2": 10000.0,

"y2": 4.0

}

],

"SafeSecurityPipeStandby": "83",

"SafeSecurityPipeStandbyScore": "3.3"

}

* 1. **运行评估—保障综合评价**
* 请求路径：Elaborate/Evaluate/GetSafeSecuritySum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetSafeSecuritySum>

* 响应数据:

{

"管网爆管概率服务水平": "2.65",

"事故时节点流量保证率服务水平": "0",

"输配水管线备用服务水平": "3.3",

"SafeSecurityBreakProbabilityQZ": "0.4",

"SafeSecurityAccidentFlowRateQZ": "0.3",

"SafeSecurityPipeStandbyQZ": "0.3",

"SafeSecuritySumScore": "2.05"

}

* 1. **运行评估—应急调度预案专家打分**
* 请求路径：Elaborate/Evaluate/GetExpert
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetExpert>

* 响应数据:

{

"专家打分信息列表": [

{

"Id": "4ccedd3f-48ff-4aef-a53c-23b239309940",

"Name": "刘松",

"Score": 3.2

},

{

"Id": "02c205cd-c61b-400d-bd52-6feb78be1f8f",

"Name": "张三",

"Score": 3.2

}

],

"专家打分信息汇总": "{\"Min\":3.2,\"Max\":3.2,\"Score\":3.2}"

}

* 1. **运行评估—应急调度预案专家打分--添加**
* 请求路径：Elaborate/Evaluate/GetExpertAdd
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| name | 专家姓名 |  |
| Score | 分数 |  |

* 请求示例：

<http://localhost:4921/Elaborate/Evaluate/GetExpertAdd?name=张三&score=3.2>

* 响应数据:

{"state":"success","message":"添加成功！","data":null}

* 1. **运行评估—应急调度预案专家打分--修改**
* 请求路径：Elaborate/Evaluate/GetExpertUpdate
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| id | 要修改的记录ID |  |
| score | 要修改的分数 |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetExpertUpdate?id=4ccedd3f-48ff-4aef-a53c-23b239309940&score=2.6](http://localhost:4921/Elaborate/Evaluate/GetExpertUpdate?id=3c0d7966-3507-4bdd-b5c6-794d9c51d4cb&score=2.6)

* 响应数据:

{"state":"success","message":"修改成功！","data":null}

* 1. **运行评估—应急调度预案专家打分--删除**
* 请求路径：Elaborate/Evaluate/GetExpertDel
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| id | 要删除的记录ID |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetExpertDel?id=4ccedd3f-48ff-4aef-a53c-23b239309940](http://localhost:4921/Elaborate/Evaluate/GetRunCost)

* 响应数据:

{"state":"success","message":"删除成功！","data":null}

* 1. **运行评估—安全性综合评价**
* 请求路径：Elaborate/Evaluate/GetSafetySum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetSafetySum](http://localhost:4921/Elaborate/Evaluate/GetRunCost)

* 响应数据:

{

"供给安全服务水平": "3.52",

"管网保障服务水平": "2.05",

"综合管理服务水平": "2.9",

"SafeSupplySumQZ": "0.5",

"SafeSecuritySumQZ": "0.4",

"SafeAdminEmergencyPlanQZ": "0.1",

"SafetyScore": "2.87"

}

* 1. **运行评估—系统综合评价**
* 请求路径：Elaborate/Evaluate/GetAllSum
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/GetAllSum](http://localhost:4921/Elaborate/Evaluate/GetRunCost)

* 响应数据:

{

"水力性能": "1.06",

"水质性能": "0.42",

"供水效率": "1.1",

"基建费用": "1.85",

"运行费用": "1.77",

"供给安全": "1.76",

"管网保障": "0.82",

"综合管理": "0.29",

"技术性服务水平": "2.58",

"经济性服务水平": "3.62",

"安全性服务水平": "2.87",

"TechScoreQuanZhong": "0.3",

"EconomicScoreQuanZhong": "0.15",

"SafetyScoreQuanZhong": "0.25",

"AllScore": "2.03"

}

* 1. **运行评估—系统综合评价描述**
* 请求路径：Elaborate/Evaluate/ GetSumDescription
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| 无参数 |  |  |

* 请求示例：

[http://localhost:4921/Elaborate/Evaluate/](http://localhost:4921/Elaborate/Evaluate/GetRunCost) GetSumDescription

* 响应数据:

[

{

"ID":1,

"ItemName":"综合评估",

"ItemLable":"AllScore",

"Value":2.2000,

"Description":"良",

"Action":"良好",

"Type":1

},

{

"ID":2,

"ItemName":"压力平均值",

"ItemLable":"TecpressureavgScore",

"Value":3.5400,

"Description":"优",

"Action":"优秀",

"Type":2

},

{

"ID":22,

"ItemName":"爆管概率--压力/承压",

"ItemLable":"SafeSecurityBreakFactorPressScore",

"Value":4.0000,

"Description":"优",

"Action":"优秀",

"Type":2

}

]

1. **系统维护**
   1. **数据清洗中当天数据统计**

* 请求路径：/SystemManage/DataClean/GetCleanStatistics
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/ SystemManage/DataClean/GetCleanStatistics

* 响应数据: (6元素数组：原始数据，清洗数据，横坐标，当天原始数据总数，当天清洗数据总数，饼图数据)

[

[23417,22046],

[401,382],

["08:45:00","08:50:00"],

45463, 783,

[{

"TypeName": "原水",

"Totality": 3207,

"Clean": 72

}, {

"TypeName": "水厂",

"Totality": 9516,

"Clean": 34

}, {

"TypeName": "管网",

"Totality": 10694,

"Clean": 295

}]

]

* 1. **数据清洗中条件查询下拉菜单**
* 参考接口1.2 typeId=4
  1. **数据清洗中条件查询统计周期下拉菜单**
* 请求路径：/SystemManage/DataClean/GetCycleList
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetCycleList

* 响应数据:

[{

"Name": "按日统计",

"Value": "1"

}, {

"Name": "按月统计",

"Value": "2"

}, {

"Name": "按年统计",

"Value": "3"

}]

* 1. **数据清洗中条件查询数据统计**
* 请求路径：/SystemManage/DataClean/GetCleanStatistics
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| type | 查询下拉菜单选中的value值 | 必填 |
| cycle | 统计周期 | 必填 |
| sDate | 开始时间 | 非必填 |
| eDate | 结束时间 | 非必填 |

* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetCleanStatistics?type=3&cycle=1&sDate=2021-04-02 13:00:00&eDate=2021-04-02 14:00:00

* 响应数据:

[

[98.29, 98.29, 98.29],

["08:45:00", "09:00:00", "09:15:00"],

[{

"TypeName": "压力",

"Totality": 9621,

"Clean": 216

}, {

"TypeName": "流量",

"Totality": 28548,

"Clean": 102

}, {

"TypeName": "余氯",

"Totality": 32082,

"Clean": 885

}], 70251, 69048, 1203

]

* 1. **数据清洗中区域分类下拉菜单**
* 请求路径：/SystemManage/SysDic/GetTreeSelectJson
* 请求方法：GET
* 请求参数：无
* 请求示例：

http://localhost:4921/SystemManage/SysDic/GetTreeSelectJson

* 响应数据:

[{

"id": "54",

"text": "原水",

"parentId": "0",

"data": {

"ID": 54,

"ItemID": 0,

"ItemName": "原水",

"TypeID": 5,

"TypeName": "分类"

}

}, {

"id": "49",

"text": "　　引江",

"parentId": "54",

"data": {

"ID": 49,

"ItemID": 54,

"ItemName": "引江",

"TypeID": 5,

"TypeName": "原水分类"

}

}, {

"id": "50",

"text": "　　引滦",

"parentId": "54",

"data": {

"ID": 50,

"ItemID": 54,

"ItemName": "引滦",

"TypeID": 5,

"TypeName": "原水分类"

}

}]

* 1. **数据清洗中数据类型下拉列表**
* 请求路径：/SystemManage/DataClean/GetDataTypeList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的id值 | 必填 |

* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetDataTypeList?areaId=56

* 响应数据:

[{

"Name": "流量",

"Value": "1"

}, {

"Name": "压力",

"Value": "2"

}, {

"Name": "余氯",

"Value": "3"

}, {

"Name": "浊度",

"Value": "4"

}]

* 1. **数据清洗中监测点下拉列表**
* 请求路径：/SystemManage/DataClean/GetPointList
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| areaId | 区域分类下拉菜单选中的value值 | 必填 |
| type | 数据类型下拉菜单选中的value值 | 必填 |

* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetPointList?areaId=56&type=2

* 响应数据:

[{

"Name": "二营销",

"Value": "1018"

}, {

"Name": "包头道",

"Value": "1019"

}]

* 1. **数据清洗中数据对照**
* 请求路径：/SystemManage/DataClean/GetCleanData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| pagination | 前端jqgrid数据表控件固有参数 | 包含页码，每页数，排序列等信息 |
| sks | 表号合集字符串 | 必填 |
| sDate | 开始时间 | 非必填 |
| eDate | 结束时间 | 非必填 |

* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetCleanData?xxx=xx(pagination项)&sks=306,1019&sDate=2021-03-30 13:00:00&eDate=2021-04-02 14:00:00

* 响应数据:

[{

"ID": 2548,

"Tag\_value": 0,

"Save\_date": "2021-03-30 13:00:00"

"Station\_key": "306",

"Meter\_Name": "监测点",

"Tag\_key": 2

"CleanedValue": 0.310

"ModifiedValue": null

}, {

"ID": 2549,

"Tag\_value": 0,

"Save\_date": "2021-03-30 14:00:00"

"Station\_key": "306",

"Meter\_Name": "监测点",

"Tag\_key": 2

"CleanedValue": 0.310

"ModifiedValue": null

}, {

"ID": 2550,

"Tag\_value": 0,

"Save\_date": "2021-03-30 15:00:00"

"Station\_key": "306",

"Meter\_Name": "监测点",

"Tag\_key": 2

"CleanedValue": 0.310

"ModifiedValue": null

}]

* 1. **数据清洗中数据对照查看监测点数据**
* 请求路径：/SystemManage/DataClean/GetCleanData
* 请求方法：GET
* 请求参数：

|  |  |  |
| --- | --- | --- |
| 参数名备注 | 参数说明 | 备注 |
| sk | 表号 | 必填 |
| saveDate | 数据时间 | 必填 |

* 请求示例：

http://localhost:4921/SystemManage/DataClean/GetPointData?sk=020&saveDate=2022-04-14 15:49:15

* 响应数据:

[[0.0200,0.0200,0.0200,0.0200,0.0200,0.0200,0.0200,0.0200,0.0200],

[0.0200,0.0200,0.0200,0.0200,0.0200,0.0200,0.0200,0.2000,0.0200],

["2022-04-14 13:49","2022-04-14 14:04","2022-04-14 14:19","2022-04-14 14:49","2022-04-14 15:04","2022-04-14 15:19","2022-04-14 15:34","2022-04-14 15:49","2022-04-14 16:04"]]